

Amayo 40 MW Wind Power Project – Nicaragua

Additional PDD Annex as required for Gold Standard validation

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Introductory Notes

This document contains the PDD Annex to validate the Project “Amayo 40 MW Wind Power Project - Nicaragua” against the Gold Standard. Gold Standard validation shall be carried out subsequent to the regular CDM validation.

The purpose of these notes is to present evidence supporting the eligibility of the Amayo Wind Power Project (hereafter, “the project” or the “Amayo Wind Power Project”) for registration under the Gold Standard for clean projects. The present includes references to the project’s PDD¹ as well as many clarifications and additions required to comply with Gold Standard requirements.

General description of the project and eligibility for the GS

The main objective of the Amayo Wind Power Project is to provide affordable electricity to the Nicaraguan grid by means of a clean and renewable energy source: the wind. For this purpose, the project will make use of nineteen 2.1 megawatt Suzlon S88 60HZ V3 wind turbine generators, for a

¹ Project Design Document (version 3). This document is attached.

total power capacity of 39.9 MW per year. The net power production provided to the national grid is expected to be approximately 169 GWh per year. The project activity involves every stage, from development, design, engineering and financing, to the construction, operation and maintenance of the Amayo's power plant facilities. By delivering its output to the national grid -which has a combined margin emission factor of 0.7127 tCO₂/MWh- the project is expected to displace almost 121 thousand metric tons of CO₂ equivalent per year. This emission reduction will occur in addition to the project's many contributions to sustainable development in Nicaragua.

"Consorcio Eólico Amayo, S.A" ("Amayo" or "CEA", hereafter, the "project participants"), a special purpose Panamanian corporation operating in Nicaragua through a Nicaraguan branch has been established by Arctas Capital Group LP ("Arctas"), Centrans Energy Services, Inc ("Centrans") and ENISA (the "Owner Group") to collectively develop the project.

The project was registered as a CDM project activity on April 12, 2009². Since the project participants became aware of the existence of the Gold Standard while the project was in the validation process they have already been registered in the *GS retroactive registration process*.

Project Type Eligibility Screen

GS Manual for CDM Project Developers: Section 3.2

Since the project activity comprises the generation of electricity from a renewable source –wind- it falls into the categories outlined in the pre-assessment section in Box 1 in Chapter 2, of the Gold Standard Manual for CDM Project Developers³. Hence, the project meets the eligibility requirements of The Gold Standard and its goal of promoting sustainable development and contribution towards a transition to non-fossil energy systems. The GS Manual does not state any specific requirements for wind projects.

Gold Standard Additionality Screen

To satisfy the Gold Standard additionality screen, it is demonstrated that:

- a) The project was not previously announced in a non-CDM design.

GS Manual for CDM Project Developers: Section 3.3.1

The proposed project has always been considered as a CDM activity. Evidence can be provided that the revenue from the sale of CERs has been critical for the decision to implement the project

² Detailed information on this project is available as of today at: <https://cdm.unfccc.int/Projects/DB/SGS-UKL1227712726.26/view>

³ *The Gold Standard Manual for CDM Project Developers*, version 3, pages 9 and 13.

activity⁴. Since there has never been an announcement of the project taking place without the CDM, the first requisite for the demonstration of the GS additionality is met.

b) The emissions reductions are measurable

The proposed project complies with all the applicability criteria established in the UNFCCC's approved consolidated methodology (ACM) "Consolidated baseline methodology for grid-connected electricity generation from renewable sources" (Version 07 – December 2007; reference ACM0002)⁵ and its corresponding tools⁶. Therefore, the emissions reductions attributable to the project activity were estimated according to an already existing UNFCCC's methodology.

c) The project complies with the UNFCCC's additionality requirements

The latest version of the UNFCCC's "Tool for the demonstration and assessment of additionality" (version 5) was used in order to demonstrate the project's additionality on the PDD.

The additionality tool consists of a series of steps, as stated below⁷:

Step 1. Identification of alternatives to the project activity consistent with current laws and regulations

This step presents realistic and credible alternatives to the project activity. These alternatives can be part of the baseline scenario described in Section B.4. Valid alternative scenarios are (1) the proposed project activity undertaken without being registered as a CDM project activity; and (2) the continuation of the current situation, i.e. no project activity undertaken, both of which comply with all of the Nicaraguan regulations on the energy sector.

Step 2. Investment analysis

The purpose of this step is to show that the proposed project activity is economically and financially less attractive than at least one other alternative, identified in step 1, without the revenue from the sale of certified emission reductions (CERs). *Benchmark analysis* was used.

The most plausible benchmark to compare the project IRR⁸ has been derived from government bond rates (MHCP Bonds⁹), presented below:

⁴ See for example the *Minutes of the Meeting of the Board of Directors of Consorcio Eólico Amayo, S.A* (held on August 16th, 2007, at 11 a.m in the City of Houston, Texas), attached.

⁵ See Section B.2 of the PDD

⁶ Mainly, the latest versions of the "Tool to calculate the emission factor for an electricity system" and the "Tool for the demonstration and assessment of additionality"

⁷ For a more detailed discussion on the project's additionality, please refer to Section B.5 of the Amayo PDD.

⁸ Internal Rate of Return

Table 1: Government Bond Rates

Maturity (years)	Amount (million dollars)	IRR (%)
3	1.04	11.53
3	0.5	11.23
3	0.3	11.33
3	0.27	11.28
Weighted average		11.40

Source: Nicaragua's Central Bank (www.bcn.gob.ni)

This average rate is adjusted by a suitable risk premium to reflect the project type. This premium is usually no less than¹⁰ 4%. Therefore, the benchmark rate is 11.40% + 4% = 15.40%. The project's IRR falls below the benchmark rate¹¹, which demonstrates that the Amayo Wind Power Project cannot be considered a financially attractive option without the additional revenue provided by the Clean Development Mechanism, i.e. that the project is additional to the baseline scenario. These results are robust to a wide number of plausible scenarios, including variations in the project output and costs¹².

⁹ In Spanish, "Bonos del Ministerio de Hacienda y Crédito Público - MHCP". The presented rates correspond to the August-November 2007 auctions. The official, more detailed document from the auction is available upon request.

¹⁰ This 4% assumption is a very conservative one since (a) the project activity is much riskier than the alternative of purchasing government bonds and (b) the bonds have a three year maturity, while the Amayo Wind Farm encompasses a considerably larger period (over 28 years). See *"Estimating the Real Rate of Return on Stocks Over the Long Term" (selected papers presented to the US Social Security Advisory Board; August 2001), Table 2 on page 24. According to this study, the historical premium over bonds for the 52 years comprised between 1946-1998 has been of 6.5%. When discussing future reasonable values for this premium, the authors state that "Instead, one might choose an assumption that approximates the experience of the past 75 years- 2.2 percent, which suggests an equity premium of around 5.0 percent" (p.24). Project participants have chosen an even smaller risk premium: 4%. This proves that the approach followed is conservative. This document is available upon request.*

¹¹ The project rate is 11.72% when no fiscal incentives are considered, and 14.30% when fiscal incentives are included (see the PDD section B.5 for a more detailed analysis).

¹² For the full version of the sensitivity analysis see the PDD section B.5.

Step 4. Common practice analysis¹³

Step 4 is the final stage of the UNFCCC's tool for the demonstration of additionality. It requires showing that the proposed project as well as the technology involved by the latter is not common practice in the project location.

In a broad sense, Nicaragua is still going through an early stage in the development of power generation from renewable sources in general and wind projects in particular. Although it has been recently proven that Nicaragua has an interesting wind-power potential¹⁴, the Amayo Wind Power Project is the very first wind farm in Nicaragua. Therefore, no similar activities are currently taking place in the country. This successfully concludes the last step of the additionality analysis.

d) ODA¹⁵ additionality test

A project is not eligible for Gold Standard registration if it receives ODA under the condition that the credits coming out of the project are transferred to the donor country. The Amayo Wind Power project demands a 95 million US dollars investment, 25% of which will be funded with equity. The remaining 75% will be funded with a loan by the Center American Bank for Economic Integration (CABEI). CABEI did not provide any soft loans to the project developers, nor does it have any property rights over the carbon credits resulting from the project activity. A detail of the project's financing plan is presented in the table below (Amayo Project Financing Plan).

