

| | |
|----------------------------------|--|
| Project Title | EOLO Wind Power Project |
| ERM CVS Project Reference | 2117.V1 |
| Client Name | Eolonica S.A. |
| Client Address | Alke carretera a Masaya, 2 c. abajo Complejo Compostela, Mod. 105 Managua Nicaragua |

CDM Validation Report

ERM Certification and Verification Services

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| Version Control | Date |
|------------------------|--|
| Version 1.0 | 18 November 2011 (draft report) |
| Version 2.0 | 17 January 2012 (draft report – revised) |
| Version 3.0 | 13 June 2012 (final report) |

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Abbreviations

| | |
|-------------------|---|
| BM | Build Margin |
| CAR | Corrective Action Request |
| CDM | Clean Development Mechanism |
| CEF | Carbon Emission Factor |
| CER | Certified Emission Reduction |
| CH ₄ | Methane |
| CL | Clarification request |
| CMP | Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol |
| CO ₂ | Carbon dioxide |
| CO ₂ e | Carbon dioxide equivalent |
| COP | Conference of the Parties |
| DNA | Designated National Authority |
| FAR | Forward Action Request |
| DOE | Designated Operational Entity |
| EB | Executive Board |
| EIA | Environmental Impact Assessment |
| FSR | Feasibility Study Report |
| GHG | Greenhouse Gas |
| GSP | Global Stakeholder Process |
| GWP | Global Warming Potential |
| GWh | Giga Watt hour |
| IPCC | Intergovernmental Panel on Climate Change |
| IRR | Internal Rate of Return |
| LoA | Letter of approval |
| MOP | Meeting of the Parties |
| MP | Monitoring Plan |
| MW/MWh | Mega Watt/Mega Watt hour |
| NCV | Net Calorific Value |
| NGO | Non-Governmental Organisation |
| ODA | Official Development Assistance |
| OM | Operating Margin |
| PDD | Project Design Document |
| PPA | Power Purchase Agreement |
| SCE | Standard coal equivalent |
| UNFCCC | United Nations Framework Convention on Climate Change |
| VAT | Value-added tax |
| VVM | CDM Validation and Verification Manual |

Project/Party specific abbreviations

| | |
|---------|---|
| CNDC | Centro Nacional de Despacho de Carga] - National Dispatch Center |
| ENATREL | Empresa Nacional de Transmisión Eléctrica] - National Transmission Company |
| INE | Instituto Nicaragüense de Electricidad] - Nicaraguan Institute of Electricity |
| MARENA | Ministerio del Ambiente y los Recursos Naturales] - Ministry of the Environment and Natural Resources |
| NIS | National Interconnected System |

1 Project Information

1.1 Key project information

| | |
|-----------------------------|--|
| Project Title | EOLO Wind Power Project |
| Project Location(s) | The project is located in the province of Rivas, approximately 123 km south of Managua |
| Host Party | Nicaragua |
| Other Party(ies) | No applicable. |
| Project participants | Eolonica, S.A. – Sucursal Nicaragua Eolo de Nicaragua, S.A |

| | |
|--|---|
| Methodology(ies) used | ACM0002 (version 12.3.0) - "Consolidated baseline methodology for grid-connected electricity generation from renewable sources" |
| Methodological tool(s) used | Tool for the Demonstration and Assessment of Additionality (version 06.0.0); and Tool to calculate the emission factor for an electricity system (version 02.2.1) |
| Sectoral Scope(s) (as per http://cdm.unfccc.int/DOE/scopes.html) | 1 Energy Industries – (renewable -/ non- renewable sources) |

| | | | |
|--|-----------------------|--|-------------------|
| Project Design Document GSP Version | Date: 18 October 2011 | Project Design Document Final Version | Date: 05 May 2012 |
| | Version Number: 01 | | Version Number: 2 |

| | |
|---|---|
| Starting date of the project activity | 31 December 2011 |
| Crediting Period start and end date | 01 January 2013 to 31 December 2019 (Renewable) |
| Estimated annual average emission reductions | 110,054 tCO ₂ e |

| | |
|---|-------------------------|
| Date(s) of validation site visit | 02 and 03 November 2011 |
|---|-------------------------|

1.2 Key technical information


| | |
|---|--------------------------------------|
| Capacity of the project (if applicable) | 44 MW |
| Plant load factor | 42.11% |
| Lifetime of the project | 20 years |
| Quantity of energy (electrical/thermal/mechanical) delivered to the end user per year (if applicable) | 162,322 MWh/y |
| Grid to which the project is connected to (if applicable) | National Interconnected System "NIS" |

1.3 Key financial information

| | |
|---|--------|
| IRR of the project without income of CERs | 15.16% |
| IRR benchmark | 18.04% |

2 Summary and Validation Opinion

| | |
|---|--|
| Project Title | EOLO Wind Power Project |
| Name of Client | Eolonica S.A. |
| Basis of validation | <p>ERM CVS based its validation work on:</p> <ul style="list-style-type: none"> • CDM approved monitoring methodology ACM0002 (version 12.3.0) - "Consolidated baseline methodology for grid-connected electricity generation from renewable sources" • CDM Validation and Verification Manual (version 1.2) • ERM CVS's internal CDM validation methodologies and protocols • CDM decisions and guidance issued by the CDM Executive Board • UNFCCC criteria for the Clean Development Mechanism • Host Country criteria for the Clean Development Mechanism |
| Responsibilities of ERM CVS | ERM CVS is responsible to provide a thorough independent third party assessment of the proposed CDM project activity to ensure that the proposed CDM project activity meets all the identified and applicable criteria for registration of projects under the CDM. |
| Responsibilities of Project participants | The Project Participants are responsible for preparing the PDD, supporting documentation and providing all necessary evidences to support the information included in the PDD. |
| Activities performed | <p>ERM CVS conducted its activities in accordance with the CDM Validation and Verification Manual. The validation consisted of a review of project documentation, a site visit, interviews with relevant personnel, cross checking information through other reliable sources and reporting. Validation work was based on a validation protocol that sets out relevant CDM requirements. Where necessary, Clarification Requests and Corrective Action Requests were raised and closed out with the Project participants. The validation work was subject to detailed Technical Review and assessment prior to submission.</p> <p>No component of the project activity was excluded from the validation.</p> |
| ERM CVS Conclusion | <p>ERM Certification and Verification Services (ERM CVS) has performed the validation of the project activity against the criteria for the Clean Development Mechanism as set out by the Conference of the Parties and the UNFCCC CDM Executive Board, and host country criteria. The validation employed standard auditing techniques, and addressed the requirements of the CDM Validation and Verification Manual.</p> <p>The Parties involved in the project fulfil the criteria for participation in the CDM, and have issued a letter of approval (LoA) for the project and authorised the Project participants. The LoA of the host Party confirms the contribution of the project towards sustainable development. The validation has provided sufficient evidence to demonstrate that the project activity is not the baseline scenario, and that emission reductions would be additional to what would have taken place in the absence of the CDM project activity. The project meets the applicability criteria and correctly applies methodology ACM0002 (version 12.3.0) - "Consolidated baseline methodology for grid-connected electricity generation from renewable sources", and is therefore expected to result in real, measurable and long term reductions in greenhouse gas emissions. The monitoring plan provides for the collection and archiving of data sufficient to ensure that emission reductions can be verified. The DNA of the host Party has confirmed that the project assists in meeting sustainable development criteria.</p> <p>Nothing came to our attention to suggest that the project activity, if implemented as described, would not result in emission reductions of annual 110,054 tCO₂e per year on average over the first 7 year crediting period.</p> <p>In summary, it is the opinion of ERM CVS that the Project as described in the PDD Version 2 of 05 May 2012, meets all stated criteria of the CDM, correctly applies the methodology, and is expected to result in real, measurable and long term emission reductions.</p> |

| | |
|--|--|
| | ERM CVS therefore requests the CDM Executive Board approves registration of the project activity. To be added in final validation report |
| Signed on behalf of ERM CVS |  A handwritten signature in black ink, appearing to read "Mel Eddis". |
| Name: | Melanie Eddis |
| Date: | 13 June 2012 |

3 Introduction

3.1 Validation Objectives

The purpose of validation is to ensure a thorough, independent assessment of proposed CDM project activities submitted for registration as a proposed CDM project activity against the applicable CDM requirements.

The DOE is responsible for reporting the results of its assessment in a validation report and submitting this validation report, along with the supporting documents to the CDM Executive Board as part of the request for registration of a project activity as a proposed CDM project activity.

The DOE also presents its opinion on the compliance of the proposed CDM project activity with the applicable CDM requirements, and only requests registration if this is a positive opinion.

In the course of validation, ERM CVS assesses the project's baseline, additionality demonstration, applicability to an approved CDM methodology, monitoring plan (MP), and compliance with relevant UNFCCC and host country criteria.

3.1.1.1 Validation Criteria

ERM CVS applies the following principles in performing its validation:

- Consistency
- Transparency
- Impartiality, independence and safeguarding against conflicts of interest
- Confidentiality

In all aspects of its work, ERM CVS ensures that the information and data reported are accurate, conservative, relevant, credible, reliable and complete.

3.2 Scope

The validation scope addresses the project activity as described in the Project design document (PDD) and associated documentation. The PDD and associated documentation are reviewed against the criteria and requirements stated in the CDM Validation and Verification Manual (VVM) and Article 12 of the Kyoto Protocol, the CDM modalities and procedures as agreed in the Marrakech Accords, as well as relevant decisions made by the CDM Executive Board.

The validation scope also included an assessment of completeness and accuracy of documentation, evaluation of evidences, information and assumptions made in the PDD and supporting documentation.

3.3 Contract Review

Prior to contracting with the client, a full review of the project and the validation requirements was made. This addressed both commercial risk and project risks associated with conducting the validation activities and confirmed the availability of an appropriately qualified team to conduct the validation.

3.4 Validation Personnel

Based on ERM CVS's review of the project, a validation team was established that takes into account the coverage of the technical area(s), sectoral scope(s) and relevant host country experience.

Personnel who were involved in the validation of this project activity were:

Validation Team

| Name | Role | CDM Requirements | Technical area | Financial Expertise | Participated in site visit? |
|------------------|------------------|------------------|----------------|---------------------|-----------------------------|
| Daniel Galvan | Lead Validator | √ | √ | | Yes |
| Beatriz Valencia | Validator | √ | | | Yes |
| Simon Cochrane | Financial Expert | | | √ | No |

DOE Head Office

| Name | Role | CDM Requirements | Knowledge relevant to the technical area |
|------------|--------------------|------------------|--|
| Ina Ballik | Technical Reviewer | √ | √ |

3.5 Summary of CVs of the validation personnel

Daniel Galvan is a lead assessor with over 6 years' experience in CDM validation and verification as well as experience as a CDM consultant and UNFCCC external assessor. Before joining the CDM industry, Daniel worked for 4 years as factory inspector for product testing and certification. Since becoming a CDM auditor he has participate in more than 20 CDM validation and verification projects in Energy Industries, Waste Handling and Disposal, Fugitive Emissions from Production and Consumption of Halocarbons and Sulphur Hexafluoride and Agriculture. He has completed the ERM CVS CDM training and has also completed lead auditor training in ISO 9001. Daniel also holds a BEng in Mechanical and Administration.

Beatriz Valencia has 1 year of experience in CDM validation and verification projects. Beatriz has participated in a WCD validation and three CDM landfill gas projects verifications. She has thirteen years as environmental consultant. During this time, Beatriz also has conducted environmental impact assessments and environmental complains audits related to landfills and wind power projects, among others. She has completed the ERM CVS CDM training and has also completed the ERM CVS advanced ERM Lead Auditor training in ISO 14000.

Simon Cochrane has 1 years CDM experience as a Financial Expert. He has worked as FE on 40 validations, including Wind, Hydro, Waste Water and LFG projects. Simon has 11 years' experience working as a financial advisor in environmental consulting. Simon is AAT qualified, and part qualified in CIMA (relevant units include Investment Appraisal).

Ina Ballik is a Civil Engineer/Environmental Engineer with over 9 years experience in environmental engineering, specifically in the waste sector. Before joining ERM CVS she gained 5 years' experience in the carbon markets, having previously worked in a large carbon trading organisation. Her work included overall GHG project management, including due diligence on carbon projects (CDM/JI), CDM Project Design Document (PDD) development, quality assurance and technical review of CDM project documentation, the development of GHG monitoring plans and project related risk assessments, and management of CDM projects through the validation, registration, verification and issuance stages on numerous complex projects. She has worked as a technical expert in Latin and South America, Africa and South East Asia on landfill gas, anaerobic digestion, and composting projects. Her CDM validation and verification experience entails development and quality control of carbon projects in numerous sectors including landfill gas, coal mine methane, biomass-to-energy, anaerobic digestion, composting, waste gas and heat, geothermal energy, hydroelectricity, and fuel switch.

4 Validation Approach

The validation was carried out in accordance with the most recent version of the VVM. The validation process employed standard auditing techniques and undertook necessary cross-checks and follow-up actions to ascertain the correctness of the information. The validation team included staff with experience in the relevant technical areas within the sectoral scope, and included local host country expertise, sectoral knowledge, and financial expertise. The validation report and associated documents have undergone a thorough technical review by ERM CVS before being submitted to the CDM Executive Board for registration. The validation consisted of the following key stages:

- Upload of the PDD for Global Stakeholder Process (GSP), receipt of any comments from stakeholders
- Review of documentation including PDD, methodology and key supporting documents and references
- A visit to the project site, including interviews with personnel responsible for developing the project
- Development of a draft validation report, identifying non-compliances including Corrective Action Requests (CARs) and Clarification Requests (CLs), taking into account findings of the GSP, desk review and site visit / interviews
- Resolution of outstanding issues (CARs and CLs) and development of a final validation report and validation opinion
- Independent technical review and report approval

4.1 Global Stakeholder Process

At the start of the validation, in accordance with the latest version of the “Procedures for processing and reporting on validation CDM project activities”, the unvalidated PDD supplied by the client was uploaded on the UNFCCC website to be available for global stakeholder review. The GSP period was from 22 October 2011 to 20 November 2011.

No comments received.

4.2 Document Review

A detailed document review of the PDD, methodology and all other associated documentation and references took place in advance of the site visit, and additional documents that were not available for the desk review were requested for review during the site visit. The document review includes:

- A review of data and information to verify the correctness, credibility and interpretation of presented information;
- Cross checks between information provided in the PDD and information from other sources, not limited to those provided by the PPs

Where the review of the PDD at the document review stage raised issues, these were further reviewed and validated through supporting documentation and cross-checking from other sources and interviewing relevant personnel involved in the project activity during the site visit. During the document review the project team also compared the proposed project activity with available information relating to projects or technologies similar to the proposed CDM project activity under validation. Where appropriate, the validation team assessed the appropriateness of formulae and the correctness of calculations presented by the PPs. A list of all documents reviewed or referred to in the course of this validation is included in Appendix A.

4.3 Site visit and Interviews

A site visit took place on 2 and 3 November 2011 and was attended by Daniel Galvan and Beatriz Valencia. The site visit included a tour of the physical project site, including the San Carlos and El Limón sites to confirm that the wind farm has not yet been installed. The site visit also included a visit to the main office of the project owner “Eolonica, S.A. – Sucursal Nicaragua”.

Site visits and interviews provide additional and background to the project as well as cross checks with project documentation. Interviews were undertaken with relevant stakeholders in the host country, as well as personnel with knowledge of the project design and implementation. A list of interviewees, and the main topics discussed with each person can be found in appendix A.

The site visit was designed to enable the validation team to:

- undertake a detailed review of additional project documentation and verify the supporting documentation;
- inspect the project site and confirm the validity of the project description in the PDD;
- assess the validity of the project boundary;
- cross-check the validity of the project information with other sources of information; and
- interview relevant stakeholders involved in the project activity as required.

4.4 Preparation of Draft Validation Report

Based on the findings of the desk review and site visit, ERM CVS prepared a draft validation report including a list of CARs and CLs, and provided this to the PPs. Where issues are identified that need to be further elaborated, researched or added to in order to confirm that the project activity meets the CDM requirements and can achieve credible emission reductions, ERM CVS identified these issues in the DVR so that they could be discussed with the PPs and concluded upon in the final validation report (FVR).

4.4.1 Remediation requests

Where issues were identified, ERM CVS raised one of the following remediation requests:

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

Corrective Action Request (CAR): where:

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

Forward Action Requests (FAR): where it was necessary to highlight issues related to project implementation that requires review during the first verification of the project activity. FARs shall not relate to the CDM requirements for registration.

CARs and CLs must be 'closed out' before the validation can be concluded. Close out is only possible where the PPs modify the project design, rectify the PDD or provide adequate additional explanation or evidence that satisfies ERM CVS's concerns. The validation process may be halted until the CARs and CLs are addressed to the validation team's satisfaction.

4.5 Final Validation Report and Validation Opinion

The final validation report (FVR) is completed when the CARs and CLs have been closed out to the satisfaction of ERM CVS. The FVR includes the validation opinion that sets out the validation conclusion regarding the compliance of the project with CDM requirements.

4.6 Internal Quality Control

The process of validation and decision of the validation team has been subject to an independent Technical Review. The scope of the Technical Review process is to independently assess that all procedures have been followed, necessary requirements have been met, and all conclusions are justified. The final validation decision is based on the findings and conclusions of the validation team, assessing the compliance of the project activity with the CDM requirements, and the technical evaluation of the independent technical reviewer. The final report is then reviewed and approved by the qualified signatory / final decision maker within ERM CVS.

5 Validation findings – Approval, Participation and Project Description

5.1 Main changes between the PDD version published for GSP and the final version submitted for registration:

- Changes related to the CARs and CLs, as identified in Appendix B
- Eolo de Nicaragua S.A. has been added as project participant
- The applied methodology has been updated from version 12.1.0 to 12.3.0
- Tool for the demonstration and assessment of additionality has been updated from version 05.2.1 to Version 06.0.0 and additional evidence about input values of the investment analysis has been added.

5.2 Stakeholder consultation

As per VVM section D, the GSP-PDD was made publicly available for a period of 30 days from 22 October 2011 to 20 November 2011 on the UNFCCC website for the Global stakeholder process.

<http://cdm.unfccc.int/Projects/Validation/DB/R3GGYI52NS9XEYEMX44M5KTHZ9D99/view.html>

No comments were received.

5.3 Approval

As per VVM section E.1, ERM CVS assessed whether the DNA of each Party indicated as being involved in the project activity has provided an appropriate letter of approval (LoA).

| | ERM CVS has confirmed that the LoA has been issued and provides confirmation of: | | | |
|------------------------|--|-------------------------|---|---------------------|
| Party | Ratified Kyoto Protocol? | Voluntary Participation | Contribution to Sustainable Development | Exact project title |
| Nicaragua (Host Party) | Yes | Yes | Yes | Yes |

ERM CVS received the LoA from the PP and its authenticity is not doubted, the authenticity has been confirmed by email from the DNA received on 26 March 2012/17/.

| | Question | Validation findings (including justification and substantiation of information, data and evidence) | Draft OK/CAR/ CL | Final OK/ NOT OK |
|-------|---|--|--|------------------------|
| 5.3.1 | Are LoAs in place for every PP that confirm <ul style="list-style-type: none"> Ratification of the Kyoto Protocol Voluntary Participation Reference to the precise project title in the PDD Contribution to sustainable development (host party only) | <p>CAR 1 had been raised because the Modalities of Communication and Host Party LoA have not been provided during site visit.</p> <p>The Letter of Approval (LoA) of Nicaragua was issued by the Ministry of Environmental and natural Resources of Nicaragua (MARENA) on 06 March 2012 reference number DM-JAS/0335.03.12. The LoA was reviewed and confirms that Nicaragua ratified the Kyoto protocol on 18 November 1999, confirms voluntary participation in the proposed project, references the precise project title and project participants as written in the PDD, and confirms the contribution of the project to the sustainable development of Nicaragua.</p> <p>Therefore CAR 1 is closed. Please refer to Appendix B.</p> | CAR-1 had been raised because the Modalities of Communication and Host Party | OK |

| | Question | Validation findings (including justification and substantiation of information, data and evidence) | Draft OK/CAR/ CL | Final OK/ NOT OK |
|-------|---|---|--|------------------------|
| | | | LoA have not been provided during site visit. | |
| 5.3.2 | Is the information in the LoAs consistent with the other project documentation, including PP names, etc | <p>Pending CAR 1</p> <p>The information provided in the LoA is consistent with the other project documentation including PP and Project name.</p> <p>Therefore CAR 1 is closed. Please refer to Appendix B.</p> | CAR 1 had been raised because the Modalities of Communication and Host Party LoA have not been provided during site visit. | OK |

ERM CVS also reviewed whether the LoAs contain any additional specifications:

| | Question | Validation findings (including justification and substantiation of information, data and evidence) | Draft OK/CAR/ CL | Final OK/ NOT OK |
|-------|---|---|--|------------------------|
| 5.3.3 | Does any LoA contain additional specification or conditions of the project activity? If so, are these conditions fully complied with? | <p>Pending CAR 1</p> <p>ERM CVS can confirm that the LoA does not contain any additional specification or conditions relevant to the validation requirements and/or project activity.</p> <p>CAR 1 is closed. Please refer to Appendix B.</p> | CAR 1 had been raised because the Modalities of Communication and Host Party LoA have not been provided during site visit. | OK |
| 5.3.4 | <p>If the LoA references a specific version of the Validation Report and this version cannot be submitted, then has either of the following been submitted?</p> <ul style="list-style-type: none"> a statement indicating final LoA has not been | <p>Pending CAR 1</p> <p>The LOA does not reference a specific version of the validation report.</p> <p>CAR 1 is closed. Please refer to Appendix B.</p> | CAR 1 had been raised because the Modalities of Communication | OK |

| | Question | Validation findings (including justification and substantiation of information, data and evidence) | Draft OK/CAR/ CL | Final OK/ NOT OK |
|-------|--|---|--|------------------------|
| | received or ▪ an updated Validation Report | | and Host Party LoA have not been provided during site visit. | |
| 5.3.5 | If the project is a bundled activity (more than 1 project in the same PDD) does the LoA from the host party acknowledge the bundle activity? | Not applicable, the project is not a bundled activity. | N/A | N/A |

Conclusion

ERM CVS confirmed that LoAs have been received from all parties involved in the project.

ERM CVS's validation of the approval status of the project activity confirmed that:

- Each Party is a Party to the Kyoto Protocol
- Participation is voluntary
- In the case of the Host Party, the project activity contributes to the sustainable development of the country
- The title of the project activity is identical in the LoAs and the PDD.