The declarations of Non-Use of ODA are attached to this document, signed by the project developer and the CABEI¹⁶.

¹³ Step 3 ("barrier analysis") was omitted, as allowed by the methodology once the financial analysis is performed.

¹⁴ See for example "Nicaragua's Wind Map Project" available at <http://www.encocentam.com/page.asp?DH=28>

¹⁵ Official Development Assistance

¹⁶ Attached on Annex 1

Table 2: Amayo Project Financing Plan

HEADING	TOTAL	BORROWER	BCIE
Investment costs			
Feasibility and development studies	250	250	0
Generation license costs	50	50	0
EPCs bids costs	100	100	0
Developments costs&comissions	1,700	1,700	0
Legal counseling	250	250	0
ENISA reimburstment costs	200	200	0
Rights of way & siting	250	250	0
Subtotal	2,800	2,800	0
Engineering, construction and supply			
Suzlon Contract (Turbines)			
Aero generators	37,194	0	37,194
Towers, gears, and transformers	10,893	0	10,893
Scada control system	1,974	0	1,974
Turbines installation, supervision and management	1,528	0	1,528
Transport costs	2,638	0	2,638
Operators training	47	0	47
Operation, maintenance and service guarantee (years 1-5)	2,306	0	2,306
Insurance and bonds costs	889	0	889
Cranes	1,750	0	1,750
Minus: Insurance Refund	-139		-139
Minus: Amayo payments in advance	3,117	3,117	0
Subtotal	62,195	3,117	59,078
Socoin (Electric and civil infrastructure)			
Civil Works	7,026	583	6,442
Electrical Installations low and medium voltage	1,087	10	1,077
Electrical Substation (20/230 kV)	1,425	13	1,412
Transmission line	2,661	23	2,638
Project management & supervision	607	5	602
Transformer (Note 1)	1,349	1,349	0
Minus: "Insurance Refund"	-169	-169	
Menos: Amayo payments in advance	150	150	0
Sub total	14,136	1,964	12,171
		14%	86%
Other costs			
Contingency	4,486	4,486	-
Propietary project supervision	510	510	-
External supervision	150	150	-
Sub total	5,146	5,146	-
Pre operational expenses			
Working capital - Initial \$1,000,000 bond reduced to \$600,000	600	600	-
upfront payment - Land Leasing contract	430	430	-
Reserve for debt service	2,400	2,400	-
pre operational interests	5,140	5,140	-
Commitment Fees	30	30	-
Force majeure	576	576	0
Loan registration fees	1,247	1,247	-
Commissions - LoC (Suzlon & Socoin)	300	300	-
Total	10,723	10,723	-
GRAND TOTAL	95,000	23,750	71,250
Shares	100.00%	25.00%	75.00%

Note 1 - Amayo has chosen to buy the transformer directly from Crompton Greaves in order to preserve the project's schedule. Socoin is still obliged to install the transformer. Crompton Greaves has supplied a guarranty according to the industry standards

e) Proof of technology transfer

Recent studies¹⁷ show that Nicaragua has an estimated wind-power potential of over 700 MW which could eventually reach over 2000 MW capacity if the corresponding transmission lines are duly expanded. However, the Amayo Wind Power Project is the very first wind farm in Nicaragua and therefore no similar activities are currently taking place in the country. Therefore, this project presents an excellent example of technology transfer to a developing country, serving as an example for future developments aiming to generate electric power from the wind.

The technology transfer involves not only the physical availability of the equipment and the installations, but also an important skills transfer to local workers. Suzlon, the wind turbines and ancillary systems supplier, will train the staff who will manage the operations of the facility and assist in the performance of warranty work as needed. This will create a pool of people in the country with operating experience in wind power generation.

In addition to this, the project is already making active contributions and creating programs with local and regional universities, schools, national and local organization by promoting site visits and participating in conferences and other educational events¹⁸.

Sustainable development assessment

The Amayo wind farm will produce significant benefits to the Republic of Nicaragua. The main contributions to sustainable development attributable to the project activity are summarized in the project's **Sustainable Development Assessment Matrix**¹⁹ (presented below). The project's performance was assessed using the scoring system stated in Chapter 3.4 of the Gold Standard Manual for CDM Project Developers (page 21). The scores in the matrix have been set taking into account the corresponding results from the project's Environmental Impact Assessment (EIA)²⁰.

In comparison with the SD Matrix, the EIA uses a somehow different scoring system that goes from -10 to +10. However, the variables and indicators analyzed are either similar or equivalent. The GS scores in the project's SD matrix have been obtained from the EIA according to the following criteria:

¹⁷ See for example "Nicaragua's Wind Map Project" available at <http://www.encocentam.com/page.asp?DH=28>

¹⁸ Examples of this include the August 13th site visit by a group of 26 engineering students and teachers from the Center American University (UCA), a conference by Amayo engineers on the Nicaraguan Polytechnic University on August 6, among others.

¹⁹ The Matrix goes in accordance with the one established in the Gold Standard Manual for CDM Project Developers, Box 4, Chapter 3.4, page 22.

²⁰ Document attached; see Table 8 on page 4-8 for the original matrix derived by the environmental consultants (upon which the sustainability matrix in this document was based).

Table 3: Equivalency among the project's EIA and GS scoring

EIA Scoring	GS equivalent
-10 to -5	-2
-5 to 0	-1
0 to 5	1
5 to 10	2

Table 4: Amayo Wind Farm – Sustainable Development Assessment Matrix²¹

Component	Score (-2 to 2)	Comments
Local/regional/global environment		
Water quality and quantity (*)	1	Analyzed explicitly in the EIA, receiving a “+2” score (page 4-8 and 4-14), which corresponds to a “+1” in the GS SD Matrix.
Air quality (emissions other than GHGs) (*)	0	In the EIA noise pollution is included within this indicator; however, under the GS this type of pollution is included in the “other pollutants” component. CO emissions will be monitored; however, the project does not involve any major emissions sources (see EIA 4-11 to 4-13 and 6-1).
Other pollutants (*)	-1	Noise will be generated from the operation of the generators (EIA: 4-8, 4-11 to 4-13, under the “air component” subtitle)
Soil condition (quality and quantity) (*)	1	EIA pages 4-8 and 4-13
Biodiversity (*)	-1	EIA pages 4-8, 4-16 and 4-17.
Sub total	0	
Social sustainability and development		
Employment (quality)	0	No changes in employment quality are expected
Livelihood of the poor	0	Although the project will benefit an economically depressed area, its effects will reach all the inhabitants, no matter whether they are rich or poor.
Access to energy services (*)	1	The project will lower the amount of fossil fuels consumed. An ex-ante estimation of this value is provided in the “Sustainable indicators monitoring plan” section (see also footnote 40).
Human and institutional capacity	0	No changes in this component are expected.
Sub total	1	
Economic and technological development		

²¹ All comments and argumentation about the scoring of the different components are provided in the text following the matrix.

Employment	1	The project has clear benefits related to this component. See page 4-18 on the EIA for a discussion and box 8 (page 4-8) for a quantification of this impact.
Balance of payments (*)	1	The project has clear benefits related to this component. See the “Sustainable indicators monitoring plan” section in this annex for an ex-ante calculation of this impact.
Technological self reliance (*)	1	Project is first of its kind in Nicaragua.
Sub total	3	
TOTAL	4	

(*) Items marked with an asterisk are the ones included in the monitoring plan as per GS requirements.

The project²² has a negligible impact on the local, regional and global environment. Lubricant wastes –which are likely to occur during the installation and dismantling stages of this kind of projects-, will be stored in safe barrels, thus facilitating their final disposal. This in turn will allow the project to leave **water quality and quantity with the least effect possible**. Likewise, water will be poured to the dirt roads surrounding the project area so as to prevent the suspension of dust particles in the **air**, in order to assure that its quality is intact. Among **other pollutants** frequently encountered on this type of projects, **noise** is the most important one. To prevent this sort of pollution generated by the rotor blades, a minimum distance of 300 to 500 meters will be considered between the wind turbines and any households in the area. Likewise, in order to minimize their impact on **landscape**, all the towers and their complementary elements meet international design standards. The installation of wind towers on lands of high ecological value will be avoided.