ERM CVS therefore confirms that the LoAs are in accordance with paragraphs 45-48 of the VVM.

5.4 Participation

As per VVM section E.2, ERM CVS evaluated whether all PPs are listed in a consistent manner in section A.3 of the PDD and have been appropriately authorised by a Party to the Kyoto Protocol. ERM CVS also checked the consistency of information between the PDD, Letters of Approval (LoAs) and the Modalities of Communication (MoC).

| PPs (list all) | Is the PP listed in Section A.3 of PDD? | Are contact details given in Annex 1 of PDD? | Does the LoA name the authorised PP? | Is information in the MoC correct? |
|-------------------------------------|---|--|--------------------------------------|------------------------------------|
| Eolonica. S.A. – Sucursal Nicaragua | Yes | Yes | Yes | Yes |
| Eolo de Nicaragua, S.A. | Yes | Yes | Yes | Yes |

| | Question | Validation findings (including justification and substantiation of information, data and evidence) | Draft OK/CAR/ CL | Final OK/ NOT OK |
|-------|---|---|------------------------|------------------------|
| 5.4.1 | Is the correct information provided on PPs, and consistently applied in A.3 and | Pending CAR-1 Resolution of CAR 1: The information provided on PPs in the final PDD is correct | CAR-1 | OK |

| | Question | Validation findings (including justification and substantiation of information, data and evidence) | Draft OK/CAR/ CL | Final OK/ NOT OK |
|--|--|--|------------------------|------------------------|
| | Annex 1 of the PDD and other project documentation (Letters of Approval and Modalities of Communication)? | and consistently applied in A.3 and Annex 1 of the PDD and other project documents such as Letter of Approval and Modalities of Communication. CAR 1 is closed (see Appendix B). | | |
| | Can it be confirmed that there are no entities other than those approved as PPs included in section A.3 or Annex 1 of the PDD. | ERM CVS confirms that there are no entities other than those listed as PPs in section A.3, Annex 1 of the PDD and LoA. However the letter of approval is pending, see CAR 1. CAR 1 is closed as explain in Appendix B. | CAR1 | OK |

Conclusion

All PPs to the project activity have been approved by a party to the Kyoto Protocol, and ERM CVS has reviewed the letters of approval to confirm this. The PPs and are listed in a consistent manner in the PDD and all related project documentation, including the LoAs and Modalities of Communication. No entities other than those approved as PPs are included in section A.3 or Annex 1 of the PDD.

5.5 Project Design Document (PDD)

As per VVM section E.3, ERM CVS reviewed the PDD to determine whether it has been prepared in accordance with the latest template and guidance from the CDM Executive Board available on the UNFCCC website.

| | Question | Validation findings (including justification and substantiation of information, data and evidence) | Draft OK/CAR/ CL | Final OK/ NOT OK |
|-------|--|--|------------------------|------------------------|
| 5.5.1 | Is the PDD prepared in accordance with the latest forms and guidance by the CDM EB? http://cdm.unfccc.int/Reference/PDDs_Forms/PDDs/index.html | ERM CVS can confirm that the PDD has been checked against the latest 'Guidelines for developing the Project Design Document' (version 7) and the latest template for the Project Design Document (version 3) available on the CDM website. The PDD is in compliance with the guidelines except for the CAR/CLs raised in other sections of this report. | OK | OK |

Conclusion

ERM CVS has confirmed that the PDD has been prepared in accordance with the latest relevant forms and guidance.

5.6 Project Description

As per VVM section E.4, ERM CVS reviewed the description of the project in the PDD in order to evaluate whether it provides a clear and accurate description of the proposed CDM project activity. Validation of the project description was based on review of documentation, a physical site inspection and interviews.

5.6.1 Description of the project activity

The EOLO Wind Power Project is a large-scale wind farm project falling under the sectoral scope 1 'Energy industries (renewable/non-renewable sources)'. The project is located approximately 123 km south of Managua, along the Pan-American Highway. The proposed project is a new wind farm (Greenfield) with a total capacity of 44 MW, consisting of the installation and commissioning of 22 Gamesa G90 wind turbines of 2.0 MW each. The proposed project also involves the construction of a wind measuring station control house, substation and transmission lines /01//03//22//46//47/. The generated electricity from the project will be supplied to the National Interconnected System (NIS). The project is estimated to be operational 3,689 hours per year /02/, representing an average load factor of 42.11%. The annual average electricity generation is estimated to be 162.32

GWh per year, which results into average annual emissions reductions of 110,054 tCO₂e (770,380 tCO₂e total emission reduction over the 7 years of the first crediting period) /04//01/. The findings of the validation of the project description in the PDD are set out below.

5.6.2 Project Location and Status

| | Question | Validation findings (including justification and substantiation of information, data and evidence) | Draft OK/ CAR/CL | Final OK/ Not OK |
|-------|--|--|------------------------|------------------------|
| 5.6.1 | <p>(i) Description: project design</p> <p>Does the project description in the PDD section A.4 provide a clear, accurate and sufficiently detailed description of all relevant elements of the proposed project activity?</p> <p>Specifically, does the project description provide clear indication of:</p> <ul style="list-style-type: none"> a) List of main technologies involved b) List of main equipment and installations c) The lifetime of the project equipment d) Monitoring equipment and its location e) Capacities and efficiencies f) Emissions sources and GHGs involved in the project activity g) Existing and forecast energy and mass flows and balances h) Interaction with processes/equipment outside the project boundary, if any, is stated. i) Description of technology transfer from Annex I countries (if applicable) | <p>The PDD contains a clear and complete description of the project activity, and the nature and technical implementation of the project activity. The description includes:</p> <ul style="list-style-type: none"> a) List of main technologies involved: the key components of the project technology are described, and have been confirmed against the Energy Assessment /02/, Environmental Assessment, Transmission line and substation approval /03/. b) The main installation and equipment described in the PDD include 22 wind turbines with a capacity of 2.0 MW each, with total installed capacity 44 MW, transmission line, substation, wind measuring station control house. This has been confirmed against the Energy assessment report /02/, the EPC Proposal from Gamesa /22//46/, and project presentation /47/. c) The lifetime of the wind turbines is stated as 20 years in the PDD and has been validated against the specifications provided by the equipment manufacturer /46/. d) Monitoring equipment and its location was not clearly described in section A.4.3 in the GSP-PDD, see CL 1. CL 1 was closed as indicated in Appendix B, e) Number, rated power of wind turbines and annual electricity output are given in the PDD. The total installed capacity of the project is 44 MW. The installed capacity stated in the PDD has been validated against the Energy Assessment report /02/. f) Emissions sources and GHGs involved in the project activity: were not listed in accordance with the Guidelines for Completing a PDD in the GSP-PDD, see CL1. CL 1 was closed as indicated in Appendix B. g) The potential exported and imported electricity is not included as requested by the Guidelines for Completing the PDD, see CL 1. h) Interaction with processes/equipment outside the project boundary is not applicable, since the electricity grid is also included as part of the project boundary. i) Technology transfer from Annex I countries, the wind turbines are manufactured by Gamesa, a company based in Spain. This has been validated against the Energy Assessment Report /02 and Gamesa's proposal /46//22/. <p>CL 1 : The project description in the GSP-PDD did not include information on following two aspects as per the requirements of the Guidelines for Completing the PDD:</p> <ul style="list-style-type: none"> • Emissions sources and gases involved in the project boundary, and • Monitoring equipment and its location in the system, • Potential exported and imported electricity. | CL-1 | OK |
| 5.6.2 | <p>Description: Project location</p> <p>Is the location of the project correctly stated in the PDD?</p> <p>Are geographical coordinates given (in decimal format)?</p> <p>How has the location been validated?</p> | <p>Yes, the location is correctly stated in the PDD and the correct geographical coordinates are given. This information was confirmed during the site visit and by review of the energy assessment report /02/.</p> | OK | OK |
| 5.6.3 | <p>Description: Existing installations</p> <ul style="list-style-type: none"> a) If the proposed CDM project activity involves the alteration of an existing facility, | <p>Not applicable.</p> | N/A | OK |

| | Question | Validation findings (including justification and substantiation of information, data and evidence) | Draft OK/ CAR/CL | Final OK/ Not OK |
|-------|---|---|------------------------|------------------------|
| | <p>installation or process, does the project description clearly state the differences resulting from the project activity compared to the pre-project situation?</p> <p>b) How has the description of the existing facility, installation or process been validated?</p> <p>c) Is the description of the existing facility, installation or process consistent with information provided in other parts of the PDD such as common practice and baseline selection?</p> | | | |
| 5.6.4 | <p>Description: Operational lifetime</p> <p>a) Does the PDD state the operation start date of the project? How was this validated? If the project is being implemented in phases, is this clearly described in the PDD?</p> <p>b) What is the expected operational lifetime of the project activity? Is this lifetime considered reasonable for a project of this type in the host country?</p> | <p>a) According to the PDD, the project is not implemented in phases. The operation start date of the project is not explained in the GSP-PDD. See CL 2.</p> <p>b) Based on the lifetime of the project equipment, the operational lifetime of the project activity is indicated to be 20 years in the PDD. This has been cross checked against the specifications provided by the equipment manufacturer /46/ as consistent, and is considered reasonable for a wind farm project activity.</p> <p>CL 2: The operational start date and implementation timeline of the project was not described in the GSP-PDD. Please revise PDD accordingly.</p> <p>CL 2 was closed as indicated in Appendix B.</p> | CL-2 | OK |
| 5.6.5 | Is information on the plant load factor provided in the PDD? How has this been validated (please refer to the Guidelines for the reporting and validation of plant load factors, EB41_Annex 12). | The load factor is stated as 42.11% /02/ and it is described in the PDD. The PLF has been selected based on a probability of P75. A P75 value represents the annual generation that is expected to be attained with a probability of 75%. It has been calculated in the energy assessment report /02/ that was carried out by an independent third party, the Garrad Hassan Company, therefore the PLF was determined in line with the 'Guidelines for the reporting and validation of plant load factors' (Version 01, EB 48 Annex 11) | OK | OK |

Conclusion

The process undertaken to validate the accuracy and completeness of the project description is set out in detail above. ERM CVS has confirmed that the project description in the PDD provides a clear, accurate and complete understanding of the nature of the proposed CDM project activity.

5.6.3 Description of baseline scenario

The project description was evaluated to confirm whether or not it provides a clear and accurate summary of the project and baseline scenario.

| | Question | Validation findings (including justification and substantiation of information, data and evidence) | Draft OK/ CAR/CL | Final OK/ Not OK |
|--|----------|---|------------------------|------------------------|
|--|----------|---|------------------------|------------------------|

| | Question | Validation findings (including justification and substantiation of information, data and evidence) | Draft OK/ CAR/CL | Final OK/ Not OK |
|-------|--|--|------------------------|------------------------|
| 5.6.6 | <p>Is there a clear description of the baseline scenario in the PDD? This should include:</p> <ul style="list-style-type: none"> a) A list of the equipment(s) and systems that would have been in place in the absence of the project activity (if any) b) Information about the age and average lifetime of the baseline facility based on manufacturer's specifications and industry standards (if applicable) c) Installed capacities, load factors and efficiencies of the baseline facility (if applicable) d) An explanation of how the same types and levels of services provided by the project activity would have been provided in the baseline scenario. | <p>The PDD includes a description of the baseline scenario, which is defined in the methodology ACM0002 as "Electricity delivered to the grid by the Project activity would have otherwise been generated by the operation of grid-connected power plants and by the addition of new generation sources" as reflected in the combined margin ("CM") calculations according to the "Tool to calculate the emission factor for an electricity system". Details of the grid are provided in section B.4 of the PDD, and have been validated against the data provided in the website of The National Dispatch Centre (CNDC)* /24/.</p> <ul style="list-style-type: none"> a) Not applicable, the baseline scenario it to supply electricity from the grid. b) Not applicable, see above comment. c) Not applicable, see above comment. d) Same amount of electricity provided by the project activity would have been provided by the grid (NIS) according to the PDD. <p>*The National Dispatch Center (CNDC) is the operational body in charge of administering the Wholesale Electricity Market (MEN) and the National Interconnected System (NIS) in Nicaragua.</p> | OK | OK |
| | <p>If the scenario existing prior to the start of the implementation of the project activity is different from the selected baseline scenario, is there a clear description of the pre-existing scenario, with a list of the equipment(s) and systems in operation at that time?</p> | <p>Not applicable. The scenario existing prior to the start of the implementation of the project activity is the same as the selected baseline scenario.</p> | N/A | N/A |

Conclusion

The project description in the PDD contains a clear description of the project activity that provides the reader with a clear understanding of the precise nature of the project activity and the technical aspects of its implementation. The description sufficiently covers all relevant elements, is accurate, and clearly states the differences resulting from the project activity compared to the pre-project situation.

6 Validation findings – Baseline and Monitoring Methodology

ERM CVS has evaluated the baseline and monitoring methodology selected by the PPs to confirm its applicability and whether or not it has been appropriately applied to the project activity.

6.1 Validity of selected methodology and methodological tools

As per VVM section 5a, ERM CVS validated that an approved and currently valid baseline and monitoring methodology (and associated methodological tools) have been applied for this proposed CDM project activity.

| | |
|--|--|
| Baseline methodology applied | ACM0002 (version 12.3.0) - "Consolidated baseline methodology for grid-connected electricity generation from renewable sources" |
| Methodological tools applied as required by the methodology. | Tool for the Demonstration and Assessment of Additionality (version 06.0.0) and Tool to calculate the emission factor for an electricity system (version 02.2.1) |

| | Question | Validation findings (including justification and substantiation of information, data and evidence) | Draft OK/ CAR/CL | Final OK/ Not OK |
|-------|--|---|------------------------|------------------------|
| 6.1.1 | Are the number, title and version of the approved methodology clearly and correctly stated? Is the methodology within its period of validity? | ERM CVS has determined that the methodology is correctly quoted and applied by comparing with the actual text of the applicable version of the methodology available on the UNFCCC CDM website. The methodology ACM0002 (version 12.1.0) - "Consolidated baseline methodology for grid-connected electricity generation from renewable sources" was the latest version at the time of GSP, and used in the GSP-PDD. In the course of the validation the version number of the applied methodology was updated to 12.3.0. The final PDD applies ACM0002 (Version 12.3.0) "Consolidated baseline methodology for grid-connected electricity generation from renewable sources", which is within its period of validity. | OK | OK |
| | Are all the required tools applied and fully referenced in the PDD? Are the version numbers applicable at the time of validation? | The PDD references the following tools: The final PDD applies "Tool for the demonstration and assessment of additionality" (Version 06.0.0), which is the latest version available at the time of registration submission, and is within its period of validity. (At the time of the GSP the "Tool for the demonstration and assessment of additionality" (Version 05.02.1) was used.) "Tool to calculate the emission factor for an electricity system" (Version 2.2.1) | OK | OK |
| | If applicable, has any specific guidance provided by the CDM EB relating to the applied methodology been considered? | The following guidelines are relating to the applied methodology and have been considered: Guidelines on the demonstration and assessment or prior consideration of the CDM, EB 62, Annex 13; Guidance on the Assessment of Investment Analysis, EB 62, Annex 5; Guidance for the reporting and validation of plant load factors (version 01), EB 48 Annex 11; Guidelines on common practice, EB 63, Annex 12; "Guidelines on the assessment of investment analysis" (Version 5) . | OK | OK |

Conclusion

The applied methodology and associated methodological tools have been correctly described and are approved by the CDM Executive Board. All versions are currently valid.

6.2 Applicability of the selected methodology to the project activity

As per VVM section 5b, ERM CVS evaluated whether the selected baseline and monitoring methodology applied is applicable to the project activity. This evaluation was based on a review of the PDD and associated documentation and a visit to the project site. ERM CVS has validated that the applicability conditions of the methodology (and tools, where relevant) are met and that the project activity is not expected to result in emissions other than those allowed by the methodology.

ERM CVS has assured the compliance of the project activity with each of the applicability conditions of the selected methodology and tools:

| | Applicability Conditions in methodology and/or tools | Discussed in PDD (yes/no) | Applicable (Yes/No, or state that this condition is not relevant for the project) | Validation findings (including justification and substantiation of information, data and evidence). | Draft OK/ CAR/CL | Final OK/ Not OK |
|-------|---|---------------------------|---|--|------------------|------------------|
| 6.2.1 | <p>This methodology is applicable to grid-connected renewable power generation project activities that</p> <p>(a) install a new power plant at a site where no renewable power plant was operated 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> | Yes | Yes | This applicability condition was able to be validated on site. ERM CVS has confirmed by visual inspection that the project will be a newly built grid connected wind power plant (Greenfield). No renewable power plant was operated at the site prior to the implementation of the project activity. This was confirmed by the site visit and interviews conducted with the MARENA authorities. | OK | OK |
| | The project activity is the installation, capacity addition, retrofit or replacement of a power plant/unit of one of the following types: hydro power plant/unit (either with a run-of-river reservoir or an accumulation reservoir), wind power plant/unit, geothermal power plant/unit, solar power plant/unit, wave power plant/unit or tidal power plant/unit. | Yes | Yes | This applicability condition was able to be validated on site. ERM CVS has confirmed by visual inspection that the project will be a newly built grid connected wind power plant (Greenfield). No renewable power plant was operated at the site prior to the implementation of the project activity. This was confirmed by the site visit and interviews conducted with the MARENA authorities. | OK | OK |
| | In the case of capacity additions, retrofits or replacements (except for capacity addition projects for which the electricity generation of the existing power plant(s) or unit(s) is not affected): the existing plant started commercial operation prior to the start of a minimum | No | N/A | Not applicable, the project does not involve capacity additions, retrofits or replacements | N/A | N/A |

| | Applicability Conditions in methodology and/or tools | Discussed in PDD (yes/no) | Applicable (Yes/No, or state that this condition is not relevant for the project) | Validation findings (including justification and substantiation of information, data and evidence). | Draft OK/ CAR/CL | Final OK/ Not OK |
|--|--|---------------------------|---|---|------------------|------------------|
| | <p>historical reference period of five years, used for the calculation of baseline emissions and defined in the baseline emission section, and no capacity addition or retrofit of the plant has been undertaken between the start of this minimum historical reference period and the implementation of the project activity.</p> <p>In the case of retrofits, 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, i.e. 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".</p> | | | | | |
| | <p>In case of hydro power plants, at least one of the following conditions must apply:</p> <ul style="list-style-type: none"> ○ The project activity is implemented in an existing single or multiple reservoirs, with no change in the volume of the reservoirs; or ○ The project activity is implemented in an existing single or multiple reservoirs, where the volume of any of the reservoirs is increased and the power density each reservoir, as per definitions given in the Project Emissions section, is greater than 4 W/m² after the implementation of the project activity; or ○ The project activity results in new single or multiple reservoirs and the power density of each reservoir, as per definitions given in the Project Emissions section, is greater than 4 W/m² after the implementation of the | No | N/A | Project is not a hydro power plant. It is a wind power project. | N/A | N/A |

| | Applicability Conditions in methodology and/or tools | Discussed in PDD (yes/no) | Applicable (Yes/No, or state that this condition is not relevant for the project) | Validation findings (including justification and substantiation of information, data and evidence). | Draft OK/ CAR/CL | Final OK/ Not OK |
|--|---|---------------------------|---|---|------------------|------------------|
| | project activity. | | | | | |
| | <p>In case of hydro power plants using multiple reservoirs where the power density of any of the reservoirs is lower than 4 W/m² after the implementation of the project activity all of the following conditions must apply:</p> <ul style="list-style-type: none"> • The power density calculated for the entire project activity using equation 5 is greater than 4 W/m²; • All reservoirs and hydro power plants are located at the same river and were designed together to function as an integrated project that collectively constitutes the generation capacity of the combined power plant; • The water flow between the multiple reservoirs is not used by any other hydropower unit which is not a part of the project activity; • The total installed capacity of the power units, which are driven using water from the reservoirs with a power density lower than 4 W/m², is lower than 15 MW; • The total installed capacity of the power units, which are driven using water from reservoirs with a power density lower than 4 W/m², is less than 10% of the total installed capacity of the project activity from multiple reservoirs. | No | N/A | Not applicable, the project does not involve capacity additions, retrofits or replacements | N/A | N/A |
| | <p>The methodology is not applicable to the following:</p> <ul style="list-style-type: none"> • 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; | No | N/A | The project does not involve switching from fossil fuels to renewable energy source, biomass fired power plant or hydro power plant activities. | OK | OK |

| | Applicability Conditions in methodology and/or tools | Discussed in PDD (yes/no) | Applicable (Yes/No, or state that this condition is not relevant for the project) | Validation findings (including justification and substantiation of information, data and evidence). | Draft OK/ CAR/CL | Final OK/ Not OK |
|--|---|---------------------------|---|---|------------------|------------------|
| | <ul style="list-style-type: none"> Biomass fired power plants; A hydro power plant that results in the creation of a new single reservoir or in the increase in an existing single reservoir where the power density of reservoir is less than 4 W/m². | | | | | |
| | <p>Applicability criteria from the "Tool to calculate the emission factor for an electricity system":</p> <p>The tool is not applicable if the project electricity system is located partially or totally in an Annex I country.</p> | N/A | N/A | The project electricity system is neither totally nor partially located in an Annex I country. | N/A | N/A |

| | Question | Validation findings (including justification and substantiation of information, data and evidence). | Draft OK/ CAR/CL | Final OK/ Not OK |
|-------|---|--|------------------|------------------|
| 6.2.2 | Has any source of GHG emission been identified within the project boundary that is expected to contribute more than 1% of the project activity's expected average annual emissions reductions, and which is not addressed by the applied methodology? | The proposed project is a Greenfield wind power project, which was confirmed through physical inspection of the project site, ERM CVS has determined that no emissions other than those allowed by the methodology are expected to result from the project activity, and no greenhouse gas emissions occur within the proposed CDM project activity boundary, as a result of the implementation of the proposed CDM project activity, which are expected to contribute more than 1% of the overall expected average annual emissions reductions, which are not addressed by the applied methodology. | OK | OK |

Conclusion

The applied methodology and associated tools are fully applicable to the project activity and is correctly applied in the PDD. There are no greenhouse gas emissions occurring within the proposed CDM project activity boundary as a result of the implementation of the proposed CDM project activity which are expected to contribute more than 1% of the overall expected average annual emissions reductions, which are not addressed by the applied methodology, were identified.

6.3 Project Boundary

As per VVM section 5.c, ERM CVS reviewed the description of the project boundary in the PDD, including the physical delineation of the proposed CDM project activity included within the project boundary for the purpose of calculating project and baseline emissions for the proposed CDM project activity.

According to the applied methodology, the spatial extent of the project boundary includes the project power plant and all power plants physically connected to the NIS where the CDM wind power plant is connected.

6.3.1 Emission sources

The emissions sources included in or excluded from the project boundary, as set out in the applied methodology are as follows:

| | Source | Gas | Included in PDD? | Is inclusion / exclusion justified in the PDD? | How has this been validated? |
|--------------------|---|------------------|------------------|--|---|
| Baseline emissions | CO ₂ emissions from electricity generation in fossil fuel fired power plants that are displaced due to the project activity. | CO ₂ | Yes | Yes | The PDD has been checked against methodology ACM0002. |
| | | CH ₄ | No | Yes | |
| | | N ₂ O | No | Yes | |
| Project emissions | The operation of wind power plant | CO ₂ | No | Yes | The PDD has been checked against methodology ACM0002. |
| | | CH ₄ | No | Yes | |
| | | N ₂ O | No | Yes | |
| Leakage emissions | No leakage emissions are considered. | N/A | No | Yes | The PDD has been checked against methodology ACM0002. |

| | Question | Validation findings (including justification and substantiation of information, data and evidence) | Draft OK/ CAR/CL | Final OK/ Not OK |
|-------|--|--|------------------|------------------|
| 6.3.1 | Has the PDD justified the inclusion/exclusion of all potential sources of GHG emissions as set out in the applied baseline methodology | Yes, CO ₂ emissions from electricity generated from fossil fuel fired power plants in the baseline that are displaced due to the project are included. This inclusion is in line with the methodology. CH ₄ and N ₂ O emissions are excluded as minor emissions sources according to the methodology, and do not need to be included. | OK | OK |

Conclusion

The identified boundary and the selected sources and gases included in the final PDD are appropriately described and justified for the project activity, in accordance with the applied methodology. The information is correctly described in the section B.3 of the PDD.

6.3.2 Physical delineation of the project

ERM CVS evaluated whether the PDD correctly describes the physical delineation of the proposed CDM project activity, including which installations/processes are included within the geographical boundary of the project activity.

| | Question | Validation findings (including justification and substantiation of information, data and evidence) | Draft OK/ CAR/CL | Final OK/ Not OK |
|-------|---|---|------------------|------------------|
| 6.3.2 | Does the PDD correctly describe the project boundary, including the physical delineation of the proposed CDM project activity included within the project boundary? | Based on the site visit, review of the Energy Assessment report /02/ and interviews conducted with MARENA (environmental authority Nicaragua), ERM CVS confirmed that the PDD correctly describes which installations and processes are included within the geographical boundary of the project activity. The project boundary is correctly described in section B.3 of the PDD according to ACM0002 and the Tool to calculate the emission factor for an electricity system but the flow diagram which physically delineates the project activity included in the GSP-PDD did not include a clear location of monitoring equipment, and monitoring parameters were not included. | CAR2 | OK |

| | Question | Validation findings (including justification and substantiation of information, data and evidence) | Draft OK/ CAR/CL | Final OK/ Not OK |
|--|--|---|------------------------|------------------------|
| | | <p>CAR 2: Please provide a flow diagram with monitoring equipment location and include monitoring parameters as required by the Guidelines for Completing the PDD.</p> <p>The spatial extent of the project boundary includes the project power plant and all power plants connected physically to the electricity system that the CDM project power plant is connected to.</p> <p>The Nicaraguan Interconnected System (NIS) is a clearly defined grid that runs throughout the country /10/11/12/24/.</p> | | |
| | Were any emission sources identified that will be affected by the project activity and are not addressed by the selected approved methodology? If so, was clarification of, revision to or deviation from the methodology approved in accordance with required procedures. | No emissions sources other than those addressed by the methodology were identified. | OK | OK |

Conclusion

The PDD correctly describes the project boundary, including the physical delineation of the proposed CDM project activity, in compliance with the requirements of the selected baseline methodology, and this is consistent with site observations and other documentation provided. All sources and GHGs required by the methodology have been included within the project boundary. Where the methodology allows PPs to choose whether a source or gas is to be included within the project boundary, the PPs have sufficiently justified that choice. The justifications provided are reasonable, based on assessment of supporting documented evidence and site observations. The project boundary is justified for the project activity, based on ERM CVS's local and sectoral knowledge.

6.4 Baseline identification

As per VVM section 5d, ERM CVS reviewed the PDD to assess whether it correctly identifies the baseline for the proposed CDM project activity, defined as the scenario that reasonably represents the anthropogenic emissions by sources of GHGs that would occur in the absence of the proposed CDM project activity.

As per VVM paragraph 105, no alternative analysis is required if the approved methodology that is selected by the proposed CDM project activity prescribes the baseline scenario.

The baseline identification has been validated as follows:

| | Question | Validation findings (including justification and substantiation of information, data and evidence) | Draft OK/ CAR/CL | Final OK/ Not OK |
|-------|--|--|------------------------|------------------------|
| 6.4.1 | Does the PDD identify the baseline, a scenario that represents the anthropogenic emissions by sources of GHG that would occur in the absence of the proposed CDM project activity? | Yes. The PDD clearly identifies the baseline scenario, electricity delivered to the grid by the project activity that would have otherwise been generated by the existing grid-connected power plant and the addition of new power sources, as reflected in the combined margin (CM) calculations described in the "Tool to calculate the emission factor for an electricity system", which is specified by the methodology. | OK | OK |
| | Have the procedures/ steps to identify the most reasonable baseline scenario, as required by the methodology and | Since the baseline is specified by the methodology, no further procedures / steps to identify the most reasonable baseline scenario are required, which is in line with paragraph 105 of the VVM: <i>"The PDD shall identify credible alternatives to the project activity in order to determine the most realistic baseline scenario,</i> | OK | OK |

| | Question | Validation findings (including justification and substantiation of information, data and evidence) | Draft OK/ CAR/CL | Final OK/ Not OK |
|--|---|---|------------------------|------------------------|
| | applicable tools, been documented clearly in the PDD? | <i>unless the approved methodology that is selected by the proposed CDM project activity prescribes the baseline scenario and no further analysis is required."</i> | | |
| | Are all feasible and credible alternatives identified including but not limited to all the potential scenarios listed in the methodology? | | N/A | N/A |
| | Does the list of alternatives include the project activity undertaken without being registered as a CDM project? | | | |
| | Are realistic different configurations or combinations of alternatives that may be able to provide similar outputs and services considered? | | N/A | N/A |
| | Are all considered alternatives assessed for consistency with (enforced) mandatory laws and regulations? | | OK | OK |
| | Have all relevant national and/or sectoral policies and circumstances been taken into account? Are they identified and correctly considered in the PDD? | <p>The PDD refers to the following mandatory laws:</p> <ol style="list-style-type: none"> 1. Law of the Electricity Industry and its Regulatory decree Law No. 272 (1998): ("Ley de la Industria Eléctrica y Decreto No. 42 (1998): "Reglamento a la Ley de la Industria Eléctrica") /41/. <p>Law 272 covers regulatory purposes for generation, transmission and distribution of electricity, and is applicable for all generation plants in Nicaragua.</p> <p>The continuation of the business as usual scenario assumes that all existing power plants (as well as those to be connected into the grid in the future), is in compliance with all requirements established in Law 272. This has been confirmed based on the information provided by INE /10/ which describes all power generation plants that are connected to the SIN.</p> <ol style="list-style-type: none"> 2. Law for the Promotion of Power Generation from Renewable Sources Law No. 532 (2005): ("Ley para la Promoción de Generación Eléctrica con Fuentes Renovables") /34/. <p>The proposed project activity being undertaken without the CDM, complies with Law 272, and Law 532, which determines fiscal incentives for renewable energy generation.</p> <p>It was found that Law for the Promotion of Power Generation from Renewable Sources Law No. 532 (2005) /34/ is a type E-, policy according to EB22 Annex 3 /64/ since this regulation is a National and/or sectoral policies or regulations that give comparative advantages to less emissions intensive technologies over more emissions-intensive technologies (e.g. public subsidies to promote the diffusion of renewable energy or to finance energy efficiency programs).</p> <p>Law 532 reduces:</p> <p>Custom duties for machinery, equipment, materials that are imported and required to develop the project.</p> <p>VAT for machinery, equipment and materials required to develop the project.</p> | OK | OK |

| | Question | Validation findings (including justification and substantiation of information, data and evidence) | Draft OK/ CAR/CL | Final OK/ Not OK |
|--|----------|---|------------------------|------------------------|
| | | <p>Income Tax holiday during a maximum period of 7 years starting from the commercial operation of the project. (this include the income of the carbon credit sale)</p> <p>Municipal taxes during the project's first 10 years (75% exemption the first three years, 50% the next five years and 25% the remaining two).</p> <p>EB53 Annex 32 section 4/65/ requires to assess whether the tariff has been affected by any national and/or sectoral policy and if so whether this policy/policies are E+ policies or E- policies, ERM CVS has confirmed that the applied tariff is not affected by Law for the Promotion of Power Generation from Renewable Sources Law No. 532 (2005) /34/ or by any national and/or sectoral policy, furthermore the tariff has been validated against the PPAs /13//14/ and has been crosschecked against the two existing wind power plants CDM Project Amayo 40 MW Wind Power Project – Nicaragua registered in 2009 (Reg. No.2315) and Amayo Phase II Wind Power Project registered in 2011 (Reg. No.5305) This confirms that the electricity tariff applied to the proposed project activity is reasonable and conservative. See section 7.3.8.</p> <p>Please see the additionality section of this report for further details of how this E-policy was treated in the financial analysis.</p> | | |

Conclusion

Based on the site visit and documentary evidence to cross check the information contained in the PDD as referenced above, ERM CVS confirms that that:

- All the assumptions and data used by the PPs in establishing the baseline scenario are listed in the PDD, including their references and sources;
- All documentation used is relevant for establishing the baseline scenario and correctly quoted and interpreted in the PDD;
- Assumptions and data used in the identification of the baseline scenario are justified appropriately, supported by evidence and can be deemed reasonable;
- Relevant national and/or sectoral policies and circumstances are considered and listed in the PDD;
- The approved baseline methodology has been correctly applied to identify the most reasonable baseline scenario and the identified baseline scenario reasonably represents what would occur in the absence of the proposed CDM project activity.

6.5 Algorithms and/or formulae used to determine emission reductions

As per VVM section 5e, ERM CVS has evaluated whether the steps taken and equations applied to calculate project emissions, baseline emissions, leakage and emission reductions comply with the requirements of the selected baseline and monitoring methodology.

ERM CVS conducted validation activities to determine whether the equations and parameters in the PDD have been correctly applied by comparing them to those in the selected approved methodology. Where the methodology provides for selection between different options for equations or parameters, ERM CVS confirmed that adequate justification has been provided (based on the choice of the baseline scenario, context of the proposed CDM project activity and other evidence provided) and that the correct equations and parameters have been used, in accordance with the methodology selected.

ERM CVS verified the justification given in the PDD for the choice of data and parameters used in the equations. Where data and parameters will not be monitored throughout the crediting period of the proposed CDM project activity but have already been determined and will remain fixed throughout the crediting period (ex-ante parameters), ERM CVS assessed that all data

sources and assumptions are appropriate and calculations are correct, applicable to the proposed CDM project activity and will result in a conservative estimate of the emission reductions. Where data and parameters will be monitored on implementation and hence become available only after validation of the project activity, ERM CVS confirmed that the estimates provided in the PDD for these data and parameters are reasonable (please see section 8 for details of the validation of the monitored parameters).

6.5.1 Ex Ante Data and Parameters

Each parameter required by the methodology and tools for this project type is listed and validated in detail as follows:

| Parameter required as per methodology / tools | Description of the parameter (as per methodology) | Is the parameter included in the PDD? | Title and description in the PDD line with the Methodology? | Data unit correctly expressed in PDD? | Value in PDD correct and provides for conservative estimate of Emission Reductions? How was this validated? | Measurement method correctly described in the PDD (if applicable) |
|---|--|---------------------------------------|---|---------------------------------------|--|---|
| $FC_{i,m,y}$ | Amount of fossil fuel type i consumed by power unit m in year y | Yes | Yes | See CAR-3 Yes | ERM CVS validated this by checking published information from Nicaraguan Electricity Institute (INE - Instituto Nicaragüense de Electricidad) /09/. | N/A |
| $NCV_{i,y}$ | Net calorific value (energy content) of fossil fuel type i in year y | Yes | Yes | Yes | IPCC default values at the lower limit of the uncertainty at a 95% confidence interval as provided in Table 1.2 of Chapter 1 of Vol. 2 (Energy) of the 2006 IPCC Guidelines on National GHG Inventories | N/A |
| $EF_{CO_2,i,y}$ | CO ₂ emission factor of fossil fuel type i used in power unit m in year y | Yes | Yes | Yes | IPCC default values at the lower limit if the uncertainty at a 95% confidence interval as provided in Table 1.4 of Chapter 1 of Vol.2 (Energy) of the 2006 IPCC Guidelines on National Greenhouse Gas Inventories. | N/A |
| $EG_{m,y}$ | Net electricity generated by power plant/unit m in year y | Yes | Yes | Yes | ERM CVS validated this by checking published information from INE - Instituto Nicaragüense de Electricidad (Nicaraguan Electricity Institute)/10/ | N/A |
| D_i | "Density of fuel i in year y " where i = fuel oil or diesel | Yes | N/A | See-CAR03 Yes | Table A.4 "Emissions of Greenhouse Gases in the United States" – Energy Information Administration (US Department of | N/A |

| Parameter required as per methodology / tools | Description of the parameter (as per methodology) | Is the parameter included in the PDD? | Title and description in the PDD line with the Methodology? | Data unit correctly expressed in PDD? | Value in PDD correct and provides for conservative estimate of Emission Reductions? How was this validated? | Measurement method correctly described in the PDD (if applicable) |
|---|---|---------------------------------------|---|---------------------------------------|---|---|
| | | | | | Energy). /53/ No regional or national data is publicly available. IPCC Guidelines (2006) do not provide information on density so another source had to be sought. Density is presented in kg/m ³ and tons/gal units) | |

| | Question | Validation findings (including justification and substantiation of information, data and evidence) | Draft OK/ CAR/CL | Final OK/ Not OK |
|-------|---|--|------------------|------------------|
| 6.5.1 | Have the parameters required by the methodology / tools been correctly described in the PDD? Where the methodology provides for selection between different options for data and parameters; is the choice of data and parameters justified? | The parameters required by the methodology and tools have been correctly described in the PDD and the choice of data and parameters is correctly justified. For further details please see the table above. CAR 3: Following ex-ante data and parameters were not correctly applied in the GSP-PDD: <ul style="list-style-type: none">Data unit for $FC_{i,m,y}$ s not described in accordance with EB41 Annex 12, which requires the use of The International System Unit (SI units).Density of diesel and fuel oil have been checked against other sources /53/ and it was found that the applied value is not conservatively chosen, please revise. Resolution of CAR 3: ERM CVS has confirmed that ex-ante data and parameters are correctly applied in the revised PDD, as explain in Appendix B. Therefore, CAR 3 was closed. | CAR3 | OK |

6.5.2 Equations and calculations used to calculate emission reductions

The following steps are applied in the PDD to determine emission reductions, in accordance with the methodology and tools applied:

Baseline emissions

The baseline emissions are calculated as follows:

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

Where:

$$BE_y = \text{Baseline emissions in year } y \text{ (tCO}_2\text{)}$$

| | | |
|------------------|---|---|
| $EG_{PJ,y}$ | = | Quantity of net electricity generation supplied to the grid in year y by the project plant/unit that has been added under the project activity (MWh) |
| $EF_{grid,CM,y}$ | = | Combined margin CO_2 emission factor for grid connected power generation in year y calculated using the latest version of the "Tool to calculate the emission factor for an electricity system" (tCO_2/MWh) |

For the specific case of greenfield projects, the methodology uses $EG_{PJ,y} = EG_{facility,y}$.

where

$EG_{facility,y}$ = Quantity of net electricity generation supplied by the project plant/unit to the grid in year y (MWh)

Grid emission factor:

According to methodology ACM0002, the emission factor for the net electricity supplied to the grid ($EF_{grid,CM,y}$) is calculated as per "Tool to calculate the emission factor for an electricity system", based on the combined margin (CM) of the operating margin (OM) and build margin (BM).

The Combined margin CO_2 emission factor has been calculated/05/ in a transparent and conservative manner in accordance with the "Tool to calculate the emission factor for an electricity system". The calculation of the grid emission factor is correctly presented in the PDD, the data from 2008, 2009 and 2010 which is the most recent has been used to calculate the grid emission factor as explained below:

Step 1: NIS is chosen as the relevant electric power system. /24/

Step 2: Option I: only grid power plants are included in the calculation, and Option I is chosen for the calculation of the operating margin (OM) and build margin (BM) emission factor.

Step 3: Option (a) was chosen to calculate the Simple OM emission factor. This is verified to be justified in accordance with the available host country data /10/11/12/.

Step 4: Option A was chosen to define the simple OM emission factor. This is consistent with the data available in Nicaragua /10/11/12/.

Step 5: Option (b) was selected as the sample group of power units for BM calculation and Option I is chosen for BM emission factor calculation, which is in line with the data available in Nicaragua /10/11/12/. The BM calculation has been checked and verified as applied correctly;

Step 6: the formulae for CM the calculation has been presented correctly, in accordance with the tool, and the weights of the operating margin and the build margin are 0.75:0.25 respectively /05/.

The emission factor of the grid is determined *ex-ante* for 7 years (length of the first crediting period) following the tool to calculate the emission factor for an electricity system.

Operating Margin (OM): 0.7248 tCO_2 / MWh

Build Margin (BM): 0.5375 tCO_2 / MWh

Combined Margin (CM): 0.6780 tCO_2 / MWh

Project emissions

According to the methodology ACM0002 (version 12.3.0) - "Consolidated baseline methodology for grid-connected electricity generation from renewable sources", the project emissions for wind power plants do not need to be considered; therefore, project emissions are zero. $PE_y = 0$

Leakage

According to Methodology ACM0002 (version 12.3.0) - "Consolidated baseline methodology for grid-connected electricity generation from renewable sources"; leakage is not considered.

Emission reductions:

In conclusion the emission reductions are calculated as:

$$ER_y = BE_y - PE_y = BE_y$$

| | Question | Validation findings (including justification and substantiation of information, data and evidence) | Draft OK/ CAR/CL | Final OK/ Not OK |
|-------|--|---|------------------------|------------------------|
| 6.5.2 | Has the PP correctly applied all relevant calculations as required by the methodology and associated tools? Is it fully explained how the procedures provided in the Methodology and applicable Tools are applied by the proposed project activity? (i.e. Are the required steps clearly followed?) | Yes, the PP has correctly applied calculations and the GHG emissions calculations are transparently documented and appropriate assumptions regarding expected amount of electricity generated have been used to forecast the emission reductions. The PDD describes the procedures applied by the project activity in accordance with the applied methodology and tools. Procedures have been validated in section 6.5.2 of this report. | OK | OK |
| | Where the methodology provides for selection between different options for equations; is every choice of options for calculating project emissions, baseline emissions and leakage offered by the methodology correctly justified in the context of the project activity and baseline scenario? | Yes. The methodological choices are correctly described in the PDD and are consistent with the applied methodology and Tool , Justification of different options have been validated in section 6.5.2 of this report. | OK | OK |
| | Are the formulae required for the determination of project emissions, baseline emissions and leakage correctly presented in a complete and transparent manner, enabling a complete identification of parameters to be used and / or monitored? | ERM CVS has confirmed that the equations and parameters in the PDD have been correctly applied the selected approved methodology ACM0002 (version 12.3.0) - "Consolidated baseline methodology for grid-connected electricity generation from renewable sources" and the "Tool to Calculate the Emission Factor for an Electricity System". | OK | OK |
| | Are detailed calculations provided in a traceable spreadsheet showing relevant information? Are the tables of emission reductions in the PDD (section A.4.4 and B.6.4) consistent with the calculations? | CAR 4: A traceable spreadsheet showing the detailed calculation of the ex-ante emission reductions was not provided during site visit. A traceable spreadsheet showing relevant information was provided. The tables of emission reductions in the PDD (section A.4.4 and B.6.4) are consistent with these calculations, CAR 4 was closed as explained in Annex B. | CAR 4 | OK |
| | Can the calculation of emission reductions be replicated using the data and parameters supplied in the PDD? | pending CAR 4 CAR 4 was closed, please refer Appendix B. | CAR 4 | OK |

Conclusion

ERM CVS confirms that:

As per the VVM paragraph 91, based on the information reviewed and calculations reproduced by the validation team, ERM CVS confirms the following:

- (a) All assumptions and data used by the PPs are listed in the PDD, including their references and sources;
- (b) All documentation used by PPs as the basis for assumptions and the sources of data are correctly quoted and interpreted in the PDD;
- (c) All values used in the PDD are considered reasonable in the context of the proposed CDM project activity;
- (d) The baseline methodology has been applied correctly to calculate project emissions, baseline emissions, leakage and emission reductions;
- (e) All estimates of the baseline emissions can be replicated using the data and parameter values provided in the PDD.

7 Validation findings – Additionality

As per VVM section 6, ERM CVS assessed the PDD to determine whether it clearly describes how the proposed CDM project activity is additional, as supported by sufficient and appropriate evidence. In accordance with decision 3/CMP.1, annex, paragraph 43, a CDM project activity is additional if anthropogenic emissions of greenhouse gases by sources are reduced below those that would have occurred in the absence of the registered CDM project activity.

ERM CVS assessed and verified the reliability and credibility of all data, rationales, assumptions, justifications and documentation provided by PPs to support the demonstration of additionality in order to critically assess the presented evidence, using local knowledge and sectoral and financial expertise.

In undertaking this aspect of the validation, ERM CVS considered tools and documents provided by the CDM Executive Board to demonstrate the additionality of proposed CDM project activity, as well as specific complementary or alternative requirements included in the approved CDM methodology.

In the sections below, ERM CVS describes all steps taken, and sources of information used, to cross-check the information contained in the PDD on additionality. Where appropriate, we describe how the validation team determined that the documentation assessed is authentic.