During the project’s construction and dismantling phases, it will be necessary to clear the sites where the generation towers will be installed. This could affect the **soil** by leaving it exposed to erosion due to water runoff. Therefore, once the above-mentioned stages are concluded, the uprooted vegetation will be replanted to prevent soil erosion. As for the provisory camping sites, areas with non-perennial vegetation will be selected in order to prevent the falling of trees.

The project will preserve the area’s **biodiversity** to the maximum extent. In order to prevent the collision of birds (especially migratory species) with the blades, sonic deterrents will be placed in strategic places if necessary in order to repel these from flying dangerously close to the turbine’s blades. In addition to this, periodical bird visual observation and supervision will be carried out by CEA’s Environmental Engineer or other subcontractor during the periods of heaviest bird migration (March to May and September to November). As to the preservation of flora, the wind field will be constructed in open areas so as to avoid damaging existing forest areas. Similarly, the project

²² References to “the project” include not only the project activity *per sé* but also the environmental management plan.

participants will promote reforestation as a complementary activity, along with a program to protect the natural flora of the project's site.

The project will have a significant, positive impact in a number of socio-economical variables. **Access to energy services** will be improved: the wind farm will have an installed capacity of 39.9 megawatts, displacing old, carbon-intensive technology and increasing the supply of electricity, which will reduce rolling blackouts in Nicaragua. In turn, this will improve living conditions of households and reduce business interruptions, therefore stimulating population income, employment and enhancing tax receipts of the Nicaraguan government.

The project activity will also stimulate **employment**. During the construction of the project, Socoin, the contractor installing the civil and electrical works, will be employing approximately 90 to 125 Nicaraguans. Suzlon, the supplier of the wind turbines will also employ 20-30 Nicaraguans during the installation of the components of the wind turbines. Once the plant becomes operational, the Amayo wind farm will employ approximately 18 permanent operational personnel, thus providing working opportunities for locals in an economically depressed area. In addition, the project is expected to create 60 indirect jobs in the local area.

From a macroeconomic perspective, the use of indigenous renewable energy sources will help reduce Nicaraguan consumption of imported fuel oil by 216,560 barrels per year, thereby reducing currency expenditures of fuel purchases of approximately \$10.8 million per year. This will enhance Nicaragua's **balance of payments** and strengthen the country's currency. The microeconomic counterpart of this is that the project activity will produce significant savings in respect to electricity costs offering one of the cheapest sources of energy in the country. The average power plant in Nicaragua currently demands fossil fuels worth **\$ 183.86²³** per megawatt hour, while the Amayo wind farm will have an initial cost to the Nicaraguan people \$86.25 per megawatt hour for a savings of nearly \$97.61 per megawatt hour. This will help make Nicaraguan industry more competitive and make electricity more affordable to the Nicaraguan people.

Another very important contribution is related with the important **technology transfer** allowed by the project activity. Amayo will be the first project to employ this kind of renewable source in Nicaragua, which will result in an important technology transfer to local workers. Suzlon will train the staff who will manage the operations of the facility and assist in the performance of warranty work as needed. This will create a pool of people in the country with operating experience in wind power generation. This stock of productive skills and technical knowledge embodied in the local labor force will enable spill-over effects and stimulate the replicability of similar activities. Likewise, the project will actively contribute with local and regional universities and schools, serving as a study case for students and teachers and promoting educational site tours.

²³ The average price presented is the spot market price (April 2008. Source: <http://www.cndc.org.ni>)

Stakeholder consultations

With respect to the Stakeholder consultation, a rigorous process was followed in order to ensure that the parties (stakeholders) that will be directly affected by the project activity were involved.

A total of four stakeholder consultations were conducted by the project participants.

1. Initial Public consultation

During the initial stages of the project, the project participants made an EIA (Environmental Impact Study)²⁴ in conformity with the legal requirement of Nicaragua (Host Country). As part of the EIA an **initial public consultation** was conducted complying with National requirements and processes. Information is available in MARENA, which keeps record that a public consultancy was held from the 26th to the 30th of April, 1999 and the document was made publicly available.

The following comments, opinions and concerns were given by the local stakeholders and were included in the EIA mentioned above.

Table 5: Stakeholders' opinions and concerns

Opinions from the local government regarding the implementation of the project	
Mayor of the Municipality of Rivas	Doesn't have much knowledge about the project; however he thinks that the biggest benefit will be that the cost of the energy service will decrease. He gives his approval only if the project participants comply with the municipality requirements, for example, tax payment.
ENEL's manager in Rivas	This kind of energy production is really economical, but you should see the climatologic conditions. He insisted that the Energy should be sold to ENEL. He mentioned that in Rivas there are no energetic issues; however the quality of the service is bad. He didn't find any disadvantage to the project; he said Nicaragua needs to produce energy locally because right now it's buying from other countries.
Opinions from the stakeholders around the project's surroundings (direct influence)²⁵	
In general, there is little knowledge about the project although the interviewees have a minimum reference. Everybody felt that this type of energy is cheaper and environment-friendly. They all shared doubts on the project's positive results, but they agreed that this would depend on the scale of the latter. The greatest benefit of the project would, in the opinion of those interviewed, be the decrease in the costs and the improvement in the quality of the energy service.	

²⁴ Details regarding the EIA can be found in the original document available by the DOE or in the PDD section D.

²⁵ The stakeholders around the project's surroundings correspond to the owners of the Farms (Ranches) located around the project activity.

In conclusion, during the development of the first EIA there was acceptance of the project, and also expectations about the direct benefits to the population of the area and the country as a whole, through an increased of the energy production. Another important aspect was the recognition of the people in respect of the benefits for nature and the environment in implementing such a technology.

Finally, although people did not perceive direct benefits, neither thought that they could be affected by the implementation of the project.

2. Second Stakeholder consultation

The **second stakeholder consultation** was conducted in the middle stages of the PDD development in accordance with the requirements outlined in the conventional CDM project cycle and following the procedures of the Nicaraguan DNA (MARENA/ONDL).

It is stated by the UNFCCC PDD guidelines that an invitation for comments by local stakeholders shall be made in an open and transparent manner, in a way that facilitates comments to be received from local stakeholders and allows for a reasonable time for comments to be submitted. In this regard, Consortium Amayo and the DNA made two announcements²⁶ in the Nicaraguan most popular newspaper “La Prensa” in local language (Spanish) describing in a summarized way the proposed project activity, announcing that the PDD was made publicly available in the ONDL’s webpage and MARENA’s offices for comments during 1 week and that the Stakeholder consultation was being conducted in the following two weeks in a place near the project site.

As explained in the PDD, the selected stakeholders were: the local government, including many of the governmental institutions, universities, schools, NGOs and neighbours from the Project’s surroundings (mainly landowners), and representatives of the local government from other communities of the Rivas’s Department. In addition to the announcement in the Newspaper –which invited all interested people in general-, Consortio Amayo also delivered personalized invitation cards on site.

The stakeholder presentation took place on Thursday May 29th, 2008, at 2:00 p.m. in the “Nicarao Inn” Hotel in the city of Rivas, Nicaragua. More than 35 participants attended the stakeholder presentation²⁷ representing a total of around 16 organizations, institutions and communities, mostly located around the project site but also coming from the capital of Nicaragua, Managua.

During the consultancy, the project participants described the project activity in a clear and complete manner²⁸, which allowed the local stakeholders to understand the project activity²⁹.

Summary of the questions/comments received during the stakeholder consultation’s open round and the respective answers are presented in the table 6 below³⁰:

²⁶ A copy of the original announcements is attached in Annex 2 (Spanish Only).

²⁷ A detailed participant’s list is available on Annex 3.

²⁸ The consultation and its presentations were in Spanish (Nicaragua official language)

²⁹ The activities in preparation for the event and the phases followed during the stakeholder consultation are described in the PDD, Section E.1.