7.1 Prior consideration of the CDM

As per VVM section 6a, if the project activity start date is prior to the date of publication of the PDD for stakeholder comments, it shall be demonstrated that the CDM benefits were considered necessary in the decision to undertake the project as a proposed CDM project activity. ERM CVS therefore evaluated the start date of the project activity

| | Question | Validation findings (including justification and substantiation of information, data and evidence) | Draft OK/ CAR/CL | Final OK/ Not OK |
|-------|---|--|------------------------|------------------------|
| 7.1.1 | What is the start date of the project activity? Is this before the publication of the PDD for public comments? | <p>The starting date of the project activity in the GSP-PDD was estimated as 11 November 2011, however, during site visit (02 and 03 November 2011) it was observed by the validation team that the project has not started any real action, and no evidence for the project start date, such as signed equipment purchase or construction contract, was available.</p> <p>Since the PDD was published for GSP from 22 October 2011 to 20 November 2011, and considering the above, the starting date will be after the publication of the PDD for public comments.</p> <p>CL 3 had been raised to request clarification and evidence to support the starting date of the project.</p> <p>CL3 was closed upon clarification that the start date of the project activity is the date when the EPC contract was signed. The EPC contract was executed on 31 December 2011 /63/; the starting date has been updated in the revised PDD.</p> <p>Please refer Appendix B for further details.</p> | CL3 | OK |
| | <p>Is the start date clearly defined in the PDD in accordance with the "Glossary of CDM terms"?</p> <p>Does the PDD contain a description of how this start date has been determined, and a description of the evidence available to support this start date?</p> | <p>According to Version 05 of the Glossary of CDM Terms, "the start date shall be considered to be the date on which the project participant has committed to expenditures related to the implementation or related to the construction of the project activity; pending-CL-3"</p> <p>The start date of the project activity is defined as the date when the EPC contract was signed, on 31 December 2011 /63/, since this is the earliest date of construction, implementation or real action on the project activity. ERM CVS therefore confirms that the start date of the project activity, reported in the PDD, is in accordance with the "Glossary of CDM terms". The PDD contains a description of how the start date was determined and references evidence to support the start date.</p> <p>CL3 is closed, please refer Appendix B.</p> | CL-3 | OK |

| | Question | Validation findings (including justification and substantiation of information, data and evidence) | Draft OK/ CAR/CL | Final OK/ Not OK |
|--|--|---|------------------------|------------------------|
| | Does the PDD provide an implementation timeline of the proposed CDM project activity, in line with the PDD guidelines? | <p>CL 4: The project milestones are presented in the PDD however some the evidence of the milestone has not been provided yet.</p> <p>ERM CVS confirmed that all support evidence for each milestone has been provided, information and dates of each document has been checked. CL 4 is closed, see Appendix B.</p> <p>CL 4 has been closed, as explain in Appendix B.</p> | CL4 | OK |

The timeline of the project is set out in the table below, showing the evidence used to support each step. ERM CVS reviewed the evidence provided and can confirm that the starting date is correctly defined and that the timeline is credible and supported by reliable evidence.

| | Activity | Date | How has ERM CVS validated this information | Draft OK/ CAR/CL | Final OK/ Not OK |
|--|--|--------------------|---|------------------------|------------------------|
| | CDM Prior consideration form submitted to the DNA and UNFCCC | 22 March 2011 | <p>Prior CDM consideration forms submitted to the UNFCCC and DNA /489/ were checked; date was confirmed.</p> <p>DNA confirmed the receipt of the Prior consideration form on 05 April 2011 /489/</p> <p>Acknowledgement from UNFCCC Secretariat of receipt of prior CDM consideration notification on 12 April 2011 /489/</p> | CL4 | OK |
| | Contract signed with CDM consultant form Geo Ingenieria Consultores S.A. | 06 April 2011 | <p>pending-CL4</p> <p>Contract signed with the CDM consultant Geo Ingenieria Consultores S.A. has been checked. Date and signature were confirmed. /44/</p> <p>CL 4 is closed, see Appendix B.</p> | CL4 | OK |
| | PPAs signature | 02 June 2011 | PPAs /13//14/ were checked; date and signatures were confirmed. It was confirmed that clause 10 in section 10.2 of the PPAs mentions carbon credits revenues. | OK | OK |
| | Validation Audit | 02 and 03 November | On-site visit | OK | OK |
| | EPC contract signature and Limited notice to proceed with EPC contract, signed with Gamesa | 31 December 2011 | <p>See-CL3</p> <p>Limited notice to proceed with EPC contract was reviewed; date and signature were confirmed, this Limited notice to proceed states that EPC contract was signed in 31 December 2011/56/ and EPC agreement between Eolonica S.A. and GAMESA Eolica S.L. – signed in 31 December 2011 /63/.</p> <p>CL 3 is closed, please refer Appendix B.</p> | CL3 | OK |
| | Forecast to begin commercial operation | January 2013 | Expected date | OK | OK |

Conclusion

Based on the evidence provided, ERM CVS confirms that the start date for this project is 31 December 2011.

This is after 02 August 2008 and this is after the global stakeholder consultation (22 October 2011 to 20 November 2011).

7.2 Identification of alternatives

As per VVM section 6b, ERM CVS evaluated whether the PDD clearly describes credible alternatives to the project activity in order to determine the most realistic baseline scenario, unless the approved methodology that is selected by the proposed CDM project activity prescribes the baseline scenario and no further analysis is required. The project applies methodology ACM0002 (version 12.3.0) - "Consolidated baseline methodology for grid-connected electricity generation from renewable sources" which defines the baseline as Electricity delivered to the grid by the project activity would have otherwise been generated by the operation of grid-connected power plants and by the addition of new generation sources, as reflected in the combined margin (CM) calculations described in the Tool to calculate the emission factor for an electricity system, therefore no further assessment of baseline alternatives is required. The identification of alternatives is validated in detail in section 6.4 above.

7.3 Investment analysis

As per VVM section 6c, ERM CVS evaluated the investment analysis presented in the PDD to demonstrate the additionality of the proposed CDM project activity. ERM CVS evaluated whether there is sufficient and reliable evidence to validate that the proposed CDM project activity would not be either:

- the most economically or financially attractive alternative; or
- economically or financially feasible without the revenue from the sale of CERs.

Additionality of the project is demonstrated using the 'Tool for the demonstration and assessment of additionality' /23/. An investment analysis is used to demonstrate that the project activity is not financially or economically feasible without CER revenues, or is not the most financially or economically attractive option.

The financial analysis was assessed by the validation team, including assessment of the spreadsheet and evidences relating to the input values to the financial analysis. The analysis was also assessed by referring to the 'Guidelines on the assessment of investment analysis' version 5 ('I.A. Guidelines') by a financial expert assigned by ERM CVS, who has specific expertise in the assessment of financial analysis for CDM projects. The validation of the investment analysis is set out below and in the resolution of CARs and CLs relating to the investment analysis.

7.3.1 Evaluation of Analysis Option

PPs can choose one of the following approaches:

- **Option I (Simple Cost Analysis):** Used when the proposed CDM project activity and the identified alternatives would produce no financial or economic benefits other than CDM-related income. It involves documentation of the costs associated with the proposed CDM project activity and the alternatives identified and demonstration that there is at least one alternative which is less costly than the proposed CDM project activity;
- **Option II (Investment Comparison Analysis):** Used to compare the rate of return of the project activity (without CDM) and the alternative(s), to demonstrate whether the proposed CDM project activity is less economically or financially attractive than at least one other credible and realistic alternative;
- **Option III (benchmark analysis):** Used to demonstrate that the financial returns of the proposed CDM project activity would be insufficient to justify the required investment, when compared to a benchmark.

| | Question | Validation findings (including justification and substantiation of information, data and evidence) | Draft OK/ CAR/CL | Final OK/ Not OK |
|-------|--|--|------------------------|------------------------|
| 7.3.1 | Has the appropriate option been chosen? (as per the <i>Guidance on the Assessment of Investment Analysis</i>) | The PP has chosen the benchmark analysis, which is appropriate given that the project generates revenues from electricity sales (hence option I, simple cost analysis, is not applicable) and the alternative (continuation of electricity supply by the grid) is not a comparable investment alternative (hence option II, investment comparison analysis, is not applicable). The selection by the PP is in line with the latest version of 'Tool for the demonstration and assessment of additionality' and the 'Guidance on the assessment of investment analysis' | OK | OK |

Option III evaluation

| | Question | Validation findings (including justification and substantiation of information, data and evidence) | Draft OK/ CAR/CL | Final OK/ Not OK |
|-------|---|--|------------------------|------------------------|
| 7.3.2 | Is benchmark analysis appropriate? <i>(If the PP has to make an investment, to supply the same outputs and services, and there is at least one other alternative option than building the project activity without CDM, benchmark analysis is not appropriate and investment comparison analysis should be used).</i> | The project developer has the alternative of making no investment (continuation of the supply of electricity from the existing generation mix operating in the grid) is available to the project developer. The project developer is not obliged to make an investment to supply the same outputs and services. | OK | OK |
| | Is the most suitable financial indicator for the project type and decision-making context clearly identified, such as IRR? | Yes. Equity IRR (after tax) is used; this is consistent with the selected benchmark. The Internal Rate of Return (IRR) is one of the most widely accepted financial indicators for project evaluation. Equity IRR demonstrates that the proposed project activity cannot be considered a financially attractive option without the additional revenue provided by the Clean Development Mechanism. | OK | OK |

Conclusion

ERM CVS confirms that the choice of option used for evaluation of the investment analysis is appropriate for this project activity.

7.3.2 Evaluation of Benchmark/Discount rate

The assessment used an *external* source of Benchmark. To confirm the suitability of the benchmark applied in the investment analysis, ERM CVS has

- Determined whether the type of benchmark applied is suitable for the type of financial indicator presented;
- Ensured that any risk premiums applied in determining the benchmark reflect the risks associated with the project type or activity;
- Determined whether it is reasonable to assume that no investment would be made at a rate of return lower than the benchmark by, for example, assessing previous investment decisions by the PPs involved and determining whether the same benchmark has been applied or if there are verifiable circumstances that have led to a change in the benchmark.

Details of the validation of the benchmark are provided in the following table:

| | Question | Validation findings (including justification and substantiation of information, data and evidence) | Draft OK/ CAR/CL | Final OK/ Not OK |
|--|---|---|------------------------|------------------------|
| If a Government/officially approved benchmark has been used | | | | |
| 7.3.3 (a) | Is the use of a government/official benchmark appropriate <i>(i.e. are such benchmarks used for investment decisions for this type of project in the host country)?</i> | Not applicable. The project does not use government/official benchmark. | N/A | N/A |
| | Is an appropriate benchmark | | | |

| | Question | Validation findings (including justification and substantiation of information, data and evidence) | Draft OK/ CAR/CL | Final OK/ Not OK |
|---|---|---|------------------------|------------------------|
| | <p>or discount rate value chosen that is relevant for the project activity (i.e. for this investor, country, risk of project, time of investment decision)?</p> <p>Is the benchmark applicable to the project activity and the type of IRR calculation presented (<i>project or equity IRR; before or after tax</i>)?</p> <p>Is the benchmark or discount rate based on verifiable publicly available data sources?</p> <p>Is the chosen benchmark appropriate and in line with other benchmarks or discount rates used in current or previous projects by the same or similar investors? (<i>including the Benchmark or discount rate used in Feasibility Studies or other financial analyses of the project activity</i>)</p> | | | |
| If an external benchmark or discount rate has been used: | | | | |
| 7.3.3 (b) | Is the use of an external benchmark appropriate? | Yes, the project is a Greenfield project that could in theory be developed by another investor and so should be compared against standard returns in the market; there is no claim that this project could only be carried out by the PP. | OK | OK |
| | Is the benchmark or discount rate based on publicly available data sources? | Yes, the benchmark is taken from the default values listed in appendix A to the 'Guidelines on the assessment of investment analysis' issued by the EB. The inflation rate used to adjust the benchmark in real terms to a benchmark in nominal terms is based on the US forecast taken from the Seattle Budget Office website (http://www.seattle.gov/financedepartment/cpi/forecast.htm). US data is used as the cash flows are denominated in USD. | OK | OK |
| | Is the benchmark based on parameters that are standard in the market? (I.A Guideline 13) | Yes, as per the 'Guidelines on the assessment of investment analysis'. | OK | OK |
| | Are the assumptions underlying the referenced benchmark or discount rate relevant to the sector? | Yes, the benchmark value has correctly been taken from Group 1 which is relevant to energy industries. | OK | OK |
| | Is an appropriate benchmark or discount rate value chosen that is relevant for the project activity (<i>i.e. for this investor, country, risk of project, time of investment decision</i>)? | Yes, the benchmark value is chosen for Nicaragua from Group 1. The US inflation rate data is accurate as of the last forecast on 04 th October 2011./38/ | OK | OK |
| | Is the chosen benchmark conservative and in line with other benchmarks or discount rates used in current or previous projects by the same investor? (<i>including the</i> | The chosen benchmark is conservative and line with benchmark used in the previous project (Amayo Phase II Wind Power Project" No. 5303, dated 30 Sept 2011), developed by the same investor and in the same host country. | OK | OK |

| | Question | Validation findings (including justification and substantiation of information, data and evidence) | Draft OK/ CAR/CL | Final OK/ Not OK |
|---|--|--|------------------------|------------------------|
| | <i>benchmark or discount rate used in Feasibility Studies or other financial analyses of the project activity)</i> | | | |
| | Does the benchmark meet the requirements of the investment analysis guidelines paragraph 15, i.e. if the cost of equity is used in the determination of the benchmark, is the cost of equity determined either by: (a) selecting the values provided in Appendix A of the investment analysis guidelines; or by (b) calculating the cost of equity using best financial practices, based on data sources which can be clearly validated? Are all underlying factors sufficiently justified? | Yes, the cost of equity benchmark is selected from the values provided in appendix A of the 'Guidelines on the assessment of investment analysis'. | OK | OK |
| | If the cost of debt is used in the determination of the benchmark, is it calculated as the cost of financing in the capital markets (e.g. commercial lending rates and guarantees required for the country and the type of project activity concerned), based on documented evidence from financial institutions with regard to the cost of debt financing of comparable projects? In cases where this data is not available, has the commercial lending rate in the host country been used to calculate the cost of debt? (I.A. Guideline 16) | N/A | OK | OK |
| | Is the debt:equity ratio used to determine the benchmark based on the typical debt/equity finance structure observed in the sector of the country? If such information is not readily available, 50% debt and 50% equity financing may be assumed as a default. (I.A. Guideline 18) | The debt:equity ratio is not used to determine the benchmark. | N/A | N/A |
| If an internal company benchmark or discount rate has been used: | | | | |
| 7.3.3 (c) | Can the project only be implemented by the PP? (<i>Only in the particular case where the project activity can only be implemented by the PP, can the specific financial/economic situation of the company</i> | Not applicable | OK | OK |

| | Question | Validation findings (including justification and substantiation of information, data and evidence) | Draft OK/ CAR/CL | Final OK/ Not OK |
|----------------------|---|---|------------------------|------------------------|
| | <p><i>undertaking the project activity can be considered in the financial analysis)</i></p> <p>Therefore is the use of an internal benchmark or discount rate appropriate in this case?</p> | | | |
| | <p>Is it sufficiently demonstrated that project activities under similar conditions developed by the same company used the same benchmark or discount rate?</p> <p>Has ERM CVS undertaken a thorough assessment of the financial statements of the PP to assess the past financial behaviour of the entity during at least the last 3 years in relation to similar projects? (I.A. Guideline 14)</p> <p>If the company is brand new, has it been demonstrated that the same benchmark would have been used for similar projects in the same sector in the country/region?</p> | Not applicable | OK | OK |
| | <p>Is the cost of debt determined in accordance with the guidelines on the assessment of investment analysis, guideline 16?</p> | Not applicable | OK | OK |
| | <p>Is the cost of equity determined either by: (a) selecting the values provided in Appendix A of the investment analysis guidelines; or by (b) calculating the cost of equity using best financial practices, based on data sources which can be clearly validated?</p> <p>Are all underlying factors sufficiently justified?</p> <p>(I.A. Guideline 15)</p> | Not applicable | OK | OK |
| | <p>Is the debt: equity ratio in line with Guideline 17 of the Guidelines on the assessment of investment analysis?</p> | Not applicable | OK | OK |
| Risk Premiums | | | | |
| 7.3.4 | <p>Are risk premiums applied in the development of the</p> | The benchmark cost of equity is taken from appendix A to the 'Guidelines on the assessment of investment analysis' and no additional risk premiums are applied. | OK | OK |

| | Question | Validation findings (including justification and substantiation of information, data and evidence) | Draft OK/ CAR/CL | Final OK/ Not OK |
|--|---|---|------------------------|------------------------|
| | benchmark or discount rate? If so, are they reasonable and justified? How has this been validated? | | | |

7.3.3 Investment analysis assumptions and Input Values

ERM CVS evaluated the assumptions and input values used in the investment analysis

Assumptions based on Feasibility Studies

| | Question | Validation findings (including justification and substantiation of information, data and evidence) | Draft OK/ CAR/CL | Final OK/ Not OK |
|-------|---|--|------------------------|------------------------|
| 7.3.5 | Has the FSR been the basis of the decision to proceed with the investment in the project? How has this been verified? | Not applicable – there is no FSR. The Energy Assessment report (EAR) of the project is only a technical report /02/. | N/A | N/A |
| | Are the values used in the PDD and associated annexes valid and consistent with the FSR? | | | |
| | At the time of the investment decision, are the input values from the FSR valid and applicable (<i>based on specific local and sectoral expertise and knowledge</i>)? | | | |

Input values used in the investment analysis

As per VVM paragraph 111 (a to c) ERM CVS has conducted a thorough assessment of all parameters and assumptions used in calculating the relevant financial indicator, and determined the accuracy and suitability of these parameters using the available evidence and expertise in relevant accounting practices. ERM CVS has cross-checked the parameters against third-party or publicly available sources, such as invoices or price indices where available, and has reviewed feasibility reports, public announcements and annual financial reports, where available, related to the proposed CDM project activity and the PPs. Details of the validation activities and cross checks carried out are set out as follows:

| | Input parameter | Validation (source of the value used in the PDD financial analysis, including justification and substantiation of information, data and evidence) | Cross check (cross check of parameter against other sources or sectoral/financial knowledge, including justification and substantiation of information, data and evidence) | Draft OK/ CAR/CL | Final OK/ Not OK |
|------------------------------|---|--|---|------------------------|------------------------|
| Technical assumptions | | | | | |
| 7.3.6 | Electricity generation per year (load factor) | The installed capacity will be 44MW and the electricity generation will be 162.32 GWh per year with an anticipated load factor of 42.11% (P75 Net capacity factor) sourced from the Energy assessment report /02/. | The value has been cross-checked against other projects which employed similar generation technology. CDM Project Amayo 40 MW Wind Power Project - Nicaragua (Reg. | OK | OK |

| | Input parameter | Validation (source of the value used in the PDD financial analysis, including justification and substantiation of information, data and evidence) | Cross check (cross check of parameter against other sources or sectoral/financial knowledge, including justification and substantiation of information, data and evidence) | Draft OK/ CAR/CL | Final OK/ Not OK | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-------------|-----------------|---|--|------------------------|------------------------|-----------|------|---------|---------|-------------|-----|--|-----|---------------|-----------|------|---------|---------|-------------|-------|--|------|--------|--------|-------------|-----|--|-----|---------------|-----------|------|--------|---------|-------------|-----|--|------|--------|--------|--|--|
| | | <p>The Energy Assessment Report 'Garrad Hassan Wind Study 7-13-11' /02/ is a technical report based on an average availability expected over the first 10 years of operation, prepared by the third party engineering company: GL Garrad Hassan Iberica.</p> <p>The load factor was validated against the EB Guidelines for load factors EB 48, Annex 11.</p> <p>ERM CVS confirmed that the load factor is in compliance with the Guideline EB 48 Annex 11 part 3 (a) since it was determined by a third party contracted by the project participant.</p> | <p>No.2315) has a predicted load factor of 48.5% in the registered PDD, and Amayo Phase II Wind Power Project (Reg. No.5305) has a load factor of 48.97% in the registered PDD. However the actual load factor of both projects after they started operating is lower, and this can be evidenced based on the information provided by INE from 2009 to 2011/33/:</p> <p>2009:</p> <table><tr><th>No.</th><th>Net Gen (MWh)</th><th>PDD (MWh)</th></tr><tr><td>2315</td><td>109,845</td><td>169,512</td></tr><tr><td>Actual PLF:</td><td>31%</td><td></td></tr></table> <p>2010:</p> <table><tr><th>No.</th><th>Net Gen (MWh)</th><th>PDD (MWh)</th></tr><tr><td>2315</td><td>110,583</td><td>169,512</td></tr><tr><td>Actual PLF:</td><td>31.5%</td><td></td></tr><tr><td>5305</td><td>49,712</td><td>99,094</td></tr><tr><td>Actual PLF:</td><td>24%</td><td></td></tr></table> <p>2011: January – September (9 months)</p> <table><tr><th>No.</th><th>Net Gen (MWh)</th><th>PDD (MWh)</th></tr><tr><td>2315</td><td>90,129</td><td>127,134</td></tr><tr><td>Actual PLF:</td><td>34%</td><td></td></tr><tr><td>5305</td><td>62,150</td><td>74,320</td></tr></table> | No. | Net Gen (MWh) | PDD (MWh) | 2315 | 109,845 | 169,512 | Actual PLF: | 31% | | No. | Net Gen (MWh) | PDD (MWh) | 2315 | 110,583 | 169,512 | Actual PLF: | 31.5% | | 5305 | 49,712 | 99,094 | Actual PLF: | 24% | | No. | Net Gen (MWh) | PDD (MWh) | 2315 | 90,129 | 127,134 | Actual PLF: | 34% | | 5305 | 62,150 | 74,320 | | |
| No. | Net Gen (MWh) | PDD (MWh) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2315 | 109,845 | 169,512 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Actual PLF: | 31% | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| No. | Net Gen (MWh) | PDD (MWh) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2315 | 110,583 | 169,512 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Actual PLF: | 31.5% | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5305 | 49,712 | 99,094 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Actual PLF: | 24% | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| No. | Net Gen (MWh) | PDD (MWh) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2315 | 90,129 | 127,134 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Actual PLF: | 34% | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5305 | 62,150 | 74,320 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| | Input parameter | Validation (source of the value used in the PDD financial analysis, including justification and substantiation of information, data and evidence) | Cross check (cross check of parameter against other sources or sectoral/financial knowledge, including justification and substantiation of information, data and evidence) | Draft OK/ CAR/CL | Final OK/ Not OK | | | |
|-------------|--|---|---|------------------------|------------------------|--|--|--|
| | | | <table><tr><td>Actual PLF:</td><td>41%</td><td></td></tr></table> <p>Given that the observed plant load factors for operating projects in the country have varied from 24 to 41%, based on actual operating data published by INE, it considered reasonable for the proposed project to apply a load factor of 42.11%. The load factor was determined by a reliable third party based on 1.9 years (May 2009 to June 2011) of meteorological data, and therefore it is considered realistic and credible/02/.</p> | Actual PLF: | 41% | | | |
| Actual PLF: | 41% | | | | | | | |
| | Project operational lifetime (Assessment period) | <p>The project lifetime was determined by GAMESA which is the wind turbine manufacturer, and ERM CVS has validated it against the document provided by GAMESA /46/, and is referenced to page 5 of the document 'Germanischer Lloyd Certificate-Gamesa G90 Turbine' /25/and is found to be consistent.</p> <p>The assessment period presented in the financial analysis spreadsheet /01/ is 20 years which is in accordance with the 'Guidelines on the assessment of investment analysis.</p> <p>The assessment period is determined based on the operation lifetime of the project which is consistent with the PDD.</p> <p>Project life time is considered reasonable for wind projects in the host country, based on ERM CVS' local and sectoral knowledge.</p> | Lifetime of the equipment has been cross-checked against lifetime of other wind turbines manufacturers such as e.g., Vestas./30/; therefore, and based on ERM CVS sectoral knowledge, the lifetime of 20 years is considered reasonable. | OK | OK | | | |
| Costs | | | | | | | | |
| 7.3.7 | Investment costs | <p>Overall investment cost for the wind farm will be 111.54 million USD. This includes 76.9 million USD for the EPC contract /22//63//04/ (including, design, engineer, procure, install commission and construct a wind power plant.) and 34.64 million USD for additional project costs /60/ /04/ (including development costs, financing costs and fees, interests during construction, contingent costs, external supervision/bank engineer, etc.)</p> <p>ERM CVS has checked and confirmed these costs in Gamesa's turn-key EPC Proposal dated</p> | <p>The investment cost was cross checked against the investment cost of two similar CDM projects: Amayo 40 MW Wind Power Project – Nicaragua, and Amayo Phase II Wind Power Project, which are the only two wind projects in Nicaragua.</p> <p>The overall cost per unit of the proposed project is USD 2,537/kW</p> <p>The overall cost per kW of the Amayo 40 MW Wind Power Project - Nicaragua is 2,597 USD/kW (2,381 USD/kW as measured in 2007,</p> | CL7 | OK | | | |