Table 6: Summary of questions and comments and respective answers

Questions	Answers
How will this project benefit and how will it be integrated into the local economy, Municipalities and governments? Which are going to be the cooperation agreements or collaborations with municipal governments and the community?	- Beneficial effect on the electricity tariff. - Tourism and employment for the area. - Strengthening the electric system through the new substation - Payment of Municipal taxes. - Integration of the people from the area, so the plan is to have an educational centre within the command building to promote renewable energy and resources of Rivas. - Search involvement in the events of the local government and support MARENA so they can attend Environmental events. - Consortium Amayo has respected the rules and environmental laws, as well as for the CDM they will give a contribution to MARENA, a percentage of the income of CERS³¹.
I would like to know when the Project is going to be operational.	Since November 2008. We have all the 19 foundations constructed and all the equipments and machinery are in the country.
As you know Rivas has a wind privilege and this affects positively this kind of projects. I'm aware that there are 2 or 3 projects in the area, are you willing to join with other wind projects in Rivas?	Yes we are interested; we are also really excited to expand the project 40 MW more. That's something that we are right now evaluating.
Would you have to pay taxes to the local government?	Of course, the country has rules and says what is the duty tax, which is why we are going to pay a part of what we sell and we will pay taxes to the municipality, but also to the national government, complying with what an energy company has to obey.
Would Rivas have sufficient wind capacity to generate 500 MW?	In fact there is more, according to a study abroad said that the capacity is 600 or 700 MW only in the department of Rivas, is more an issue of the system, how much can it withstand, the wind is here, but the ideal situation for Nicaragua is to combine the wind, and geothermal water resources.
In the future, it could be possible to combine the wind energy with geothermal and hydroelectric?	Nicaragua is a country that has many natural resources, there are studies that say that there are more than 1200 MW geothermal, 1000 MW or more in wind power, and there is an unused capacity in hydroelectric resources.

³⁰ Another more summarized version of the questions/comments received can be found in the PDD, section E.2. The complete questions/comments and respective responses are available upon request (Spanish only).

³¹ In case MARENA acts as brokers during CER transactions.

Could you expand the original capacity of the project? You mentioned an addition of 40 MW, this would be at the actual site or where in Rivas?	A part of the project would be in the nearby areas, there is plenty of space on the Amayo farm and we are in the process of seeing what the needs of space are.
The existing contract -the PPA mentioned before-; the availability of this contract is a 100% with the distributor or you would be able to commercialize with other operators who are interested in buying?	The plant capacity is 39.9 MW and everything goes to Union Fenosa (National Grid), only Union Fenosa has the right to distribute.
The enlargement of 40 MW mentioned before is intended for when?	The idea would be to start with the expansion without stopping construction. Once we finish the first stage we will start with the second. We would be talking for November next year maybe.
What is the average power that will be delivered to the grid with the first 40 MW?	169 GWh and the plant factor would be between 40 and 48%.
What is the value of the CERs and how are these included in the financial flow of the project?	In the financial model the CERs were taken into account when we made the bid's proposal. The financial flow has always considered the CERs' income and that allowed us to formalize the final price. The CERs' prices are in a range of 10-20US\$/TCO ₂ , but it depends in which stage the project is at.
In what time we Nicaraguans are going to use these services, could I still enjoy it myself, my children or my grandchildren will be able to benefit from this excellent service we so badly need in Nicaragua?	Perhaps starting in November this year, the energy is going to the national grid and will be distributed throughout the country. With the effort of Amayo and other National projects and ENEL, hopefully in November the blackouts will be over.
There is a Tourism career in the University; do you have any project documentation for the students?	A job we do as a company in Managua is working with the bank, the Ministry of Energy, Union Fenosa and we have a very good relationship with universities, however is something that needs to be extended in universities outside of Managua. It would be good if after the presentation we could exchange our contact data and see how we can move forward with this. For example we were going to send 30 students of the UCA to the park to see a day of construction but unfortunately coincided with the strike so we are rescheduling to go. We also had contact with the UNI through a forum regarding renewable energies and we made a link with them, but obviously we need to find a connection/link with universities and even schools.
Comments	
One benefit of the project is that taxes will be distributed among the inhabitants; the benefits of obtaining energy from the wind will have an effect on electricity tariffs and will benefit all Nicaraguans.	

Another benefit for Nicaragua is that when it generates with the wind and natural resources, it is not going to buy a certain quantity of barrels of oil, so that turns into a benefit for all Nicaraguans and the currency could be use for other things that are needed in the country and not for buying fuel oil.

I want to congratulate you, because I'm aware of the park since the beginning and I know you've work hard. I know that even though you have communication problems in the site you are been able to go on with the project.

As is shown in table above, no negative comments or concerns were stated; only positive comments were received from the participants, who highlighted the benefits of the project and the benefits of using the wind as a renewable energy resource. Hence, the main objectives of this project presentation were accomplished: (a) to inform the local stakeholders of the project activity and its characteristics as a CDM project; and (b) to gain insights on local concerns and opinions regarding the project activity (Comments on concerns were actively invited).

In addition, no comments were submitted on the ONDL's website during the week (May 19-26) established by the DNA for public comments.

As stated by the CDM procedures, the local stakeholder process was completed before submitting the proposed project to the DOE.

3. Main public consultation

Once the Validation process began, the **main public consultation** was done through publication of the PDD on the SGS/UNFCCC website for 30 days. The PDD was published by SGS who is the DOE in charge of the project's validation. After the public stakeholder consultation period, no comments or concerns were received.

4. Complementary stakeholder consultation

After the project was validated by the DOE (SGS), the Gold Standard committee in the document "GS567 Amayo pre-feasibility assessment.pdf" requested the project participants to do a Complementary stakeholder consultation.

For this next round of consultation, the project participants invited NGOs, local NGOs, local officials and local residents to participate in the public consultation. GS requires the project proponent to actively invite them via various media, hence Consortium Amayo made a public announcement³² in the Nicaragua most popular newspaper "La Prensa" in local language (Spanish), which described in a summarized way the proposed project activity, and a invitation was made to all governmental and no

³² A copy of the original announcement is attached in Annex 4 (Spanish only)

governmental institutions and all interested stakeholders to participate in the complementary public consultation of the project. Furthermore, CEA delivered personalized invitations cards on site to all relevant stakeholders around the project activity such as local governmental institutions, universities and schools of Rivas, Local NGOs, and all neighbors from the project's surroundings (which consist on landowners and workers of the farms) including the Priest. People from the town of "La Virgen", who work near the projects surroundings, were also invited. The town is located 7km from the Amayo project.

The stakeholder consultation took place on Thursday March 26th, 2009, at 2:00 p.m. in the "Nicarao Inn" Hotel in the city of Rivas, Nicaragua. Fifty five (55) participants attended the stakeholder presentation³³ representing a total of around 26 organizations, institutions and communities, mostly located around the project site and from the department of Rivas.

Phases of the stakeholder consultation:

At the entrance of the conference room the registration process was carried on and a non-technical brochure with specific information from the Amayo project was handed out as well as a blank paper in which the assistants could write their questions and/or comments related to the project. A questionnaire³⁴ was also delivered to all participants as a way of collecting their opinions.

The public consultation started with a slide presentation that explained the project's features regarding its design, technology, construction, operation, the Sustainable Development Indicator Matrix, impacts of the project and mitigation measures. Hence during the consultancy, the project participants described the project activity in a clear and complete manner³⁵, which allowed the local stakeholders to understand the project.

After the presentation, a period of time was given to all participants to submit their questions in written form to the project developer. Each question received satisfactory and comprehensive answers by the project developer. A video of the entire stakeholder presentation is available and can be submitted upon request.

Stakeholder's opinion of the project was also collected via a questionnaire (see Annex 6). All the participants had a very positive opinion on the project and its impact. Positive reviews mentioning lower energy costs, reductions of dependency of oil imports, job creations, GHG reduction, reduction of blackouts and technology transfer were frequently mentioned among participants. Some minor concerns were registered; for example, one of the participants suggested that the project's impact on migratory birds should be studied once the latter becomes operational. Bird monitoring was already included in the monitoring plan, as explained during the presentation. One participant mentioned the rise in the price of productive land as a negative effect; however, technically speaking, it would be the presence of the wind resource, not the project itself that would cause this effect. Nevertheless, up to this moment, the impact on productive land in the area was negligible. Other participants pointed that the benefits should reach all the country. Considering that the energy

³³ A detailed participant's list is available on Annex 5.

³⁴ Please see Annex 6: Comments in the questionnaires

³⁵ The consultation and its presentations were in Spanish (Nicaragua official language).

will be delivered to the national grid, a very important part of the benefits *will* spread throughout the country.

A detailed list of questions and their corresponding answers by the Amayo Team are presented below. The Consorcio Eólico Amayo addressed and clarified all the stakeholder's concerns by providing relevant data and answering all question to the satisfaction of the participants.