| | Input parameter | Validation (source of the value used in the PDD financial analysis, including justification and substantiation of information, data and evidence) | Cross check (cross check of parameter against other sources or sectoral/financial knowledge, including justification and substantiation of information, data and evidence) | Draft OK/ CAR/CL | Final OK/ Not OK |
|--|--------------------------------|--|--|------------------------|------------------------|
| | | <p>26/07/2011 /22/ and EPC agreement between Eolonica S.A. and GAMESA Eolica S.L. – signed in 31 December 2011 /63/ and cross checked against the financing documents for the project - the Indicative terms and conditions of Finance for Development - senior debt and subordinated debt (FMO Lol 14 07 2011 subordinated debt /21/ and FMO Lol 06 09 2011 senior debt /21/)</p> <p>The EPC cost is comprised of “EPC without O&M of Balance of Plant (BoP)” + “Operation and maintenance of Electrical Equipment during the period of guarantee of two years” + 500,000 USD of change order allowances as per company experience in previous projects. However, evidence of the additional of the Additional project costs and cost of 500,000USD (change order allowances) need to be presented, see CL7.</p> <p>CL7 is closed, the cost of 500,000USD (change order allowances) have been included in the total contingency cost, the project developer has adopted 4.19% of the total investment cost as contingency costs, please refer to Appendix B.</p> | <p>equivalent to 2,597 USD/kW as measured in 2011 @ 2.2% annual inflation for 4 years). /35/</p> <p>The overall cost per MW of the Amayo Phase II Wind Power Project is 2283 (2,186 USD/kW as measured in 2009 USD, equivalent to 2,186 USD/kW as measured in 2011 @ 2.2% annual inflation for 2 years). /54/.</p> <p>Based on the other similar projects previously registered with the CDM, the level of investment costs per unit of installed capacity of the proposed project are very similar to previous projects in the host country. This confirms that the investment cost is reasonable compared with the investment costs of other wind projects in Nicaragua, and is therefore considered realistic and credible.</p> | | |
| | Contingency Cost | <p>Overall contingent costs are thus 4,270,000USD + 500,000 USD = 4,770,000USD which is the 4.27% of total investment cost /22/ /04/</p> <p>However evidence of the additional 500,000USD of contingency cost needs to be provided. See CL7.</p> <p>CL7 is closed, CL7 is closed, the additional 500,000USD of contingency cost have been included in the total contingency cost, the project developer has adopted 4.19% of the total investment cost as contingency costs, please refer to Appendix B. please refer to Appendix B.</p> | <p>These costs have been cross checked against other similar CDM projects in the host country:</p> <p>CDM Project Amayo 40 MW Wind Power Project - Nicaragua (Reg. No.2315) has considered 4.8 Millions USD/95 Millions USD= 5.06% /35/.</p> <p>CDM Project Amayo Phase II Wind Power Project (Reg. No.5305) has considered 2.9Millions USD/43.7Millions USD 6.6% /54/.</p> <p>This confirmed that the value used is conservative in comparison to other similar projects.</p> | CL7 | OK |
| | Operation and Maintenance Cost | <p>Warranty, Maintenance & Service</p> <p>In the first two years, maintenance warranty and service of the WTGs is covered by the wind turbine supplier (as per the EPC proposal /22/) and hence these costs are not included during this first two years</p> | <p>The O&M value is reasonable when compared with Feasibility Studies for other similar projects in Latin America, such as the “Feasibility study of wind farms in Uruguay” dated 2010 /55/ that stipulates an O&M cost of 9.5 USD/MWh for the first three years and 18 USD/MWh</p> | OK | OK |

| | Input parameter | Validation (source of the value used in the PDD financial analysis, including justification and substantiation of information, data and evidence) | Cross check (cross check of parameter against other sources or sectoral/financial knowledge, including justification and substantiation of information, data and evidence) | Draft OK/ CAR/CL | Final OK/ Not OK |
|-----------------|---|---|---|------------------------|------------------------|
| | | <p>Maintenance costs are anticipated as follows:</p> <p>1,342,500USD (61,023 USD x 22 WTGs)</p> <p>10,740,000 USD quoted by Gamesa for O&M services during years 3-10 [10,740,000/(8 years x22 WTGs) = 61,023 per year per WTG]</p> <p>ERM CVS has reviewed Gamesa's turn-key EPC Proposal dated 26/07/2011 /22/ and can confirm that the values used in the financial analysis are consistent with the document.</p> | <p>from the fourth year onwards.</p> <p>During the first three years the O&M cost is estimates as: 1,531,660 USD /04//31//35/ compared with 1,542,040 USD (162,320 MWh/year *9.5 USD/MWh)</p> <p>From the fourth year onwards the O&M costs are estimates as: 2,874,160 USD compared with 2,921,760 USD (162,320 MWh/year*18 USD/MWh)</p> | | |
| | | <p>Fixed operational costs other than WMS (exc. taxes & royalties) are estimated by the project participant based their operation experience of the CDM Project Amayo 40 MW Wind Power Project - Nicaragua (Reg. No.2315).</p> <p>Operational cost are expected as follow:</p> <p>1,531,660 USD /04//31//35/</p> <p>It contains wind turbine total insurance expenses, bank monitor (bank management fees), project management expenses and project administration.</p> <p>However evidence of each of the fixed costs need to be presented, please CL7.</p> <p>CL7 is closed – please refer to Appendix B.</p> | | CL7 | OK |
| | | | | | |
| Revenues | | | | | |
| 7.3.8 | Are all potential sources of revenue accounted for in the analysis? | <p>Yes, ERM CVS has identified the following revenue streams for the project:</p> <ul style="list-style-type: none"> - Revenue from electricity sales; - Interest on reserve account; - Repayment from Entatel for transferring the project substation. | <p>Based on the Energy Assessment Report (EAR) of the Proposed Eolo Wind Farm /02/, power purchase agreements /13//14/ and ENATREL letter about substation /49/, the potential revenues identified includes electricity sales, interest on reserve account, and repayment from Enatrel regarding to the installations that will be transferred.</p> | OK | OK |

| | Input parameter | Validation (source of the value used in the PDD financial analysis, including justification and substantiation of information, data and evidence) | Cross check (cross check of parameter against other sources or sectoral/financial knowledge, including justification and substantiation of information, data and evidence) | Draft OK/ CAR/CL | Final OK/ Not OK |
|--|--|---|--|------------------------|------------------------|
| | | These revenue streams were validated as explained below. | | | |
| | Annual power generation | <p>The proposed project anticipates generating 166,322 MWh/yr, based on a 42.11% Plant Load Factor. PLF was estimated by the independent third party Garrad Hassan, a renewable energy consulting firm. /02/. This is in line with the guideline for the reporting and validation of plant load factors</p> <p>Please see section 7.3.6 above on electricity generation.</p> | <p>The value has been cross-checked against other projects which employed similar generation technology.</p> <p>CDM Project Amayo 40 MW Wind Power Project - Nicaragua (Reg. No.2315) has a load factor of 48.5%.and Amayo Phase II Wind Power Project (Reg. No.5305) has a load factor of 48.97% The load factor of the proposed project (42.11%) is therefore considered reasonable.</p> | OK | OK |
| | Electricity tariff (VAT Incl.) | <p>Energy price is set at 104.50 USD/MWh. This is the price fixed in the PPAs with Union Fenosa /14/. The energy price will increase as indicated in the PPA: 3% during years 1-11; 1% during years 12-13; 0.5% during years 14-15 and remains constant at 139.86 USD/MWh for the last five years.</p> | <p>The value has been cross-checked against other CDM projects, which employed similar generation technology:</p> <p>CDM Project Amayo 40 MW Wind Power Project – Nicaragua registered in 2009 (Reg. No.2315) has an energy price of 86 USD/MWh and Amayo Phase II Wind Power Project registered in 2011 (Reg. No.5305) has an energy price of 92 USD/MWh. This confirms that the electricity tariff applied to the proposed project activity is reasonable and conservative.</p> | OK | OK |
| | Interest on reserve account | <p>Interest Rate on Debt Service Reserve, Cash Collateralized Bonds and Cash / Interest on reserve account - 5,287,000 USD /04/ at an interest rate of 3.75% /62/</p> <p>This practice is considered conservative since it results in additional revenues to the project and ERM CVS confirmed that the interest rate that the interest rate applied to the proposed project activity is reasonable and conservative.</p> | <p>Interest rate was crosschecked again the historical interest rates provided by U.S. Department of the Treasury. Resources Center. Historical information of interest rates and debt management. This confirms that the interest rate applied to the proposed project activity is reasonable and conservative.</p> | OK | OK |
| | ENATREL note principle repayment based on 15 year payment terms. | <p>No evidence and description have been provided regarding to the Enatrel note principle repayment which is considered as a source of revenue, see CL7.</p> <p>The repayment is related to the transfer of the project substation from the project developer to ENATREL. The project participant has provided a letter of investment approval /59/ dated 14 April 2010 from ENATREL, this letter corresponds to the substation of the project Amayo 40</p> | <p>The transfer of this substation will result in project revenues, the interest rate (10%) assumed for the ENATREL is higher than the one the project will have to pay for its own loan (9.5%), interest rate for the Senior debt /21/. ERM CVS has checked CDM Project Amayo 40 MW Wind Power Project – Nicaragua registered on 2009 (Reg. No.2315) and Amayo Phase II Wind Power Project registered in 2011 (Reg. No.5305) and it was found that repayment regarding to the</p> | CL7 | OK |

| | Input parameter | Validation (source of the value used in the PDD financial analysis, including justification and substantiation of information, data and evidence) | Cross check (cross check of parameter against other sources or sectoral/financial knowledge, including justification and substantiation of information, data and evidence) | Draft OK/ CAR/CL | Final OK/ Not OK |
|--|--|--|---|------------------------|------------------------|
| | | <p>MW Wind Power Project – Nicaragua 2315 which has a similar capacity to the proposed project activity, thus the applied value applied is considered conservative.</p> <p>CL7 is closed – please refer to Appendix B.</p> | substation transfer is reasonable and conservative. | | |
| Taxes and subsidies (if applicable) | | | | | |
| 7.3.9 | Are there any policies, subsidies, incentives, grants, tax breaks etc that apply to any of the alternatives? Are these incorporated in the analysis? | <p>The only existing incentive in the host country is the "Law for the Promotion of Power Generation from Renewable Sources" (Law Number 532) /34/.</p> <p>Law 532 reduces municipal taxes during the project's first 10 years (75% exemption the first three years, 50% the next five years and 25% the remaining two)</p> <p>These incentives have been excluded from the calculations as per Annex 3 of EB 22 paragraph 6 (b) and paragraph 7 (b) because this law has been implemented since the adoption of the Kyoto Protocol by the host country. The government of Nicaragua ratified the Kyoto Protocol on November 1999, while the national law established to promote the diffusion of renewable energy (Law Number 532) in this country is dated May 2005. It was found that the Law Number 532 is a public subsidy to promote the renewable energy.</p> <p>ERM CVS confirms that according to EB 22 annex 3 this is an E- policy which entered into force in 2005 (after the adoption of the Marrakesh Accords (11/11/2001), and therefore does not need to be taken into account when establishing the baseline scenario.</p> <p>In addition, EB53 Annex 32 section 4/65/ requires to assess whether the tariff has been affected by any national and/or sectoral policy and if so whether this policy/policies are E+ policies or E- policies, ERM CVS has confirmed that the applied tariff is not affected by Law for the Promotion of Power Generation from Renewable Sources Law No. 532 (2005) /34/ or by any national and/or sectoral policy, furthermore the tariff has been validated against the PPAs /13//14/ and has been crosschecked against</p> | <p>The information has been cross-checked against other projects which employed similar generation technology:</p> <p>CDM Project Amayo 40 MW Wind Power Project – Nicaragua registered on 2009 (Reg. No.2315) and Amayo Phase II Wind Power Project registered in 2011 (Reg. No.5305).</p> | Ok | OK |

| | Input parameter | Validation (source of the value used in the PDD financial analysis, including justification and substantiation of information, data and evidence) | Cross check (cross check of parameter against other sources or sectoral/financial knowledge, including justification and substantiation of information, data and evidence) | Draft OK/ CAR/CL | Final OK/ Not OK |
|--|--|--|--|------------------------|------------------------|
| | | the two existing wind power plants CDM Project Amayo 40 MW Wind Power Project – Nicaragua registered in 2009 (Reg. No.2315) and Amayo Phase II Wind Power Project registered in 2011 (Reg. No.5305) This confirms that the electricity tariff applied to the proposed project activity is reasonable and conservative. See section 7.3.8. | | | |
| | Income Tax holiday | Law number 532 Chapter 2 Article 7 section 3 establishes a seven year income tax holiday/34/; Validation team has reviewed the IRR calculation /04/ and has confirmed that since the project suffers losses during the first years of operation, it is not affected by income taxes and thus it does not benefit from the incentives foreseen in Law 532 for this tax. Furthermore, as validated above, this E- policy does not need to be considered because of the law's implementation started in 2005. However no evidence was provided about that losses cannot be carried forward to offset against future profits for the calculation of taxable income and tax, see CL 7. CL 7 is closed – please refer to Appendix B. | | CL7 | OK |
| | Property tax rate on immovable equipment: 1% | The property tax rate on immovable equipment has been validated based on the Decree No 3-95 /26/ | The information has been cross-checked against other projects which employed similar generation technology: CDM Project Amayo 40 MW Wind Power Project – Nicaragua registered on 2009 (Reg. No.2315) and Amayo Phase II Wind Power Project registered in 2011 (Reg. No.5305). | OK | OK |
| | Municipal taxes: 1% of revenue + 2% of Q4 revenue. | The values applied in the financial analysis are consistent with the Municipal Judgement /28/ | Municipal taxes: 1% of revenue + 2% of Q4 revenue have been validated based on: Decree No. 3-95 of the property and immovable equipment that stipulate a municipal tax of 1%. Decree No. 455 where the Municipal Income Law of the Republic of Nicaragua that stipulates a municipal tax of 1 % and 2% /26/ /28/. | OK | OK |
| | Income tax: 30%. | The applied income tax is in line with: Law 453, Fiscal Equity Law including | The income tax has been cross-checked with: Law 453, Fiscal Equity Law including | Ok | OK |

| | Input parameter | Validation (source of the value used in the PDD financial analysis, including justification and substantiation of information, data and evidence) | Cross check (cross check of parameter against other sources or sectoral/financial knowledge, including justification and substantiation of information, data and evidence) | Draft OK/ CAR/CL | Final OK/ Not OK |
|--|-------------------------|---|--|------------------------|------------------------|
| | | reforms and additions /27/ | reforms and additions /27/ | | |
| | Royalties to landowners | <p>The applied value is determined in the land contracts as 2% of revenue.</p> <p>The royalties were validated against the *Usufruct/royalty contracts/19//20/:</p> <p>1. COGISA - EOLO - Esc. No. 12 - CONSTITUCION DE USUFRUCTO_1304201117015200.pdf (see p. 8) /19/</p> <p>2. COGISA - EOLO - Esc. No. 13 - CONTRATO DE ARRENDAMIENTO_1304201117044000.pdf (see p. 7) /20/</p> <p>Contracts were approved by a government civil law notary.</p> <p>*Usufruct: this is a legal concept that means: profit or benefit from property that either is titled to another person or which is held in common ownership.</p> | Cross-checked against CDM Project Amayo Phase II Wind Power Project registered in 2011 (Reg. No.5305), Based on the sectoral expertise of validation team, it was found reasonable and conservative. | OK | OK |
| | Book Depreciation | A confirmation letter from the consulting group Baez Cortes has been provided /18/ | Cross-checked against the 453 Law on Fiscal Equity/27/ which states: 10 year depreciable life (10% annual depreciation) for tax depreciation for industrial machinery and equipment that is fixed and immovable (applicable for a wind park). | OK | OK |
| | Expected inflation | Inflation: has been determined as 2.2%, it was validated against the information from the U.S. Bureau of Labor Statistics for the period 2011-2020, as compiled by the Seattle City Budget Office . | <p>The expected inflation is reasonable considering that the energy contract is in US dollars. It is common that energy contracts in Central America are denominated in US.</p> <p>Compiled by the Seattle City Budget Office -</p> <p>http://www.seattle.gov/financedepartment/cpi/forecast.htm</p> <p>US_CPI_Forecast_-- Annual_003.pdf /29/</p> | OK | OK |
| | | | | | |

7.3.4 Investment analysis calculations

As per VVM paragraph 111(d) ERM CVS has assessed the correctness of computations carried out and documented by the PPs as follows:

Spreadsheet evaluation

| | Question | Validation findings (including justification and substantiation of information, data and evidence) | Draft OK/ CAR/CL | Final OK/ Not OK |
|--------|---|---|------------------------|------------------------|
| 7.3.10 | <p>Has the PP supplied unprotected and traceable spreadsheet versions of all investment analysis?</p> <p>Have the listed input values been consistently applied in all calculations?</p> <p>Are the computations/ formulae correct? (this includes the computations implicit in input values, such as technical calculations of the amount of energy demanded or sold etc)</p> <p>From the investment analysis provided, is it possible to reproduce the results?</p> | Yes, the PP has supplied unprotected and traceable spreadsheet versions of the investment analysis /04/, the listed input values have been consistently applied in all calculations, the computations and formulae are correct, and ERM CVS is able to reproduce the results. | OK | OK |

Depreciation and residual value

| | Question | Validation findings (including justification and substantiation of information, data and evidence) | Draft OK/ CAR/CL | Final OK/ Not OK |
|--------|--|--|------------------------|------------------------|
| 7.3.11 | <p>Is any residual value of the project activity assets included in the analysis?</p> <p>Are residual value assumptions reasonable and justified and consistent with local accounting rules/international best practice/industry experience?</p> | No residual value is required because the lifetime of the equipment is 20 years and the assessment period is 20 years. | OK | OK |
| | <p>Is the depreciation consistent with the assessment period and the residual value?</p> <p>Are depreciation costs/ periods consistent with local accounting regulations?</p> | Assets are depreciated over 10 years rather than the 20 year operation period. Depreciation cost and period are consistent with the local accounting regulation No. 453, "Law on Fiscal Equity" /Baez and Cortez/ /Regulation 453/ | OK | OK |
| | <p>Is depreciation correctly accounted for?</p> <p><i>(Depreciation costs (and other non-cash items) related to the project activity)</i></p> | Yes, only the fixed assets including buildings and equipment are subject to depreciation in the calculations. Depreciation costs are excluded from the cash flow and are only included for the purposes of determining income tax. | OK | OK |

| | | | | |
|--|--|--|--|--|
| | <i>should be <u>excluded</u> (not deducted) from net Cash Flow used for calculating the financial indicator (e.g. IRR, NPV). Depreciation is relevant only for the calculation of income tax.)</i> | | | |
|--|--|--|--|--|

Taxation and interest

| | Question | Validation findings (including justification and substantiation of information, data and evidence) | Draft OK/ CAR/CL | Final OK/ Not OK |
|--------|--|--|------------------------|------------------------|
| 7.3.12 | Is the treatment of taxation consistent with the chosen benchmark or discount rate? <i>(i.e. taxation should only be treated as an expense in the IRR/NPV calculation if the chosen benchmark or discount rate is intended for post-tax calculations?)</i> | Yes, the treatment of taxation is consistent with the chosen benchmark. Both the investment analysis and the benchmark are post-tax. | OK | OK |
| | For post-tax benchmarks or discount rates : a) Are interest costs included in the calculation of net taxable income and thus tax? b) Are interest costs calculated in accordance with the <i>Guidance on the Assessment of Investment Analysis</i> ? | A post-tax benchmark is applied. Interest costs are correctly accounted for in line with the Guidance on the Assessment of Investment Analysis. | OK | OK |
| | <i>If a Project IRR has been used:</i> Are the costs of financing expenditures excluded from the calculation of Project IRR? <i>(financing costs should not be deducted from Net Cash Flow)</i> <i>If an Equity IRR has been used:</i> Is the debt portion of the investment cost excluded as a cash outflow and the interest costs and principal repayments included as costs? | An equity IRR has been used. Only the 25% equity portion of investment costs is included as a cash outflow, while interest costs and principle repayments are correctly included as costs in the cashflow. | OK | OK |

Recommended projects (Project activities where an investment decision was taken but implementation subsequently ceased)

The project is not a recommended project (i.e. an investment decision was taken but the implementation of the project subsequently ceased, and then re-started due to consideration of the CDM benefits).