A compilation of the questions and comments with their respective answers can be found in table 7 below:

Table 7: Compilation of questions/comments and respective answers

Questions/comments	Answers
- Which measures are foreseen in case of natural disasters? Secundino Estrada – Alcaldía de Rivas	We have contingency plans in case of earthquake or hurricane, which are well known by each of our employees. In addition, the plant structure is designed to cope with this kind of phenomena. We did our best to prevent and mitigate damage.
We hope that with this project we don't get the same results as with the conquest, when all our gold was taken; we hope these towers will prove useful to the people of Nicaragua as well. Octavio Ortega Arana	The project has beneficial aspects that go straight to Nicaraguans; one of them is the energy price which will remain unchanged (or suffer only minor changes) in this 15 years, in which energy costs will rise but whit constant prices to the consumer. Who pays for such energy? Who will benefit from the cheaper energy? Nicaraguans. Who will benefit from the reduction of pollution? Who will benefit from having fewer gases in the air? People who live here. There are benefits for the company, it is a good project but it is also feasible, sustainable and new for the Nicaraguans. It's a project where everyone wins; we can mention three points: environmental impact, economic impact through energy price and savings from oil imports, and social impact: here in Nicaragua we are in need for more energy in order to avoid blackouts, to avoid paying for the most expensive plants in the system, and this is why I say that we all benefit from the project. To emphasize my opinion, let me tell you that I came to Nicaragua myself many years ago, not for the energy, but for other reasons; I introduced myself into the energy sector because I realized 8 years ago that what Nicaragua needed was clean energy. This project is very good for Nicaragua.

- PPA: 15 years? - Is the Substation operated by ENATREL? Ing. Frank Brachtl Tejada – Private Engineer, Managua	- That's right, the PPA has a 15 years duration; actually there are two PPAs, one with DISNORTE and the other with DISSUR. - Indeed, ENATREL operates the sub station
What is the generators average expected Lifetime? MEM and Alejandra Isabel Sánchez Prado – San Pedro Claver School	The equipment is generally certified to last for more than 20 years, although this depends on the location where it is installed; for example, a place where drastic changes in temperature occur affects the machines; considering we have warm weather, we expect a useful lifetime around 25 to 28 years.
Is there any literature on the topic available for students? Antonio Villareal - UPOLI	Of course, we have information about the project in general; you may also reach Mariana Barrios or Sean Porter who will give you specific information upon request.
Which will be the project's economic impact on the surrounding land's value? Which is the expected impact on the agricultural activity? Humberto Byarano B - Fundación Ñocarime	It may affect landowners around the area, in a positive way, since there are probably going to be more investors willing to start projects like this in Rivas, but this are only speculations. About the activity in farms, we don't foresee many effects; a positive aspect of wind power is that once the project is over, landowners may use their lands in exactly the same way they did before the project. During our park visit, you'll see cows, livestock and farming just like you would have seen 10 years ago. In other words, the fact of having a turbo generator doesn't mean that land may not be used in the same way as before.
According to the PIN delivered to MARENA, could you specifically state how many tCO₂ would the Project reduce? Which is the oil fee? Ing. Bismarck Castro Blandón - Managua	With relative certainty, it's all up to the wind, in a year with winds speeds above-the-average we could produce some more energy; and the opposite if the speed is below the average. We have estimates based on 7 years of wind monitoring, but still, the wind is subject to variations. As to the emissions reduction, according to the estimates presented to the UNFCCC the project will reduce around 120,000 tCO₂ per year, in a period of 7 years which may be renewed up to 3 times, making up

	for a total of 21 years of emissions reduction. The oil fee depends on the oil's price; savings would be around 215,000 barrels per year. Depending on oil prices, this could be around 10 and 30 million dollars per year; last year would have been around 30 millions; however, since oil prices have dropped, and if they stay around 50\$, this would imply around 10 millions in savings per year.
Which would be the direct benefits on the people of Rivas quality of life and when would they start Who will receive the revenues from the selling of carbon credits? Rosa Argentina Lopez – Concejal	The direct effect is that workers will be hired in the park. People from Rivas will pay a little bit less in their energy bill; it will stimulate local economy and will help both Rivas and the country by its contribution to the balance of payments; it will lower pollution, we will have people from Rivas working here, and the people from Rivas and Nicaragua will pay a little bit less for electricity. You'll notice people from Rivas working the park and a rise in municipal taxes. There'll also be an important technology transfer into the population and students and universities, which will be able to make site visits and learn more about this kind of energy; workers will become acquainted with wind power and may replicate this in other jobs/projects, and knowledge is probably the most valuable thing a country can expect to have; so, knowledge is a direct impact on the society. The carbon market is the place where credits are traded and negotiated. We believe our credits will be sold by international firms but we still haven't sold them since they were not produced yet. Credits are sold to countries that need to reduce GHG emissions, and the money enters the project's cash flow in order to achieve the required return needed to repay for its debts to the financial entities that are providing funds for the project. It is important to mention that one important requirement in the CDM registration process is showing that without this additional revenue, the project would not take place (this is called "additionality").
- In Costa Rica, Tilarán Wind Farm has 72 MW of installed capacity.	- The Tilarán wind farm is not operating yet; i believe it has a 50 MW capacity. Costa Rica has five wind farms of which four are operational.

- Was the 100 MVA substation legally donated to ENATREL? - Previously, a 40 MW expansion plan was announced, but now only 20 MW are being considered. Why? Julio César Rocha Romero. Independent Consultant (Managua)	The largest Costa Rican wind farm will be one that it's currently in setup process, of about 50 MW. There are other small farms, one with 26 MW, another with 6 MW; I believe 70 MW is the total for all the country. - The project financed ENATREL's substation. This goes this way: each plant has to pay a transmission fee, that is, ENATREL charges for the use of the transmission line in order to take the energy from one point to the other. The amount invested in the substation will therefore be deducted from these charges. We could say that the substation was financed by the project at a very reasonable rate. - Well, we want 40 MW in the long run, but this is a matter of time; we need to address some internal issues and to have all the documentation required by the relevant entities here in Nicaragua. Another important topic is the park's size; we believe that with 20 MW no one should think it could affect the system in a negative way; another topic is the weather: in Nicaragua civil works can only be performed during the dry season; constructing roads and laying foundations during the rainy season is very difficult, but we still have time for 10 extra turbines; also, in the rainy season when it is not raining, winds are heavy and this makes it difficult for the generator's setup. With wind speed of 11 to 16 m/s it is highly difficult, if not impossible.
- When do you expect to expand the plant's capacity to 20 MW? - What is the expansion plans current status? Alejo Carazo , Managua	We have located the land for the expansion; we are now dealing with the regulatory process but we believe that we could make it this year in order to have the equipment for the additional 20 MW, for around November this year.
What are the project's requirements regarding technical education in the	There was one Nicaraguan with expertise in wind farms, who had studied the topic on an academic level in

workforce? Lic. M.Esther Collado Noguera – MINED	Germany; the rest were all electrical or electro mechanical engineers who have received training in the field. In other words, if the personnel has experience in wind energy, great, but so far no one had significant knowledge in the area. The general approach has been to train engineers in order to be able to put their experience into wind energy.
What specific economic benefits will the consortium receive once CDM registration is achieved? Could you please tell us more about the project's expansion plans? Rafael Henríquez – Oxfam G.B.	Credits will be sold and this will enhance the project's cash flow; that's the specific benefit we get from registering the project at the UNFCCC. Because if you are not registered into the CDM no one will buy your credits since no one will know for sure if the emissions are really taking place; on the other hand, if the farm is registered it receives a quality standard for the carbon credits it will receive.
Which is the cost per installed turbine and which is their lifetime? Douglas Wallace, Miami	Total project cost is 95 million dollars; this should be divided upon 19 turbines (5 MM per unit).
How does the variation in wind speed affect energy generation? Mauro Orozco – Multiconsult, Managua	There is a certain speed at which the units start generating energy, this speed is 3.8 meters per second; the turbogenerators reach their peak capacity at 12 m/s. So, from 3.8 to 12/13 m/s, there is a power curve that goes from cero to max.
Once they are no longer in operation, will the distributor take care of their dismantling and removal? MEM (Ministerio de Energía y Minas)	Yes, this is part of the contract. After the project ceases operation we have to clean up the area; we can't just leave those giant machines laying there. It is most likely that if the machines no longer work, they should be replaced in order to make use of the excellent wind resources within the area.
Who received the \$1,300,000,000 córdobas paid by the Project? Asociación Rivense de defensa de los Derechos Humanos (ARIDEDH).	The question would be, who <i>will</i> receive it. This would be the municipality of Rivas, once we are operating. Up to now, we did not have any income from the selling of energy because we have only started recently. The amount mentioned corresponds to the amount we will pay for the income from our sales.
We understand that Amayo must pay a 3%, municipal tax on benefits. How	We should have to calculate that; if we are talking about what we showed on the presentations we are talking