Sensitivity analysis

A sensitivity analysis has been carried out to demonstrate the impact on the IRR of variations in the key input values to the financial analysis in accordance with the *Guidelines on the assessment of investment analysis*. All costs and revenues greater than or equal to 20% of total costs / revenues have been included in the analysis. The variation in each parameter needed in order for the IRR to reach the benchmark, and the likelihood of such variations taking place, are explained in the PDD. As per VVM paragraph 111(e) ERM CVS has assessed the sensitivity analysis by the PPs to determine under what conditions variations in the result would occur, and the likelihood of these conditions. ERM CVS has reviewed the calculations for the sensitivity analysis which are presented in the IRR Spreadsheet /04/ and checked whether the computations are reproduced as correct and consistent with the information presented in the PDD.

The findings of the validation of sensitivity analysis are set out below.

| | Parameters ≥ 20% of costs or revenues (list all) | Is the parameter included in the PDD sensitivity analysis? | Is the sensitivity analysis correctly calculated and traceable? | Is the degree of variation reasonable ? | Validation of why such variation is considered unlikely, based on evidence | Draft conclus ion [OK/ CAR / CL] | Final conclus ion [OK/Not OK] |
|--|--|---|---|---|--|--|--|
| | Other Investment costs | Yes | Yes | Yes | <p>Only the part of the investment that is not fixed through the EPC contract is considered within "other investment costs" as this is the only component of the investment that remains uncertain after the EPC contract is signed /63/.</p> <p>The parameter investment cost is a fixed value as was verified through the project contract information /63/. Therefore, the investment cost was not included in the sensitivity analysis according to the Guideline on the assessment of investment analysis</p> | OK | OK |
| | Electricity Tarrif | No | N/A | N/A | <p>The energy price is already fixed. Energy price is set at 104.50 USD/MWh (this is the price settled in the PPA with Union Fenosa). Energy price escalates as indicated in the PPA: 3% during years 1-11; 1% during years 12-13; 0.5% during years 14-15 and remains constant for the last five years.</p> | OK | OK |
| | Yearly revenue (Plant Load Factor) | Yes | Yes | Yes | <p>The annual power delivered to the grid is 162.32 GWh which is calculated by the third party GL - Garrad Hassan /02/.</p> <p>The plant load factor (PLF) of the project is 42.11% and it was calculated the third party</p> <p>According to Guideline for the reporting and validation of plant load factors version 01 , the plant load factor defined ex-ante in the CDM-PDD has been verified by ERM CVS based on the following criteria:</p> <p>(a) The plant load factor has been provided to the government while applying the project activity for implementation approval;</p> <p>(b) The plant load factor was determined by a third party design institute which was contracted by the project participants.</p> <p>The value has been cross-checked against other projects which employed similar</p> | OK | OK |

| | Parameters ≥ 20% of costs or revenues (list all) | Is the parameter included in the PDD sensitivity analysis? | Is the sensitivity analysis correctly calculated and traceable? | Is the degree of variation reasonable ? | Validation of why such variation is considered unlikely, based on evidence | Draft conclus ion [OK/ CAR / CL] | Final conclus ion [OK/Not OK] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|------|--|---|---|---|---|--|--|-----------|------|---------|---------|------|-----|--|-----|---------------|-----------|------|---------|---------|------|-------|--|------|--------|--------|------|-----|--|-----|---------------|-----------|------|--------|---------|------|-----|--|------|--------|--------|------|-----|--|--|--|
| | | | | | <p>generation technology.</p> <p>CDM Project Amayo 40 MW Wind Power Project - Nicaragua (Reg. No.2315) has a load factor of 48.5%.and Amayo Phase II Wind Power Project (Reg. No.5305) has a load factor of 48.97% but the actual performance of both projects is lower and this can be evidence based on the information provided by INE from 2009 to 2011/33/:</p> <p>2009:</p> <table><tr><td>No.</td><td>Net Gen (MWh)</td><td>PDD (MWh)</td></tr><tr><td>2315</td><td>109,845</td><td>169,512</td></tr><tr><td>PLF:</td><td>31%</td><td></td></tr></table> <p>2010:</p> <table><tr><td>No.</td><td>Net Gen (MWh)</td><td>PDD (MWh)</td></tr><tr><td>2315</td><td>110,583</td><td>169,512</td></tr><tr><td>PLF:</td><td>31.5%</td><td></td></tr><tr><td>5305</td><td>49,712</td><td>99,094</td></tr><tr><td>PLF:</td><td>24%</td><td></td></tr></table> <p>2011: January – September (9 months)</p> <table><tr><td>No.</td><td>Net Gen (MWh)</td><td>PDD (MWh)</td></tr><tr><td>2315</td><td>90,129</td><td>127,134</td></tr><tr><td>PLF:</td><td>34%</td><td></td></tr><tr><td>5305</td><td>62,150</td><td>74,320</td></tr><tr><td>PLF:</td><td>41%</td><td></td></tr></table> <p>This confirmed that the value of Load Factor of the proposed project (42.11%) is</p> | No. | Net Gen (MWh) | PDD (MWh) | 2315 | 109,845 | 169,512 | PLF: | 31% | | No. | Net Gen (MWh) | PDD (MWh) | 2315 | 110,583 | 169,512 | PLF: | 31.5% | | 5305 | 49,712 | 99,094 | PLF: | 24% | | No. | Net Gen (MWh) | PDD (MWh) | 2315 | 90,129 | 127,134 | PLF: | 34% | | 5305 | 62,150 | 74,320 | PLF: | 41% | | | |
| No. | Net Gen (MWh) | PDD (MWh) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2315 | 109,845 | 169,512 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| PLF: | 31% | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| No. | Net Gen (MWh) | PDD (MWh) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2315 | 110,583 | 169,512 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| PLF: | 31.5% | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5305 | 49,712 | 99,094 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| PLF: | 24% | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| No. | Net Gen (MWh) | PDD (MWh) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2315 | 90,129 | 127,134 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| PLF: | 34% | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5305 | 62,150 | 74,320 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| PLF: | 41% | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| | Parameters ≥ 20% of costs or revenues (list all) | Is the parameter included in the PDD sensitivity analysis? | Is the sensitivity analysis correctly calculated and traceable? | Is the degree of variation reasonable ? | Validation of why such variation is considered unlikely, based on evidence | Draft conclus ion [OK/ CAR / CL] | Final conclus ion [OK/Not OK] |
|--|--|---|---|---|---|--|--|
| | | | | | reasonable. In summary, it is confirmed by ERM CVS that the plant load factor is valid and reasonable for the proposed project activity. | | |

Investment analysis conclusion

On the basis of its specific local and sectoral expertise, ERM CVS has confirmed that the input values to the investment analysis are valid and applicable at the time of the investment decision. Further details on the cross checks carried out on the input parameters are given in the table below and in section 7 of the validation protocol checklist.

The PDD presents the key input parameters and results of the IRR of the project, and ERM CVS assessed the correctness of computations carried out by the PPs by reproducing the results using the IRR calculation spreadsheet /04/.

The validation team confirms that the calculations are correct, traceable, and consistent with the results of the FSR.

All input values used in the spreadsheet are consistent with the PDD/01/, Energy assessment report /02/, IRR and ER spreadsheet calculation /04/ /05/ and EPC Gamesa proposal /22/, EPC agreement between Eolonica S.A. and GAMESA Eolica S.L. – signed in 31 December 2011 /63/ and the calculation is in line with the *Guidelines on the Assessment of Investment Analysis*, and is considered reasonable on the basis of ERM CVS's local and sectoral expertise and financial knowledge.

The IRR of the project without CDM income is well below the benchmark of 18.04%, and hence it can be concluded that the project is additional.

7.4 Barrier Analysis

Barrier analysis has not been used to demonstrate the additionality of the proposed CDM project activity.

7.5 Common practice analysis

The proposed project activity is a large-scale project and therefore common practice analysis has been carried out as a credibility check of the other available evidence used by the PPs to demonstrate additionality. This is a test to complement the investment analysis (Step 2 of the additionality tool) to confirm that the project activity is not widely observed and commonly carried out in the region.

ERM CVS used its local and sectoral expertise to assess compliance with the common practice analysis as set out in the "Tool for the demonstration and assessment of additionality", including assessment of the following:

The proposed project activity is a large-scale project and therefore common practice analysis has been carried out as a credibility check of the other available evidence used by the PPs to demonstrate additionality. This is a test to complement the investment analysis (Step 2 of the additionality tool) to confirm that the project activity is not widely observed and commonly carried out in the region.

The project applies the "Tool for the demonstration and assessment of additionality". For measures covered in paragraph 6 of the tool, common practice analysis should be carried out in accordance with the requirements of paragraph 47 of the tool. The project falls under the measures listed in paragraph 6 since it involves (b) switch of technology with or without change of energy source (including energy efficiency improvement as well as use of renewable energies). ERM CVS used its local and sectoral expertise to assess compliance with the common practice requirements of the tool for the demonstration and assessment of additionality, paragraph 47. The tool requires the following:

Step 1: Calculate applicable output range as +/-50% of the design output or capacity of the proposed project activity.

Step 2: In the applicable geographical area, identify all plants that deliver the same output or capacity, within the applicable output range calculated in Step 1, as the proposed project activity and have started commercial operation before the start date of the project. Note their number N_{all} . Registered CDM project activities and projects activities undergoing validation shall not be included in this step;

Step 3: Within plants identified in Step 2, identify those that apply technologies different that the technology applied in the proposed project activity. Note their number N_{diff} .

Step 4: Calculate factor $F = 1 - N_{diff}/N_{all}$ representing the share of plants using technology similar to the technology used in the proposed project activity in all plants that deliver the same output or capacity as the proposed project activity.

The proposed project activity is a "common practice" within a sector in the applicable geographical area if both the following conditions are fulfilled:

(a) the factor F is greater than 0.2, and

(b) $N_{all} - N_{diff}$ is greater than 3.

7.5.1 Consideration of whether the project activity is 'first-of-its-kind'

| | Question | Validation findings (including justification and substantiation of information, data and evidence) | Draft OK/ CAR/CL | Final OK/ Not OK |
|-------|---|---|------------------------|------------------------|
| 7.5.1 | Is the proposed project activity described a 'first of its kind'? If so, does the project comply with the 'Guidelines on additionality of first-of-its-kind project activities'? | No, the proposed project activity is not described as a first of its kind. | OK | OK |

7.5.2 Geographical scope of the common practice analysis

| | Question | Validation findings (including justification and substantiation of information, data and evidence) | Draft OK/ CAR/CL | Final OK/ Not OK |
|-------|--|--|------------------------|------------------------|
| 7.5.2 | Is the applicable geographical area of the common practice analysis appropriate for the assessment related to the project activity's technology or industry type? If a region other than the host country is chosen, is this appropriate? | <p>The geographical scope of the analysis is the host country "Nicaragua" This is considered appropriate for the project type and industry. This is considered appropriate since regulatory and investment conditions vary considerably from country to country.</p> <p>The PDD correctly applies sub-steps 4a and 4b of the Common practice analysis. There are currently only 3 wind farms in Nicaragua, and all apply for CDM status. The first wind farm was Amayo 40MW wind Power Project Nicaragua (2315), the second wind farm is Amayo Phase II Wind Power Project (5305) and the third wind farm is this Eolo Wind Power Project.</p> <p>It can therefore be concluded that renewable energy generation from wind-farms is not a common practice in Nicaragua. This information was confirmed through the Energy Institute of Nicaragua INE (Instituto Nicaragüense de Energia) (http://www.ine.gob.ni) website. /11/12/.</p> | OK | OK |

7.5.3 Comparison with similar and operational projects

| | Question | Validation findings (including justification and substantiation of information, data and evidence) | Draft OK/ CAR/CL | Final OK/ Not OK |
|-------|--|---|------------------------|------------------------|
| 7.5.3 | <p>In the applicable geographical area, has the PP identified all plants that deliver the same output or capacity, within the applicable output range, that started commercial operation before the starting date of the project? (Registered CDM project activities and projects activities undergoing validation shall not be included)</p> <p>How have we validated the data sources, including that the list includes all relevant plants?</p> | <p>Yes, PDD table 4 includes all identified the power plants that deliver the same output that started commercial operation before the starting date of the proposed project activity, the range include projects within 22-66 MW of installed capacity(+/- 50%) and CDM Projects have been excluded. $N_{all} = 11$</p> <p>This information was confirmed through the Energy Institute of Nicaragua INE (Instituto Nicaragüense de Energia) (http://www.ine.gob.ni) website. /11//12/</p> | OK | OK |
| | <p>Has the PP correctly identified those plants that apply technologies different that the technology applied in the proposed project activity?</p> | <p>Yes, the PDD correctly identified those plants that apply technologies different that the technology applied in the proposed project activity. It was found that there are no power plants similar in technology (i.e. wind power projects) in the group of plants within similar (i.e. +/-50%) range that are not being developed as CDM projects. $N_{diff} = 11$</p> <p>This information was confirmed through the Energy Institute of Nicaragua INE (Instituto Nicaragüense de Energia) (http://www.ine.gob.ni) website. /11//12/</p> | OK | OK |
| | <p>Has the PP correctly calculated the factor F, in accordance with the requirements of the tool?</p> <p>Is the project activity common practice (The proposed project activity is a common practice within a sector in the applicable geographical area if both the following conditions are fulfilled: (a) the factor F is greater than 0.2, and (b) $N_{all} - N_{diff}$ is greater than 3)?</p> | <p>Yes, since there are no power plants similar in technology (i.e. wind power projects) in the group of plants within similar (i.e. +/-50%) range that are not being developed as CDM projects. $F = 1 - N_{diff} / N_{all}$ is equal to zero.</p> <p>As for the proposed project $F = 0$, the Eolo Wind Power Project cannot be considered common practice in Nicaragua.</p> | OK | OK |
| | <p>Has the PP provided documented evidence and, where relevant, quantitative information to support the analysis?</p> | <p>This information can be confirmed through the Energy Institute of Nicaragua INE (Instituto Nicaragüense de Energia) (http://www.ine.gob.ni) website. /11//12/</p> | OK | OK |

| | Question | Validation findings (including justification and substantiation of information, data and evidence) | Draft OK/ CAR/CL | Final OK/ Not OK |
|-------|---|---|------------------------|------------------------|
| 7.5.4 | <p>Overall, has it been demonstrated that the proposed CDM project activity is not common practice?</p> | <p>Yes; ERM CVS concluded based on information provided by the Energy Institute of Nicaragua INE (Instituto Nicaragüense de Energia (http://www.ine.gob.ni) /11//12/ that the EOLO Wind Power project is not common practice in the Host Country.</p> | OK | OK |

Common Practice Conclusion

The proposed project is not claimed to be the first-of-its kind, therefore common practice analysis has been carried out as a credibility check to compliment the demonstration of additionality to confirm that the project activity is not widely observed and commonly carried out in the region. ERM CVS has validated that:

- (a) The geographical scope of the common practice analysis is justified;
- (b) An assessment of the existence of similar projects has been undertaken by the PPs and validated by ERM CVS;
- (c) The project is not common practice according to paragraph 47 of the additionality tool.

8 Validation Findings - Monitoring plan and other issues

ERM CVS evaluated the monitoring plan for the proposed project to ensure that it is based on the approved monitoring methodology that has been applied. As per the VVM, ERM CVS applied a two-step process, based on review of the documented procedures, interviews with relevant personnel, project plans and any physical inspection, to assess:

- a) *Compliance of the monitoring plan with the approved methodology*:
 - (i) By means of document review, identify the list of parameters required by the selected approved methodology;
 - (ii) Confirm that the monitoring plan contains all necessary parameters, that they are clearly described and that the means of monitoring described in the plan complies with the requirements of the methodology.
- b) *The Implementation of the monitoring plan*, taking into account:
 - (i) Whether the monitoring arrangements described in the monitoring plan are feasible within the project design;
 - (ii) Whether the means of implementation of the monitoring plan, including the data management and quality assurance and quality control procedures, are sufficient to ensure that the emission reductions achieved by/resulting from the proposed CDM project activity can be reported ex post and verified.

8.1 Compliance of the monitoring plan with the approved methodology

The monitoring plan in the PDD includes all parameters necessary for monitoring of this type of project in accordance with the approved methodology that has been applied for this project. The parameters are clearly described and the means of monitoring described in the plan complies with the requirements of the methodology.

8.1.1 Completeness of monitoring parameters

The monitoring parameters required by the methodology and applicable tools are:

| Parameter Name | Parameter Description | Is the parameter appropriately included in the Monitoring Plan? (including justification and substantiation of information, data and evidence) |
|--------------------------|---|--|
| EG _{facility,y} | Quantity of net electricity generation supplied by the project plant/unit to the grid in period y | Yes, the parameter is appropriately included in the monitoring plan. |

| | Question | Validation findings (including justification and substantiation of information, data and evidence) | Draft OK/ CAR/CL | Final OK/ Not OK |
|-------|--|---|------------------|------------------|
| 8.1.1 | Are all required parameters included in the monitoring plan? | EG _{facility,y} is included in the PDD section B. 7.1, which will be calculated through electricity supplied by the project to the grid (EG _{230kV,y}) minus electricity consumed from the NIS (EC _{230kV,y}). | OK | OK |

Conclusion

The monitored parameters included in the monitoring are complete and appropriate for monitoring of this project activity.

8.1.2 Compliance of monitoring

For each parameter, ERM CVS has validated whether it has been addressed in accordance with the baseline and monitoring methodology.

| Monitored Parameters | Parameter Names |
|--|--------------------------|
| | EG _{facility,y} |
| Parameter Title correct? | Yes |
| Description in line with methodology? | Yes |
| Data unit correctly expressed? | Yes |
| Source clearly referenced? | CL5 Yes |
| Correct value provided for ex ante estimation? | Yes |
| Has this value been verified? | Yes |
| Measurement method correctly described? | CL5 Yes |
| Measurement and recording frequency correctly described? | Yes |
| Correct reference to standards? | Yes |
| Indication of accuracy provided? | CL5 Yes |
| QA/QC procedures described? | Yes |
| QA/QC procedures appropriate? | Yes |

| | Question | Validation findings (including justification and substantiation of information, data and evidence) | Draft OK/ CAR/CL | Final OK/ Not OK |
|-------|--|--|------------------------|------------------------|
| 8.2.2 | Are all required parameters appropriately monitored in accordance with the methodology (including applicable tools)? | <p>In accordance with the applied methodology, the Quantity of net electricity generation supplied by the project plant/unit to the grid in year y (MWh) shall be monitored. In conclusion, the monitoring plan of the submitted PDD is in accordance with the applied methodology.</p> <p>The Monitoring plan presents inconsistencies regarding the accuracy of the electricity meters; section B7.1 states that the accuracy of the meters will be 0.2% whilst section B.7.2 states 0.5%. The source of the data to be used presented in B.7.1 is not consistent with the presented diagram and description provided in section B.7.2, and the location and number of the meters that will be used is not clear. Measurement method includes start up activities, but it is not clear what these activities are, Please CL 5.</p> <p>CL 5 was closed out, see appendix B.</p> | CL-5 | OK |

Conclusion

The means of monitoring all relevant monitored parameters complies with the requirements of the methodology, including applicable tools.

8.2 Implementation of the monitoring plan

ERM CVS evaluated the feasibility and sufficiency of the monitoring plan. The key components of the monitoring plan are as follows.

Operational and management structure:

The PDD contains a diagram illustrating the organisational structure to be implemented in order to monitor the project activity. Organisational structure includes an Operational Department that will be responsible for ERs monitoring, record keeping and the implementation of proper QA procedures. Operational Department will report to a General Manager, responsibilities are clearly defined in a matrix in the PDD..

Equipment:

Metering the net electricity supplied by the project activity to the grid will be carried out by two bi-directional meters (main meter and back-up) with accuracy no lower than $\pm 0.5\%$. Meters will be installed in a dedicated substation of 230 kV. In addition, two more meters will be installed onsite at the low voltage 34.5 kV side with accuracy no lower $\pm 0.5\%$, which will be used in case the 230 kV meters are out. Meters will be calibrated in accordance with the INE regulations.

Meters are not installed yet since the project has not started.

Quality Assurance and Quality Control (QA/QC) of equipment and data:

The monitoring plan described in section B.7.2 of the PDD states that the project owner and the grid company will record the readings of the meters monthly and all monitoring data and records will be archived in both paper and electronic format, and the copies of sales invoices will be kept for cross check purpose. All electronic and paper documents will be archived and be kept for 2 years after the end of the last crediting period or the last issuance of CERs, whichever occurs later.

The PDD describes calibration and trouble-shooting procedures in the monitoring plan. The meters will be calibrated at least once every two years by entities authorized by the CNDP, as per local standards for electricity transactions in the NIS (according to INE regulation (Norm on operation, commercial annex: commercial measurement systems: paragraph VII: review of meters) ["Normativa de Operación, Anexo Comercial: Sistema de Mediciones Comerciales, inciso VII.: Revisión de los medidores habilitados"], and a back-up meter will be used if the main meter is shown to be malfunctioning or falls below the required accuracy limit. The PDD contains sufficient description on how quality will be controlled and assured in the monitoring of emission reductions.]

The emergency procedure describes that the meters in the low voltage side will only be used in the case that both the main and the backup meter are simultaneously broken/off-line, Historical records will be used to account for transmission losses between the 34.5 kV and the 230 kV metering points, Project developer will chose the most conservative values between the data provided by the meters and data provided by the grid operator.

Feasibility of the monitoring plan:

| | Question | Validation findings (including justification and substantiation of information, data and evidence) | Draft OK/ CAR/CL | Final OK/ Not OK |
|-------|--|---|------------------------|------------------------|
| 8.2.3 | Are the arrangements described in the plan feasible and practical within the project design? Please consider: (a) operational and management structure, including responsibilities (b) Plans for maintenance and calibration of equipment (c) Plans for QA/QC of equipment and data (d) Installation of monitoring | (a)(b)(c)(d) CL5 was raised by the validation team because the description of monitoring plan was incomplete in the GSP-PDD; additional description and evidence for the planned monitoring system set-up was requested: CL 5 was closed as explained in Annex B. | CL5 | OK |

| | | | | |
|--|--|--|--|--|
| | equipment (whether in place, or planned) | | | |
|--|--|--|--|--|

Conclusion

Based on the validation activities performed, ERM CVS concludes that:

- (a) The monitoring plan is fully in compliance with the requirements of the methodology;
- (b) The monitoring arrangements described in the monitoring plan are feasible within the project design;
- (c) The means of implementation of the monitoring plan, including the data management and quality assurance and quality control procedures, are sufficient to ensure that the emission reductions achieved by/resulting from the proposed CDM project activity can be reported ex post and verified.