much money is this 3% in córdobas? Fundación para el Desarrollo de los Municipios de Rivas – Fundemur	about the entire lifetime of the project, and it would be difficult to estimate this value for a 15 year period.
Energy will be sold locally? Will the lower costs reflect on the consumer's bill? When will the plant operate at full capacity? Giovanni Caprotti – RESUR	It is very difficult, if not impossible, to sell energy in this part of the country to a single buyer. Instead, the energy is injected to the grid, which covers almost the entire country. What another project could do –another project because Amayo has already signed contracts to sell its output to the grid- is sell the energy directly to a large consumer; selling it exclusively to the department of Rivas would be very difficult; the energy goes to the system and the benefit is distributed throughout the country.

Once the question round was held, the participants were invited to a site visit, for which CEA rented a bus to carry all the interested people to the project site. Thirty three (33) stakeholders attended the site visit which served as a good opportunity for collecting opinions, further doubts, discussing the activity and for taking photographs. A detailed participants' list is available on Annex 7.

Figure 1



Figure 2



Changes to Project design based on comments received

As no major environmental concerns were raised during the entire stakeholder consultations processes, which were not already addressed by the EIA, it was not necessary to make any changes to the project design nor incorporate any additional measures to limit or avoid negative

environmental impacts. The same applies to socio-economic concerns, which have not been raised at all.

It is evident from the stakeholder consultations processes, that the project is perceived as a positive example for the renewable energy sector in Nicaragua and that it contributes to sustainable development of the region.

Sustainable indicators monitoring plan

In addition to the requirement of emission reduction monitoring³⁶, candidate Gold Standard projects need to monitor and verify development of sustainable indicators.

Sustainability indicators will be integrated with the environmental monitoring and management plan. For a correct implementation of the latter, the project proponents will hire the services of a specialist in the field, with a minimum experience of five years. This person will be in charge of coordinating all the environment-specific activities, including the supervision, implementation and follow up of the monitoring plan and the corresponding mitigation measures. The person will also have frequent contact with MARENA³⁷ and Riva's Major's Office in order to have proper feedback relating to the project's contribution with sustainable development.

Key indicators for measuring the contribution of the project have been marked with an asterisk (*) in the sustainability matrix. These will be monitored as described below:

Soil condition: The mitigation measures during construction phase included the following activities:

1. Construction of drainages in the roads
2. Protection measures of the diesel tank (concrete retaining pool) in order to avoid any fuel spillage
3. Irrigation of roads with a water tank to avoid suspension of dust particles
4. Removal of fertile soil so it could be used after the construction
5. Revegetation of many areas using the fertile soil that was removed to construct the platforms
6. All the workers were instructed on the prohibition to hunt in the project area.

In addition to the activities aiming to neutralize the negative impacts of the project, several actions with a positive effect over this variable are being implemented together with the project. Among the latter we may include³⁸:

³⁶ Monitoring of emission reductions is explained on Section B.7 of the PDD. The present subsection describes the monitoring of sustainable indicators only. For a detailed discussion on this topic, please refer to the EIA (2006).

³⁷ MARENA is the Nicaraguan DNA.

³⁸ In addition to this, the project is evaluating the possibility to set up a reforestation/afforestation plan in coordination with the landowners participating on the project (project owner does not directly own any land). The new trees will be planted in areas selected by the land owners, especially in those areas which never had significant vegetation. In this context the soil quality of those areas will have an improvement since erosion will be avoided. This is not listed with the rest of the activities as its implementation does not depend exclusively on the project developer's will (i.e. voluntary participation of landowners is required)

- Coordination, organization and investment in various Beach Clean Ups, including promotion through advertisement of waste disposal in garbage cans (donated by the project owner). This activity is already mentioned in the project's validation report (see page 41).
- Donation of trees in order to contribute with the forestation of several areas in Rivas. These trees were donated to environmental Rivas authorities to support their reforestation campaigns.
- Contributions to the Municipality's Nursery in order to support part of the wage contributions for three months to the person in charge of the latter.

Biodiversity: Ornithological monitoring will be carried in order to measure the project's impact on bird populations. The main parameter regarding this indicator will be the number of birds collision in the site. The project has one person dedicated to identify/count the number of dead birds found in the area of the wind turbines arrays. There is one person dedicated to do these inspections twice a week using a form. Besides, all the operators staff and surveillance staff have been instructed to report if they find any dead bird.

Water quality: Wastewaters and sludge from the project will be monitored according to Standard Methods 2000; nearby lakes and rivers will be analyzed as well. The frequency for this monitoring will be annually.

Air quality: Carbon monoxide in the air will be monitored by means of a non-dispersive infrared spectrophotometry.

Other pollutants: Project noise and workers hearing level will be monitored (see table 8 below).

Access to energy services:

- The **amount of fossil fuels consumption avoided by the project** will be monitored according to the following guidelines, which are based on the same approach used for measuring emissions reduction³⁹. The average of fuel oil and diesel consumption per megawatt hour for the three most recent years will be used as a proxy of the fossil fuel efficiency of the Nicaraguan grid. This value will be multiplied by the project annual generation for each year of the crediting period, thus obtaining an estimation of the amount of barrels of each fuel that the project contributed to avoid. Furthermore, the corresponding fuel prices will allow the valuation of this amount, which in turn will provide an estimation of the project's annual impact on the Nicaraguan Balance of Payments. In terms of formulae:

$$(1.1) \quad FE_i = \frac{\sum_t FC_{it}}{\sum_t GEN_t}$$

where:

³⁹ This estimation follows the same spirit of the Operating Margin on the ACM0002: "Consolidated baseline methodology for grid-connected electricity generation from renewable sources". It will serve as an indicator of the project's contribution to the Nicaraguan Balance of Trade.

FE_i : Fuel efficiency of fossil fuel i (volume of fossil fuel consumed by the plants in the grid per mwh generated). This parameter will be determined *ex-ante* with the latest statistics available for the year previous to the project's start date.

FC_{it} : Fossil fuel i consumption of the entire grid (volume) for each period t . In 2005-2007, this value was 124,672 + 136,273 + 130,458 = 391,403 thousand gals for fuel oil and 2,136 + 5,123 + 17,820 = 25,079 thousand gals for diesel (Source: Table B.9 – Page 31 of the PDD).

GEN_t : Grid generation for each period t , including imports (6,183,895 MWh for 2005-2007, as presented on Table B.10 of the PDD).

t : takes the value of the last three years with available information (2005, 2006, 2007).

i : Fossil fuel type (in Nicaragua, this includes fuel oil and diesel).

In our ex-ante example, we have that:

$FE_{Fuel\ Oil} = 391,403 / 6,183,895 = 0.0633$ thousand gals per MWh, (= 63.3 gals / MWh); and

$FE_{Diesel} = 25,079 / 6,183,895 = 0.0040$ thousand gals per MWh (= 4 gals / MWh)

Fuel efficiency is multiplied by the project generation to obtain the amount of each fossil fuel that the project contributed to reduce:

$$S_{i,y} = FE_i \times PG_y$$

where:

$S_{i,y}$: Savings of fossil fuel i (in volume units) attributable to the project, during year y

PG_y : Project Generation on year y

In our example, using the expected generation by the project (169,512 MWh per year – *source*: page 34 in the PDD, rounded up for simplicity) we have approximate savings of 10.7 million gals of fuel oil and 0.67 million gals of diesel per year.

ii) The difference between the spot price for energy (short-run marginal costs) and the price Amayo receives⁴⁰ (as signed on the project's PPAs) is the best way to capture the project's impact on long-run energy costs. This is important because as long as the price received by

⁴⁰ The GS validation report for this project shows ex-ante calculations for this parameter (80 \$/MWh and 100\$/MWh in savings), which can be see as examples of potential values for the latter.

the plant is lower than short-run prices, the lower cost of the energy from the wind farm will tend to reduce long-run market prices (i.e. long-run average costs for the entire market⁴¹).

$$(1.2) \quad D_y = p_{avg_spot,y} - p_{PPA,y}$$

where:

D_y : is the average difference between the spot market price for energy and the price received by the project in year y (\$/MWh).