The assessment conducted by ERM CVS is by means of review of the documented procedures, interviews with relevant personnel, project plans and physical inspections of the proposed CDM project activity site. In ERM CVS's opinion, the PPs are able to implement the monitoring plan.

9 Validation Findings – Sustainable Development, Local Stakeholder Consultation and Environmental Impact

9.1 Sustainable Development

As per VVM section 8, ERM CVS evaluated whether the letter of approval by the DNA of the host Party confirms the contribution of the proposed CDM project activity to the sustainable development of the host Party.

| | Question | Validation findings (including justification and substantiation of information, data and evidence) | Draft OK/ CAR/CL | Final OK/ Not OK |
|-------|--|--|--|------------------------|
| 9.1.1 | Does the LoA from the Host Party confirm that the project activity contributes to the sustainable development of that country? | <p>Pending CAR 1</p> <p>The LoA from the host country has been provided. Therefore, CAR 1 is closed as explained in Appendix B.</p> <p>The LoA confirms that the project activity contributes to the sustainable development of Nicaragua.</p> | CAR 1 had been raised because the Modalities of Communication and Host Party LoA have not been provided during site visit. | OK |

9.2 Local Stakeholder Consultation

As per VVM section 9, ERM CVS evaluated whether local stakeholders had been invited to comment on the on the proposed CDM project activity prior to the publication of the PDD on the UNFCCC website.

| | Question | Validation findings (including justification and substantiation of information, data and evidence) | Draft OK/ CAR/CL | Final OK/ Not OK |
|-------|--|--|------------------------|------------------------|
| 9.2.1 | Have comments from local stakeholders that can reasonably be considered relevant been invited prior to the publication of the PDD on the UNFCCC website? | <p>The project stakeholder's consultation was conducted on 10 October 2011. Local Stakeholders invited including the local government, schools, NGOs, landowners, and local community.</p> <p>Stakeholders were invited through personalized invitations (mainly for governmental stakeholders) /50/ and a newspaper publication one week prior to the event /38//39/. In addition, the Spanish version of the PDD was uploaded onto MARENA's Website (Environmental Authority Nicaragua) from 3 to 7 October 2011 to receive public comments.</p> <p>MARENA The Ministry of the Environment and Natural Resources is in charge of environmental protection and of the study, planning, and management of the Nicaragua's natural resources and acts as CDM DNA.</p> | OK | OK |
| | Is the summary of comments received as provided in the PDD complete? | No comments were received from the publication on MARENA's website, in the period 03-07 October 2011; this was confirmed during the interview with DNA representatives /IV6//IV7/.. A summary of comments /51/ received during the stakeholder's consultations carried out on 10 October 2011 is appropriately included in section E.2 the PDD. ERM CVS has watched the video of the meeting and concluded that all stakeholders' comments have been taken into account | OK | OK |

| | Question | Validation findings (including justification and substantiation of information, data and evidence) | Draft OK/ CAR/CL | Final OK/ Not OK |
|--|--|---|------------------------|------------------------|
| | | adequately. | | |
| | Has due account been taken of any stakeholder comments received and is this adequately and clearly described in the PDD? | Yes. Local stakeholders including nearby residents and local government representatives were interviewed by ERM CVS and they are supportive to the project activity. ERM CVS confirms that the comments are adequately described in the PDD. | OK | OK |

Conclusion

Based on the document reviews undertaken and interviews with local stakeholders, ERM CVS concludes that relevant local stakeholders were invited to comment on the project prior to publication of the PDD on the UNFCCC website, and that the consultation undertaken is adequate in the context of the project. The stakeholders did not identify any serious concerns or significant negative impacts from the construction of the project.

ERM CVS has therefore validated that the local stakeholder consultation is adequate.

9.3 Environmental Impacts

As per VVM section 10, ERM CVS evaluated whether an analysis of the environmental impacts of the project activity had been conducted in accordance with paragraph 37 of the CDM modalities and procedures.

| | Question | Validation findings (including justification and substantiation of information, data and evidence) | Draft OK/ CAR/CL | Final OK/ Not OK |
|-------|---|---|------------------------|------------------------|
| 9.3.1 | Confirm whether an analysis of the environmental impacts of the project activity has been conducted, including transboundary impacts, and if those impacts are considered significant by the PPs or Host Party? | <p>The proposed project activity is defined as class III in accordance with the Environmental Evaluation System Decree No.76-2006 /37/. This decree confirms that class III projects require an environmental assessment (EA)</p> <p>Environmental Assessments (EAs) were developed by PP and authorized by MARENA /03/. According to the EA approvals /03/, the environmental impacts are not considered as significant by MARENA.</p> <p>Additionally, the project developer presented an Environmental Impact Assessment (EIA) for the substation and the transmission lines and has provided the EIA approval. Based on to the same regulation (decree 76-2006, article 17 paragraph 28), the construction of a substation and the transmission lines fall under the Category II ("high impacts") and hence an Environmental Impact Assessment is required.</p> <p>Applicable environmental classification regulation "Decree 76-2006"/37/ have been described, the following documents have checked and validated /03/:</p> <p>Wind power plant:</p> <ul style="list-style-type: none"> Environmental Management Plan (EMP) dated November 2009 EMP Approval No. 031-2009 dated 15 December 2009 EMP Authorization extension No 31-2009A dated 07 June 2011 Environmental permit reflecting the actual individual capacity of the wind turbines "Final Resolution No 004-2012" dated 10 February 2012 <p>Transmission line and Substation:</p> | CL-6 | OK |

| | Question | Validation findings (including justification and substantiation of information, data and evidence) | Draft OK/ CAR/CL | Final OK/ Not OK |
|--|--|---|------------------------|------------------------|
| | | <ul style="list-style-type: none"> EIA for Transmission line and substation, dated July 2011 – EIA Authorization No. R.A-DGCA-P0021-0711-031-2011 EIA Authorization No. DGPA-P0016-0511-028-2011-001-2012-C.D. (Authorization transferred to transferred to Eolo de Nicaragua) <p>(MARENA) Ministry of the Environment and Natural Resources is in charge of environmental protection and of the study, planning, and management of the Nicaragua's natural resources.</p> <p>The validation team raised CL 6 because the GSP-PDD was not clear enough on the environmental assessment(s) required for the proposed project, and no evidence of the environmental assessments reports had been provided.</p> <p>CL 6 was closed. See details in appendix B.</p> | | |
| | Has the PP conducted an environmental impact assessment if required to do so by the host Party, in accordance with the Party's procedures? | <p>Yes, the PP has conducted the environmental assessment in accordance with the Environmental Evaluation System Decree No.76-2006 /37/. This decree confirms that class III projects, such as the proposed project activity, require an environmental assessment (EA) and the construction of a substation and the transmission lines are classified as class II, and require an Environmental Impact Assessment (EIA).</p> <p>EAs and EIA have been carried out and approved by MARENA in accordance with the Environmental Evaluation System Decree No.76-2006 /37/. The authorizations for proposed project sites and substation were reviewed /03/.</p> | CL-6 | OK |

Conclusion

An analysis of environmental impacts of the project has been undertaken /03/.

In accordance with procedures required by the host Party, an environmental impact assessment was undertaken /03/.

9.4 Public funding

ERM CVS also evaluated whether the information relating to public funding in the PDD Annex 2 has been correctly presented.

| | Question | Validation findings (including justification and substantiation of information, data and evidence) | Draft OK/ CAR/CL | Final OK/ Not OK |
|-------|--|---|------------------------|------------------------|
| 9.4.1 | If the project involves public funding from an Annex 1 country, have the annex 1 parties involved provided an affirmation that such funding does not result in a diversion of official development assistance? | No public funding is involved in the project. /21/ | OK | OK |
| | Is the information provided on public funding (PDD, Annex 2) provided in compliance with the actual situation or planning as available by the PPs? | Not applicable. The proposed project does not involve public funding. | OK | OK |

Conclusion

ERM CVS has confirmed that there is no public funding from Annex 1 countries.

Appendix A: Documents and Interviewees

9.5 A.1 DOCUMENT LIST

| Reference number | Date | Document Title and version number (if applicable) |
|------------------|---|---|
| 01 | 18 October 2011 15 March 2012 05 May 2012 | Project Design Document for the proposed project Version 01 (for GSP) Version 1.1 Version 2.0 |
| 02 | 13 July 2011 | Energy Assessment Report (EAR) of the Proposed Eolo Wind Farm GL Garrad Hassan Report |
| 03 | November 2009 15 December 2010 07 June 2011 10 February 2012 July 2011 31 October 2011 24 February 2012 | Environmental Assessment (EA) Environmental Assessment for the Project Environmental Management Plan (EMP) dated November 2009 EMP Approval No. 031-2009 dated 15 December 2009 EMP Authorization extension No 31-2009A dated 07 June 2011 Environmental permit reflecting the actual individual capacity of the wind turbines "Final Resolution No 004-2012" dated 10 February 2012 Transmission line and Substation: <ul style="list-style-type: none"> EIA for Transmission line and substation, dated July 2011 – EIA Authorization No. R.A-DGCA-P0021-0711-031-2011 EIA Authorization No. DGPA-P0016-0511-028-2011-001-2012-C.D. (Authorization transferred to transferred to Eolo de Nicaragua) |
| 04 | 27 April 2012 | IRR calculation spreadsheet Additionality - Eolo Model |
| 05 | 04 May 2012 | ER calculation spreadsheet Baseline Nicaragua 2010 and ER calculation - EOLO Project |
| 06 | 06 March 2012 | Host Country Letter of approval for the proposed project issued by MARENA |
| 07 | Not applicable | Annex-I country Letter of approval Not applicable |
| 08 | 02 March 2012 | Modalities of Communication for the proposed project. |
| 09 | 2008, 2009 | Energy Consumption Statistics. National Electrical System of Nicaragua - Nicaraguan Electricity Institute |
| 10 | From 1991 to 2010 | Annual Electricity Generation Statistics. National Electrical System of Nicaragua – A- Nicaraguan Electricity Institute |
| 11 | 2010 | Electrical Capacity Installed. National Electrical System of Nicaragua - Nicaraguan Electricity Institute |
| 12 | 2010 | Electrical Performance Statistics. National Electrical System of Nicaragua - Nicaraguan Electricity Institute |
| 13 | 02 June 2011 | Power Supply Agreement between Disnorte and Eolo |
| 14 | 02 June 2011 | Power Supply Agreement between Dissur and Eolo |
| 15 | 29 September 2011 | 10 year Interest Rate Swap – Financial Times |
| 16 | 31 August 2011 | Gamesa Proposal for 20 year Refurbishment – Gamesa Turbines - reference |
| 17 | 26 March 2012 | DNA confirmation of LoA authenticity. |
| 18 | 05 August 2010 | Taxes & depreciation information – Báez Cortés & Cía. Ltda. |
| 19 | 12 April 2011 | Usufruct Agreement number 12, between COGISA and Eolo |
| 20 | 12 April 2011 | Leasing Agreement number 13, between COGISA and Eolo |
| 21 | 14 July 2011 06 September 2011 | Nederlandse Financiering – Maatschappik voor Ontwikkelingflander N.V., - Letters of Interest (LoI) (Project investment and financing documents) FMO (FMO = Nederlandse Financiering Masstschappij voor Ontwukkelingsland N.V.) LoI dated 14 07 2011 – subordinated debt FMO LoI dated 09 06 2011 – senior debt |
| 22 | 26 July 2011 | EPC Gamesa proposal –EPC Quotation for supply and maintenance of wind turbine for Eolo Wind Project wind farm |
| 23 | 11 August 2011 | Tool for the demonstration and assessment of additionality version 06.0.0 – EB65 Annex 21 |
| 24 | 07 December 2011 | Interconnected National System of Nicaragua (grid) http://www.cndc.org.ni/InfoTiempoReal/MapaSIN/index.html |

| Reference number | Date | Document Title and version number (if applicable) |
|------------------|--|--|
| 25 | 10 June 2011 | Germanischer Lloyd Certificate – Gamesa G90 Turbine |
| 26 | 31 January 1995 | Municipal taxes of property and immovable equipment- Decree No. 3-95 – Real States Taxes |
| 27 | 02 June 2003 06 May 2003 | Law 453, Fiscal Equity Law |
| 28 | 31 July 1989 | Decree 45-5 - Decree No. 455 where the Municipal Income Law of the Republic of Nicaragua that stipulates a municipal tax of 1 % and 2% |
| 29 | 19 September 2011 | US dollars inflation provided by the U.S. Bureau of Labor Statistics for the period 2011-2020 Forecast of U.S. CPI-U, All items (1982 – 84 = 100) |
| 30 | 31 January 2011 | Vestas - Life Cycle Assessment – Note: This report has been used as reference to cross check the lifetime of the wind turbines. |
| 31 | 18 November 2009 | Amayo 40 MW Wind Power Project – Nicaragua 2315 - Project Update and Operations Report |
| 32 | 22 December 2011 | Grid Emission factor calculation: Baseline Nicaragua 2010 and ER calculation - EOLO Project |
| 33 | 2009 2010 2011 | Annual Net Electricity Generation Statistics. National Electrical System of Nicaragua - Nicaraguan Electricity Institute 2009, 2010 and 2011 |
| 34 | 13 April 2005 | Energy Institute of Nicaragua, Law number 532 “Law for the Promotion of Power generation from Renewable Sources”, (original name in Spanish: Ley para la Promoción de Generación Eléctrica con Fuentes Renovables) dated 20 May 2005 |
| 35 | 2008 | Additionality Model of the Registered project: Amayo 40 MW Wind Power Project – Nicaragua (Reg. No. 2315): Amayo – PDD Model, Documentation of Assumptions http://cdm.unfccc.int/UserManagement/FileStorage/X7RA8ON46BWT1EV35YUIKD0ZP2CHJF |
| 36 | June 2011 | Monthly registry of the energy costs |
| 37 | 22 December 2006 | Decree No. 76-2006, System of Environmental Assessment – Environmental Project classification (article 17 paragraph 28) - |
| 38 | 04 October 2011 | Public Consultation Announcement |
| 39 | 10 October 2011 | Public Consultation - List of Participants |
| 40 | August 2003 | Climate Change Action Plan of Nicaragua |
| 41 | 23 April 1998 | Decree 272 - Electrical Industry Law |
| 42 | 15 June 1998 | Decree 42-58 - Regulation of the Electrical Industry Law |
| 43 | 26 February 2010 | Generation License granted by the Energy and Mining National Ministry to Eolo de Nicaragua |
| 44 | 06 April 2011 | Carbon Financing Agreement between Eolonica S.A. and Geoingeniería Ingenieros Consultores, S.A. |
| 45 | July 2000 | Commercial Operation Rules established by the National Center in charge of the Nicaragua Electrical System Administration and Operation (CNDCE) |
| 46 | 23 August 2010 | Technical Description of Gamesa Turbines G8X-2.0MW. Gamesa's General Characteristics Manual - Characteristics and general description of the Gamesa G8X-2.0 MW wind turbine platform |
| 47 | | Eolo Wind Project – Presentation of the stakeholders consultation |
| 48 | 14 May 2008 | Business license – Eolo de Nicaragua S.A. |
| 49 | 22 March 2011 | Prior Consideration of the CDM Forms The form was submitted to the DNA on 22 March 2011, the DNA has confirmed the receipt of the form on 05 April 2011 and UNFCCC on 12 April 2011. Acknowledgement from UNFCCC Secretariat of receipt of prior CDM consideration notification on 12 April 2011. The UNFCCC website: http://cdm.unfccc.int/Projects/PriorCDM/notifications/index.html |
| 50 | 4 October 2011 | Letter to invite to MARENA to the stakeholders consultation |
| 51 | 10 October 2011 | Minute of the stakeholders consultation |
| 52 | November 2000 | Regulation of Operation of the Energy Nicaraguan Institute- Commercial Annex III: Commercial Measurement System. (http://www.ine.gob.ni/DGE/normativas/Normativa_de_Operacion.pdf) |
| 53 | 2004 | Density of fuel oil and diesel - Energy Statistics Manual of OECD/IEA (Table A3.8) http://epp.eurostat.ec.europa.eu/cache/ITY_PUBLIC/NRG-2004/EN/NRG-2004-EN.PDF |
| 54 | 30 September 2011 (project registration date) | Additionality Model of the Registered project: Amayo Phase II Wind Power Project 5305 5305 Additionality Sheet.xls - Worksheet Investment http://cdm.unfccc.int/UserManagement/FileStorage/P4NOAU6WDQ87HZ9YTEM2K0FLXJ13BI |
| 55 | August 2010 | Uruguay Wind Energy Program. Profit analysis for large scale Wind Parks in Uruguay (original |

| Reference number | Date | Document Title and version number (if applicable) |
|------------------|------------------|--|
| | | name in Spanish: Análisis de rentabilidad de parques eólicos de gran escala en Uruguay), http://www.energiiaeolica.gub.uy/uploads/Microsoft%20Word%20-%20Gran%20escala%2020100829.pdf |
| 56 | 31 December 2011 | Limited Notice to Proceed with EPC Contract (This document states that EPC contract has been signed on 31 December 2011). |
| 57 | 10 October 2011 | Contract between ERMCVS and PP |
| 58 | 09 July 2010 | Evidence of the Negotiation of PPAs with with Dissur and Disnorte, the subsidiaries of Union Fenosa in charge of energy distribution in Nicaragua – (email) |
| 59 | 14 April 2010 | ENATREL - National Company for Electricity Transmission - Letter of approval of the investment cost of Amayo 40 MW Wind Power Project – Nicaragua 2315. |
| 60 | 24 April 2012 | Response C-7 - 4-24-12 – Breakdown of Other investment costs presented in the IRR calculation. |
| 61 | October 2009 | National Renewable energy Laboratory – Wind Levelized Costs of energy - http://www.nrel.gov/docs/fy10osti/46671.pdf - Contingency costs in Windpower projects in US. |
| 62 | 2011 | U.S. Department of the Treasury. Resources Center. Historical information of interest rates and debt management http://www.treasury.gov/resource-center/data-chart-center/interest-rates/Pages/TextView.aspx?data=yieldYear&year=2011 |
| 63 | 31 December 2011 | EPC agreement between Eolonica S.A. and GAMESA Eolica S.L. – signed in 31 December 2011 (design, engineer, procure, install commission and construct a wind power plant of 44MW as turnkey project including erection and installation of wind turbines. |
| 64 | EB22 Annex 3 | CLARIFICATIONS ON THE CONSIDERATION OF NATIONAL AND/OR SECTORAL POLICIES AND CIRCUMSTANCES IN BASELINE SCENARIOS (Version 02) |
| 65 | EB53 Annex 32 | INFORMATION NOTE ON THE IMPLEMENTATION OF E+/E- IN THE CONTEXT OF PROJECTS ON THE AGENDA OF THE FIFTY-THIRD MEETING OF THE CDM EXECUTIVE BOARD (Version 01.1) |

9.6 A.2 INTERVIEWS

| Reference | Name | Title & Organisation | Main topics discussed |
|-----------|------------------|---|--|
| IV1 | Gabriel Tapia | Manager Nicaragua Project – Arctas Capital Group | Project design, technology, timelines, financing, monitoring. |
| IV2 | Noadia Raudales | CDM Consultant – Geoingeniería Ingenieros Consultores, S.A. | Project design, technology, timelines, monitoring. |
| IV3 | Paola Perez | Environmental Engineer Nicaragua Project – Arctas Capital Group | Environmental permits and regulations |
| IV4 | Richard Lammers | Vicepresident – Arctas Capital Group | Project financing and company structure |
| IV5 | Manuel Madriz | DNA coordinator – MARENA/DNA Nicaragua | Environmental approvals and licences and LoA issuance procedure. |
| IV6 | Bismarck Morales | Technical assistant – MARENA/DNA Nicaragua | Environmental approvals and licences and LoA issuance procedure. |
| IV7 | Martin Rodriguez | CDM Consultant – Geoingeniería Ingenieros Consultores, S.A. | PDD, additionality demonstration, emissions reductions and EF calculations, monitoring plan. |

Appendix B: Remediation Form

Corrective Action Requests (CARs), Clarification Requests (CLs) and Forward Action Requests (FARs)

| Corrective Action Requests | Ref. to Question Number | Summary of PPs' response | Final conclusion |
|--|-------------------------|---|--|
| CAR 1: The Modalities of Communication and Host Party LoA have not yet been provided. | 5.3 5.4.1 9.1.1 | The LoA (issued on March 6 th 2012) and the MOC are now submitted. | ERM CVS confirm that the LoAs from the host country /06/ and Modalities of Communication /08/ are available. Nicaragua's ratification has been cross checked against the UNFCCC Webpage. CAR 1 is closed. |
| CAR 2: The flow diagram in Section B.3 of the GSP-PDD does not contain the monitoring equipment location and the monitoring parameters as required by the PDD guidelines. | 6.3.2 | Flow diagram on section B.3 now clarifies that electricity meters in the substation will be used to monitor electricity flows. Regarding to the boundary, ACM0002 states that " <i>The spatial extent of the project boundary includes the project power plant and all power plants connected physically to the electricity system that the CDM project power plant is connected to</i> ", which is what Figure 2 on the PDD is showing (i.e. the project's power plant and all power plants connected physically to the same electricity system, in this case, the NIS). | The flow diagram of the final PDD includes emissions sources and gases included in the project boundary and the monitoring variables, The spatial extent of the project boundary includes the project power plant and all power plants connected physically to the electricity system that the proposed project power plant will be connected to. ERM CVS confirms that flow diagram presented in section B.3 of the PDD is in accordance with the Guidelines for Completing the PDD CAR 2 is closed. |
| CAR 3: Following ex-ante data and parameters are not correctly applied: Data unit for $FC_{i,m,y}$ is not described in accordance with EB41 Annex 12, which requires the use of The International System Unit (SI units). Density of fuel oil has been checked against other sources /53/ and it was | 6.5.1 | In order to allow an easy comparison with the original source, fuel consumption data ($FC_{i,m,y}$) is expressed in the same volume unit as in INE official statistics., The fuel consumption data is converted into mass (SI) units by using the density of the fuels. Fuel density used has been updated. Values from page 181 of IEA's "Energy Statistics Manual" have been used instead. The emission factors, parameters tables and the ex-ante estimate of emission reductions have been revised accordingly in | ERM CVS has confirmed that the fuel consumption ($FC_{i,m,y}$) unit is expressed in the same unit as in INE (Nicaraguan Institute of Electricity) official statistics /09/. The value is correctly applied in the calculation of the grid emission factor. ERM CVS has confirmed that the updated density of the fuel oil used to calculate the grid emission factor is conservative /53/. The revised emission factors, parameters table and ex-ante calculation of the grid |