$p_{avg_spot,y}$: is the yearly average price (\$/MWh) in the spot market for electricity (obtained from monthly data available at⁴² www.cndc.org.ni) for year y .

$p_{PPA,y}$ is the price received by Amayo (\$/MWh) as stated on the PPA in force during year y

Balance of payments: Fossil fuel imports will be monitored as a sustainable development parameter.

The value of the “avoided” fuel consumption would be estimated as:

$$(1.3) \quad V_y = PG_y \cdot \sum_i FE_i \cdot p_{i,y}$$

where:

V_y : Value of the avoided fossil fuel consumption for year y

PG_y : Project Generation on year y (169,512 MWh – Source: Page 34 in the PDD – rounded up for simplicity).

FE_i : Fuel efficiency of fossil fuel i (volume of fossil fuel consumed by the plants in the grid per mwh generated), as per equation (1.1) above.

p_i : price per volume unit of fossil fuel i (average price for year y) (in 2007, these prices are 1.327 USD / gal of fuel oil and 2.117 USD / gal of diesel⁴³);

y : each year of the crediting period (2007 in our example).

⁴¹ Notice that the impact of Amayo in the long-run costs of the entire market (including its potential impact on retail prices) are also limited by the firm’s corresponding share of the latter (Amayo’s 40 MW capacity represents only 4.5% of 2008’s NIS installed capacity).

⁴² Monthly data available at section “Descarga de archivos/Comercial/Transacciones Transacciones Economicas/Precios de Energia y Potencia”.

⁴³ Source: http://tonto.eia.doe.gov/dnav/pet/pet_pri_spt_s1_a.htm; prices from the US Gulf Coast considered; Fuel Oil = Residual Fuel Oil – Diesel = Low Sulfur No.2 Diesel Oil

Thus, the ex-ante value for this parameter would be $V_{2007} = 169,512 \times \{(63.3 \times 1.327) + (4 \times 2.117)\} = 15,674,283$ USD.

A similar indicator will provide an estimate of the amount of each fossil fuel that the project contributed to reduce⁴⁴.

Technology transfer: One the most important contributions of the Amayo wind farm to the Republic of Nicaragua will be its technology transfer. The project participants will carry on frequent training and capacity-building activities⁴⁵. The number of workshops, seminars organized and other training opportunities held, as well as the corresponding number of participants on each of the latter, will be duly monitored.

The following is a list of parameters that will be monitored throughout the project operation. Whenever is necessary, the same parameter's value will be obtained for the period previous to the start of the project operation (e.g. to obtain baseline values)⁴⁶.

Table 8: List of Parameters to be monitored

<u>Component</u>	<u>Parameter</u>	<u>Sampling Points</u>	<u>Frequency</u>	<u>Methods / QA</u>
Soil	Actions to promote sustainable use of land	-	Yearly	Beach Clean Ups, Donation of trees and contributions to local Nurseries.
Soil	Number of trees planted during Reforestation / afforestation	Project site	Once	Manual count
Soil	Number and description of maintenance activities undertaken by project members to the reforested areas	Project site	Yearly	An annual report will be prepared with all the activities undertaken.
Biodiversity	Number of birds collision	Rows of aerogenerators	Twice a week	Count

⁴⁴ This value will be given by $F_{i,y} = PG_y FE_i$, which in our ex-ante example results in $0.0633 \times 169,512 = 10,730$ thousand gals of fuel oil and $0.0040 \times 169,512 = 678$ thousand gals of diesel.

⁴⁵ For example, many student tours have already taken place at the project site.

⁴⁶ Mitigation and compensation measures for soil condition and a re-vegetation plan was not included in the monitoring plan since these measures took place during the construction stage of the project and right away after the construction. Likewise, employment is not included in the monitoring plan because, as the plant will have a stable labour force, no significant variation is expected for this parameter.

Water quality and quantity	water pH in lake and river waters	five meters from the lake's shore in points close to the project activity	Yearly	Standard Methods 2000
Water quality and quantity	water temperature in lake and river waters	five meters from the lake's shore in points close to the project activity	Yearly	Standard Methods 2001
Water quality and quantity	water BOD in lake and river waters	five meters from the lake's shore in points close to the project activity	Yearly	Standard Methods 2002
Water quality and quantity	dissolved oxygen level in lake and river waters	five meters from the lake's shore in points close to the project activity	Yearly	Standard Methods 2002
Water quality and quantity	water pH in project's waste waters	treatment system entrance and exit	Yearly	Standard Methods 2002
Water quality and quantity	water temperature in project's waste waters	treatment system entrance and exit	Yearly	Standard Methods 2002
Water quality and quantity	Total Sedimentable solids (TSS) in project's waste waters	treatment system entrance and exit	Yearly	Standard Methods 2002
Water quality and quantity	water BOD in project's waste waters	treatment system entrance and exit	Yearly	Standard Methods 2002
Water quality and quantity	water COD in project's waste waters	treatment system entrance and exit	Yearly	Standard Methods 2002
Water quality and quantity	grease and oil in project's waste waters	treatment system entrance and exit	Yearly	Standard Methods 2002
Water quality and quantity	Phosphorus level in project waste waters	treatment system entrance and exit	Yearly	Standard Methods 2002
Water quality and quantity	fecal coliforms and total coliforms in project waste waters	treatment system entrance and exit	Yearly	Standard Methods 2002
Water quality and quantity	methylene blue active substances in project's waste waters	treatment system entrance and exit	Yearly	Standard Methods 2002

Water quality and quantity	Humidity in sludge from project's waste water treatment system	sludge drying area	Yearly	Standard Methods 2002
Water quality and quantity	nutrients in sludge from project's waste water treatment system	sludge drying area	Yearly	Standard Methods 2002
Water quality and quantity	organic matter in sludge from project's waste water treatment system	sludge drying area	Yearly	Standard Methods 2002
Air quality	Carbon Monoxide (CO)	project Southeast sector	Yearly	non-dispersive infrared spectrophotometry
Other pollutants	Workers auditive level	project site	yearly	audiometry
Other pollutants	Project Noise level (db)	project surroundings	previous to the start of project / yearly once it becomes operational	medition to be performed by means of a sonometer
Access to energy services	Amount of fossil fuels consumption avoided by the project	-	yearly during crediting period	to be performed on an audited worksheet
Access to energy services	Difference between spot price for energy (short-run marginal costs) and the price Amayo receives		Yearly during crediting perio	To be performed on an audited worksheet
Balance of payments	Value of fossil fuels avoided by the project	-	yearly during crediting period	to be performed on an audited worksheet
technology transfer	Number and description of events related to technology transfer activities undertaken by project members	-	yearly	evidence from each activity and feedback from participants will be collected and archived

Actions to mitigate and correct environmental impacts

The following is a brief summary of the environmental action plan that will be implemented throughout the different stages of the proposed project in order to mitigate the latter's negative impacts while enhancing its positive ones. Among the main measures aimed at reducing the project's impact are the following⁴⁷:

- **Birds and Land Fauna:** In order to prevent to the greatest extent possible the collision of birds (specially migratory species), sonic deterrents will be placed in strategic places in order to repel birds from flying dangerously close to the turbine's blades. In addition to this, ornithological monitoring will be carried out during the periods of heaviest bird migration (March to May and September to November).
- **Landscape:** In order to minimize their impact on landscape, all the towers and their complementary elements meet international design standards. The installation of wind towers on lands of high ecological value will be avoided.
- **Soil:** During the project's construction and dismantling phases, it will be necessary to clear the sites where the generation towers will be installed. This will affect the soil by leaving it exposed to erosion due to water runoff. Therefore, once the above-mentioned stages are concluded, the uprooted vegetation will be replanted to prevent soil erosion. As for the provisory camping sites, the areas with non-perennial vegetation will be selected in order to prevent the falling of trees.
- **Air:** Water will be poured to the dirt roads surrounding the project area so as to prevent the suspension of dust particles in the air.
- **Superficial waters and aquatic fauna:** During the installation and dismantling stages of this kind of projects, inadequate disposals of lubricant wastes are likely to occur affecting the natural bodies of water they may reach. To prevent this, lubricant wastes will be stored in safe barrels, thus facilitating their final disposal.
- **Noise:** To prevent the influence of noise generated by the rotor blades, a minimum distance of 300 to 500 meters will be considered between the wind turbines and any households in the area.