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| Corrective Action Requests | Ref. to Question Number | Summary of PPs' response | Final conclusion |
|--|--------------------------|---|--|
| found that the applied value is not conservatively chosen, please revise. | | section B.6.2 of the PDD v 1.1. | emission factor result in a conservative ER estimation. CAR 3 is closed. |
| CAR 4: A traceable spreadsheet showing the detailed calculation of the ex-ante emission reductions was not provided. | 6.5.2 | A specific tab showing the ex-ante ER calculation has been included in the baseline spreadsheet (see "ER Eolo Project tab" in the baseline spreadsheet). This updated version is now provided with the following name: "Baseline Nicaragua 2010 and ER calculation-EOLO Project". | The PP has provided a traceable spread sheet showing the detailed calculation of the ex-ante emission reductions. ER spreadsheet has been checked. Detailed calculations of emission reduction are provided in the spreadsheet. The tables of emission reductions in the new version of PDD (section A.4.4 and B.6.4) have been checked and confirmed to be consistent with the calculations in the ER spreadsheet. It is confirmed that the calculation of emission reductions can be replicated using the data and parameters supplied in the PDD. CAR 4 is Closed. |
| CAR 5: Please revise the PDD in accordance with the latest version of the applied methodology. | Sections: 5, 6, 7 and 8. | The PDD has been revised accordingly. | The final PDD has been updated in accordance with the latest version of the applied methodology, ACM0002: "Consolidated baseline methodology for grid-connected electricity generation from renewable sources" (Version 12.3.0). In addition, the PDD has been revised in accordance with latest Tool for the demonstration and assessment of additionality" (Version 06.0). ERM CVS has confirms that the revised PDD has been correctly updated. CAR 5 is closed. |

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| Clarification Requests | Ref. to Question Number | Summary of PPs' response | Final conclusion |
|--|-------------------------|---|--|
| <p>CL 1 : The project description does not include information on following aspects as per the requirements of the Guidelines for Completing the PDD:</p> <ul style="list-style-type: none"> Emissions sources and gases involved in the project boundary, and Monitoring equipment and its location in the system, Potential exported and imported electricity | 5.6.1 | <p>Section A.2 and A.4.3 of the PDD have been revised in order to include a brief summary of the items requested, which are later discussed in-depth in other sections of the PDD.</p> <p>Net electricity estimate was added to section A.4.3 as suggested by the DOE.</p> | <p>ERM CVS has checked the final PDD /01/ and confirms that the project description includes the information about the emissions sources and gases involved in the project boundary, monitoring equipment and its location in the system, the information is in accordance with the requirements of the Guidelines for Completing the PDD.</p> <p>The net electricity that will be delivered to the grid has been added to section A.4.3. the value is in line with other sections of the PDD and the ER spreadsheet.</p> <p>ERM CVS confirms that the section A.4.3 of the final PDD is in accordance with the guideline for completing CDM-PDD (version 07) and the value applied in line with other PDD sections and ER spreadsheet.</p> <p>CL 1 is closed.</p> |
| <p>CL 2: The operational start date and implementation timeline of the project is not described correctly in the GSP-PDD. Please revise PDD accordingly.</p> | 5.6.4 | <p>Project operational start date (expected to occur in January 2013) is stated in section B.5 (under "Project milestones and CDM consideration"). The implementation schedule is presented on Annex 1 of the PPAs already provided to the audit team as evidence.</p> | <p>The operational start date and implementation timeline of the project has been validated based on the date of the signature of the EPC contract/63/, the signature of the limited noticed to proceed /56/ with the EPC contract and the implementation schedule presented on Annex 1 of the PPAs/13//14/. It was found that the operational start date and implementation timeline of the project are reasonable.</p> <p>CL 2 is closed.</p> |
| <p>CL 3: Please provide evidence to support the starting date of the project.</p> | 7.1.1 | <p>The project start date has now been determined as 31/12/2011 (signature of EPC contract); evidence of this is now provided – see notice to proceed (file name: "<i>Notice to Proceed – executed.pdf</i>"), page 1, which states the signature date of the EPC contract. Please note that as per paragraph 2 on EB62 Annex 13, no notification to the UNFCCC/DNA of the prior</p> | <p>ERM CVS has confirmed that the start date of the project activity is the date when the EPC contract was signed. The PP has provided a Notice to proceed signed by the PP and GAMESA EOLICA SL Spain and EPC agreement between Eolonica S.A. and GAMESA Eolica S.L. – signed in 31 December 2011 /63/, the starting date has</p> |

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| Clarification Requests | Ref. to Question Number | Summary of PPs' response | Final conclusion |
|--|-------------------------|--|--|
| | | <p>consideration is required as the PSD took place after the start of validation (22 Oct 2011, start of global stakeholder consultation). Nevertheless, given the uncertainty of the Project Start Date at the time of preparation of the original PDD, both notifications have been submitted (see section B.5 of the PDD for detailed information).</p> <p>As the Project Start Date has now been determined, a revised PDD including the proper Project Start Date is included.</p> | <p>been updated in the revised PDD.</p> <p>CL3 is closed.</p> |
| CL 4: The project milestones are presented in the PDD, however some the evidence for these milestones have not been provided. | 7.1.1 | <p>Supporting evidence for each milestone has been submitted.</p> <p>The receipt dates (as published by the UNFCCC and in accordance with the DNA's receipt) are now used in the revised PDD. Regarding the project start date, please refer to CL 2. The EPC signature date (31/12/2011) is explicitly stated on the Limited Notice to Proceed (page 1) submitted to the DOE.</p> <p>Lastly, a typo was detected on the date were negotiations with the distributors began (it says "May 2009" whereas the correct date is "May 2010". Evidence of negotiations with the distributors is now also available to the DOE; as evidence available corresponds to 09/07/2010, the language in the PDD has been revised to read "<i>Negotiations on the Power Purchase Agreements ("PPAs"), with Dissur and Disnorte, the subsidiaries of Union Fenosa in charge of energy distribution in Nicaragua, were on-going by July, 2010</i>".</p> | <p>ERM CVS has confirmed that the form was submitted on 22 March 2011, the DNA has confirmed the receipt of the form on 05 April 2011 and UNFCCC on 12 April 2011. /49/. EPC agreement between Eolonica S.A. and GAMESA Eolica S.L. – signed in 31 December 2011 /63/ was provided. The PDD has been updated and the evidence presented is consistent.</p> <p>CL4 is closed.</p> |
| CL 5: The description of monitoring plan in the GSP-PDD is incomplete, please provide additional description and evidence for the planned monitoring system set-up as necessary: | 8.2.2 8.2.3 | <p>- Expanded description of responsibilities and procedures has been provided on section B.7. Also, a specific subsection for emergency procedures has been included. Entity in charge of calibration must be authorized by the CNDC (this has also been made explicit in the PDD v 1.1).</p> | <p>ERM CVS has confirmed that the description of the monitoring plan reflects good monitoring practice appropriate to the type of project and contains the following information as per PDD Guidelines:</p> <p>Description of the responsibilities and procedures to be</p> |

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| Clarification Requests | Ref. to Question Number | Summary of PPs' response | Final conclusion |
|--|-------------------------|--|--|
| <p>No description of the responsibilities and procedures to be developed (e.g., emergency procedures, responsible staff/entity for calibration) was provided</p> <p>The GSP-PDD states that electricity meters will be calibrated periodically as per INE standards applicable for electricity transactions in the Nicaraguan Interconnected System (NIS), however the calibration standard has not been provided.</p> <p>Accuracy of the electricity meters located in the low voltage side is missing.</p> <p>Clarify the use of historical records to account for transmission losses between metering point.</p> | | <p>- INE regulations have been provided in our second submission of documents. Please refer to the file "<i>Sect. B.7-1 - Normativa de operaci ommerciali-l - Anexos (see p. 27).pdf</i>"</p> <p>- Emergency procedures described are conservative. In the very unlikely case that both the main and the backup meter are simultaneously broken/off-line, the meters in the low voltage side can be used. As these are located closer to the wind farm (and thus, further away from the substation), the readings from the latter will tend to result in a higher net electricity production in comparison to the readings at the substation's meters. This is why it is contemplated that historical transmission losses between these two points will be deducted. Transmission losses will be obtained from own historical measurement or following INE instructions; the specific method used to deduct these losses will be agreed with the distribution company and the grid authorities. Please also note that this procedure will only be used for a very limited period of time, until a replacement meter is installed in the substation; this should occur as soon as possible once it is detected that both the main and the backup meter are malfunctioning and/or off-line for any reason. Finally, kindly note that the methodology does not determine a specific location for the meters determining the net electricity provided by the project. Thus, the use of the substation meters was selected by the project developer as this would result in a conservative value of emission reductions. Accuracy of the metering equipment will be at least +/- 0.5%; PDD has been revised accordingly.</p> <p>- The revised PDD now clarifies that a main and a backup meter will be installed in the 230 kV side.</p> <p>- Start-up activities mentioned in B.7.1 are only mentioned as an example of activities that may require demanding energy from the grid. Start-up activities simply refer to the processes that occur before the wind farm is able to</p> | <p>developed.</p> <p>Electricity meters calibration frequency and accuracy in accordance with INE standards.</p> <p>The emergency procedure describes that the meters on the low voltage side will only be used in the case that both, the main and the back-up meter are simultaneously broken/off-line. Historical records will be used to account for transmission losses between the 34.5 kV and the 230 kV metering points, Project developer will chose the most conservative values between the data provided by the meters and data provided by the grid operator.</p> <p>Metering the net electricity supplied by the project activity to the grid will be carried out by two bi-directional meters (main meter and back-up) with accuracy no lower than $\pm 0.5\%$. Meters will be installed in a dedicated substation of 230 kV. In addition, two more meters will be installed onsite at the low voltage 34.5 kV side with accuracy no lower, which will be used in case the 230 kV meters are out. Meters will be calibrated in accordance with the INE regulations.</p> <p>Hence ERM CVS confirms that monitoring plan reflects good monitoring practice appropriate to the type of project and contains the following information as per PDD Guidelines.</p> <p>CL 5 is closed.</p> |

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| | | provide its own electricity. | |
| CL 6: Please clarify in the PDD total environmental assessment that were conducted and provide evidence of the environmental assessments reports. | 9.3.1 | <p>As per Decree 76-2006, wind farms are considered "category III projects" (see article 18, paragraph 19), which have moderate impact and hence do not require an environmental impact assessment. These projects have to prepare a simpler document, an "environmental evaluation". The Environmental Management Plan (EMP) issued in November 2009 is the result of this valuation. The environmental permit by MARENA was obtained on 15th December 2009; the EMP was approved in the same date. An extension for an 18-month period was issued on 7th June 2011.</p> <p>In addition to the plant itself, the project developers had to seek environmental authorization for the substation and the transmission line. According to the same regulation (decree 76-2006, article 17 paragraph 28), these works fall under the Category II ("high impacts") and hence an Environmental Impact Assessment was required. The latter was completed in July 2011 (under the name "Eolonica S.A") and approved on October 31 of the same year. This approval was transferred to Eolo de Nicaragua on 24/02/2012.</p> <p>These details have been added to section D of the PDD v 1.1.</p> <p>The EMP for the Eolo Wind Power Project, the approval and Decree 76-2006 have already been provided; the EIA and the approval of the transmission line and the substation are now provided. The EMP, issued on November 2009, is developed according to the impacts identified in the Environmental Valuation, and includes measures to mitigate them, protect the environment and maintain the project's environmental feasibility. The environmental permit by MARENA was obtained in 15th December 2009; an eighteen-month extension was issued on 7th June 2011. Finally an Environmental permit by MARENA showing the actual capacity of the WTGs that will</p> | <p>The proposed project activity is defined as class III in accordance with the Environmental Evaluation System Decree No.76-2006 /37/. This decree confirms that class III projects require an environmental assessment (EA)</p> <p>Environmental Assessments (EAs) were developed by PP and authorized by MARENA /03/. According to the EA approvals /03/, the environmental impacts are not considered as significant by MARENA.</p> <p>Additionally, the project developer has presented an Environmental Impact Assessment for the construction of a substation and the transmission lines, and provided the environmental authorization. Based on to the same regulation (decree 76-2006, article 17 paragraph 28), the construction of a substation and the transmission lines fall under the Category II ("high impacts") and hence an Environmental Impact Assessment is required.</p> <p>Applicable environmental classification regulation "Decree 76-2006"/37/ have been described, the following documents have checked and validated/03/:</p> <p>Wind power plant:</p> <ul style="list-style-type: none"> Environmental Management Plan (EMP)dated November 2009 EMP Approval No. 031-2009 dated 15 December 2009 EMP Authorization extension No 31-2009A |

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| | | be installed by the project (i.e. 2 MW) was granted on 10 th February 2012. | <p>dated 07 June 2011</p> <ul style="list-style-type: none"> Environmental permit reflecting the actual individual capacity of the wind turbines "Final Resolution No 004-2012" dated 10 February 2012 <p>Transmission line and Substation:</p> <ul style="list-style-type: none"> EIA for Transmission line and substation, dated July 2011 – EIA Authorization No. R.A-DGCA-P0021-0711-031-2011 EIA Authorization No. DGPA-P0016-0511-028-2011-001-2012-C.D. (Authorization transferred to transferred to Eolo de Nicaragua) <p>Hence ERM CVS confirms that the proposed project activity is in compliance with the environmental regulation of the host country.</p> <p>CL 6 is closed.</p> |
| <p>CL 7: Investment Analysis,</p> <p>(a) Please describe in the PDD and provide evidence of the potential sources of revenues: Interest on reserve account and Enatrel note principle repayment based on 15 year payment terms</p> <p>(b) Please provide evidence that losses cannot be carried forward</p> | <p>7.3.7</p> <p>7.3.8</p> | <p>(a) The Eolo wind farm includes construction and commissioning of a dedicated substation that will be transferred to the transmission company Enatrel. The cost of the transmission system installed by Eolo will be reimbursed by Enatrel by means of periodical payments that have yet to be decided, as the value must be approved by Enatrel. From the experience in previous projects in Nicaragua, this process is lengthy and uncertain; for example, no payment from Enatrel had yet been realized at the time Arctas transferred the property of the Amayo wind farms to its current owner. In light of this, although the value of this kind of works is estimated at</p> | <p>a) ERM CVS has confirmed based on the project design /02/ that the proposed project activity includes the construction and commissioning of a dedicated substation that will be transferred to the National Company for Electricity Transmission (ENATREL). The project participant has provided a letter of investment approval /59/ dated 14 April 2010 from ENATREL, this letter corresponds to the substation of the project Amayo 40 MW Wind Power Project – Nicaragua 2315. Considering</p> |

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| <p>to offset against future profits for the calculation of taxable income and tax.</p> <p>(c) Please provide evidence of the Additional Project Cost.</p> <p>(d) Please provide evidence of the additional cost of 500,000USD related to "change order allowances".</p> <p>(e) Please provide evidence of the additional 500,000USD of contingency cost.</p> <p>(f) Please provide evidence of the cost related to the fixed operational costs.</p> | | <p>around 3 million USD, a smaller figure (i.e. 50%) was assumed to account for the possibility that no payment is realized by Enatrel at all. Nevertheless, for transparency in demonstrating additionality the model has been modified to consider a 3 MM recovery from Enatrel in terms similar to the ones that Eolo itself will face against its own financiers (i.e. a 10% interest rate and a 15 yr period). Although this assumption is not realistic from the project developer's point of view, it was included in our base scenario in order to demonstrate that the conclusions of the additionality analysis remain the same. Please notice that the interest rate assumed for the Enatrel note is even higher than the one the project itself will have to pay for its own loan; this is a conservative assumption from the additionality point of view. Likewise, it is assumed that cash saved as "reserve account" (for debt repayment) accrues interest at the same rate as the Enatrel note.</p> <p>(b) The model has been modified to allow for a 4-term debt carry forward, as per art. 18 on the Income Tax Law. The conclusions of our analysis are not affected</p> <p>(c) A detailed break-down of all the components is available to the DOE. Notice that although the project developer has experience in the commissioning of wind farms (namely, the Amayo wind power projects), the property of the latter has been transferred to a different company and thus the developer is not in the position to disclose evidence such as audited financial statements. However, it is possible to compare the CAPEX and O&M provisions in the Amayo I wind farm (which are publicly available at UNFCCC's website) with the ones used in the Eolo model. A comparison of all the investment components has been prepared for the DOE, which shows that, once the Amayo I provisions have been adjusted for inflation and capacity, the cost per MW installed of the Eolo project is 1% below the one assumed for Amayo.</p> | <p>that the proposed project activity has a similar installed capacity, the applied value is conservative. The transfer of this substation will result in project revenues, the interest rate (10%) assumed for the ENATREL is higher than the one the project will have to pay for its own loan (9.5%, see interest rate for the Senior debt /21/.</p> <p>b) ERM CVS has checked the IRR spreadsheet/04/ and confirms that a 4 term debt carry forward in accordance with the Nicaragua Income Tax Law /28/ art 18 has been applied.</p> <p>c) ERM CVS validated the detailed break-down of the "Other investment Costs" that has provided by the PP/60/, this cost has been crosschecked against Amayo 40 MW Wind Power Project – Nicaragua 2315 and the total investment cost which sum the EPC signed contract and Other investment cost has been crosschecked against external sources /55/ /54/ and it was found to be conservative for projects in Nicaragua and Latin-American.</p> <p>d) This additional cost of 500,000 USD related to change order allowances has been removed for a conservative approach.</p> <p>e) The PP has adopted a 4.19% of total contingency cost, based on the sectorial expertise of ERM CVS, this 4.19% was found consistent with other wind power in Latin America and the percentage has been crosschecked again other sources such as National Renewable energy Laboratory – Wind</p> |

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| | | <p>(d) and (e) Eolo's contingent cost was divided in two components, namely, change order allowances and general contingencies. Change order allowances refer to contingencies on the EPC value, whereas general contingencies refer to the rest of the components in the investment. For simplicity, the revised version of the model considers a single provision of contingent costs, equal to 5% of the sum of "EPC costs", "development costs" and "other financing fees"; notice that this contingency provision is the only provision for the entire project, representing only 4.19% of the overall investment. This revised provision is smaller than the one foreseen in the Amayo I project; moreover, even though the project is still on an early stage of implementation/construction, evidence of contingent costs is already available. During the preliminary works included within the scope of the Limited Notice to Proceed, 507,550 USD of change orders / contingent costs have already been issued, representing 12.7% of the overall amount of the works included within said document (i.e. 4 million USD). Thus, the percentage assumed seems to be on the conservative side. Lastly, note that the project remains additional even if contingent contents are altogether removed from the model.</p> <p>(f) A detailed break-down of all the O&M components is now available to the DOE. Notice that as inlem (c) above, although the project developer has experience in the commissioning of wind farms (namely, the Amayo wind power projects), the property of the latter has been transferred to a different company and thus the developer is not in the position to disclose evidence such as audited financial statements. Nevertheless, the basis on which the O&M costs of Eolo were prepared is available to the DOE, together with a comparison of the costs considered in Amayo I. Although Eolo costs are 23% higher than those estimated in the Amayo model, available evidence shows that the latter had been significantly underestimated. As seen on the documents submitted to the</p> | <p>Levelized Costs of energy in US /60/.</p> <p>f) ERM CVS validated the detailed break-down of the "Operation and Maintenance costs" that has provided by the PP/60/, this cost has been crosschecked against Amayo 40 MW Wind Power Project – Nicaragua 2315 and has been crosschecked against external sources /55/ /54/ and it was found to be conservative for projects in Nicaragua and Latin-American.</p> <p>ERM CVS confirms that evidence provided by the PP is consistent and conservative, hence CL 7 is closed.</p> |

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| | | <p>UNFCCC, the Amayo model included salaries for only four employees (Manager of Plant, Head of Plant, Accountant and Conductor). However the number of Amayo staff at site was actually twelve personnel in addition to one personnel not on site, the General Manager in Managua. Also, the operational expenses in the Amayo model submitted for the PDD did not include any employee benefit costs such as Social Security and health insurance, and it also did not include any bonuses for the General Manager and the Plant Manager.</p> <p>Furthermore, Amayo is responsible for the maintenance of non-wind turbine equipment (including 6 / 13.8 Kiosk Transformers, Internal Electric Lines, the 13.8 / 230KV Main Transformer and metal clads. However, these maintenance expenditures—for non -wind turbine equipment as well as other site maintenance expenditures associated with operating and maintaining the plant were not included in the operational expenses in the Amayo model submitted for the PDD.</p> <p>Evidence available also shows that the project operations team plant staff includes sixteen contracted (VSN) security personnel. However, these security expenditures were not included in the operational expenses in the Amayo model submitted for the PDD.</p> <p>Lastly, many social projects funded by Amayo were also not included in the original estimate.</p> <p>Thus, it is very important to note that the increase in the O&M estimate in the Eolo model reflects the actual conditions observed during the operation of a wind farm. Moreover, it is important to emphasize that in the latest version of the model, a 46% decrease in annual O&M expenditures would be required to cross the benchmark. In light of the evidence discussed above, such scenario seems very unlikely.</p> | |

In addition some editorial and minor changes to the PDD were made by the PP that had no relevance on compliance with CDM requirements.

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| No FARs raised | | | |

Document template history

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| CDM Validation Report Template | |
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| Date | History of revision |
| 09 February 2009 | Initial Adoption |
| 06 December 2010 | Revision of sections relating to stakeholder comments, common practice analysis, project boundaries, elimination of baseline alternatives, financial analysis and technical aspects relating to projects at existing facilities |
| 28 March 2011 | Revisions to include more detailed requirements to check consistency of equations, units and project specific information, and guidance on the level of detail required in project description |
| 28 May 2011 | Revision of validation protocol to include further detail relating to paragraph 92 of the VVM |
| 22 October 2011 | Content and structural updates including removal of the separate validation protocol and incorporations of relevant questions into the report, revision of question wording to improve clarity and to ensure question wording is in line with the VVM, reduction of repetition in the report |