Flora: The wind field will be constructed in open areas so as to avoid damaging existing forest areas. Similarly, the project participants will promote reforestation as a complementary activity, along with a program to protect the natural flora of the project's site, thus conserving the area's existing biodiversity.

⁴⁷ For a full list of mitigation measures, please refer to the project's EIA (2006), Section 5.

Annexes

Annex 1: Declarations of Non-Use of ODA



August 25th, 2008

Amayo 40MW Wind Project.- Nicaragua

To: Gold Standard Foundation

Declaration of Non-Use of Official Development Assistance by Project Proponent

I hereby declare that I am duly and fully authorized by the legal owner ("Project Proponent") of the above-referenced project, acting on behalf of all project participants, to make the following representations on Project Proponent's behalf:

I. Gold Standard Documentation

I am familiar with the provisions of Gold Standard Documentation relevant to Official Development Assistance (ODA). I understand that the above-referenced project is not eligible for Gold Standard registration if the project receives or benefits from Official Development Assistance under the condition that some or all credits coming out of the project are transferred to the ODA donor country. I now expressly declare that no financing provided in connection with the above-referenced project has come from or will come from ODA that has been or will be provided under the condition, whether express or implied, that any or all of the credits [CERs, ERUs or VERs] issued as a result of the project's operation will be transferred directly or indirectly to the country of origin of the ODA.

II. Financier Declarations

I hereby declare that I have submitted 1 declarations of Non-Use of ODA, representing declarations from all project financiers. If additional financiers are added to the project, I will promptly notify the Gold Standard Foundation and ensure that additional declarations are promptly submitted.

III. Financing Plan

I agree to complete and submit a sufficiently clear and transparent financing plan for the project so that during validation the Validator can assess compliance with the Non-Use of ODA requirement.

IV. Duty to Notify Upon Discovery.

If I learn or if I am given any reason to believe at any stage of project design or implementation that ODA has been used to support the development or implementation of the project, or that an entity providing ODA to the host country may at some point in the future benefit directly or indirectly from the credits generated from the project as a condition of investment, I will make this known to the Gold Standard immediately.

V. Sanctions.

I am fully aware that under Section 10 of the Gold Standard Terms and Conditions sanctions and damages may be incurred for the provision of false information related to Projects and/or Gold Standard credits.

Signed:

Name:

Title:

Sean R. Porter
Manager





BCIE

**BANCO CENTROAMERICANO DE INTEGRACIÓN ECONÓMICA
GERENCIA DE PAIS- NICARAGUA**

September 29th, 2009

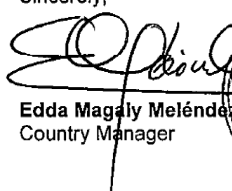
Mrs.
Gold Standard Foundation

Declaration of Financier of Non – Use of Official Development Assistance

The Central American Bank of Economic Integration has provided financing for the Amayo 40MW Wind Project-Nicaragua, and:

- I. Declaration of Non – Use of ODA. Financier understands that projects are not eligible for Gold Standard Registration if they receive Official Development Assistance (ODA) for project activities under the condition that some or all credits resulting from the project are transferred to the donor country. Financier now expressly declares that no financing provided in connection with the above referenced project has come from or will come from ODA that has been or will be provided under the condition, whether express or implied, that any or all of the credits (CERs, ERUs or VERs) issued as a result of the project's operation will be transferred directly or indirectly to the country of origin of the ODA.
- II. Definition of Official Development Assistance. For purposes of this section, the term ODA shall have the same meaning provided in the Gold Standard Documentation, including section 1.2.e of the Gold Standard Toolkit, which provides a reference to the OECD Development Assistance Committee Glossary definition of ODA.
In the event of any question of interpretation as to the definition of ODA, the definition applied by the OECD shall prevail.
- III. Acknowledgment of Duty to Notify Upon Discovery. If Financier learns or is given reason to believe at any stage of project design or implementation that ODA has been or will be used to support the development or implementation of the project, and that the donor country or entity providing such ODA to the host country may at some point in the future benefit directly or indirectly from the credits generated from the project as an intended result of the extension of this support, this information will be provided to the Gold Standard immediately. Sanctions associated with failure to notify the Gold Standard are addressed under Annex M to the Gold Standard Toolkit ('Gold Standard Terms & Conditions').

Sincerely,


Edda Magaly Meléndez
Country Manager



C.c.: Archivop/Cronológico



Apartado Postal 2099, Managua, Nicaragua, Tel (505) 266-4120, Fax (505) 266-4125, www.bcie.org

Annex 2: Copy of the original announcements of the second stakeholder consultation

Announcement 1 – presented by Consorcio Eólico Amayo S.A.



Consorcio Eólico AMAYO S.A. tiene el agrado de invitar a organismos gubernamentales y no gubernamentales, así como al público interesado a participar en la presentación del “Proyecto Eólico Amayo”, el cual consiste en la instalación de 19 aerogeneradores de 2.1 MW cada uno, lo que otorga una capacidad instalada de 39.9 MW para la generación de energía eléctrica.

Al proveer de electricidad a la red nicaragüense mediante una fuente de energía limpia y renovable como es el viento, se estará sustituyendo el uso de combustibles derivados del petróleo, reduciendo así la emisión de gases de efecto invernadero (GEI). Es por esto que el proyecto será desarrollado usando el Mecanismo de Desarrollo Limpio del Protocolo de Kyoto para generar los llamados “Créditos de Carbono”. El objetivo de esta invitación es presentar a la comunidad en general y a los actores relacionados, los beneficios ambientales y socioeconómicos que este proyecto de generación de energía eléctrica conlleva.

El evento se desarrollará el día 29 de mayo del 2008, a las 2:00 p.m., en el Hotel Nicarao Inn, en la ciudad de Rivas.

Announcement 2 – presented by MARENA



**Gobierno de Reconciliación
y Unidad Nacional**

El Pueblo, Presidente!

MARENA

Ministerio del Ambiente
y los Recursos Naturales

Gobierno de Nicaragua
Ministerio del Ambiente y los Recursos Naturales,
Oficina Nacional de Desarrollo Limpio y Cambio Climático

El Ministerio del Ambiente y los Recursos Naturales (MARENA) a través de la Oficina Nacional de Desarrollo Limpio y Cambio Climático (ONDL) informa al público nacional y extranjero que el Consorcio Eólico Amayo ha presentado solicitud para obtener el aval gubernamental para el Proyecto Eólico Amayo ubicado en el Municipio de Rivas, cuyo objetivo es la generación de energía eléctrica a partir de la energía eólica, con la instalación de 19 aerogeneradores de 2.1 MW cada uno, lo que otorga una capacidad instalada de 39.9 MW. Por ser un proyecto de energía renovable ingresará en el mercado de carbono en el marco del Protocolo de Kyoto.

El Perfil y Documento del Proyecto estarán disponibles en la Página Web de la ONDL www.ondl.gob.ni desde el día 19 de mayo. Las opiniones sobre el Proyecto en cuestión deberán ser manifestadas por escrito debidamente firmadas por sus autores, los que deberán anotar sus generales de ley y remitirlas a la Oficina Nacional de Desarrollo Limpio y Cambio Climático en el MARENA.

Copia del Documento del Proyecto estará además disponible para consulta por parte de cualquier interesado, a partir del día 19 de mayo del 2008 hasta el día 26 de mayo del 2008, en el Centro de Documentación del MARENA, Alcaldía de Rivas y Delegación MARENA Rivas.

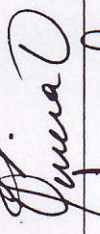
La Consulta Pública del Proyecto se realizará el 29 de mayo del 2008, a las 2:00 p.m., en el Hotel Nicarao Inn, en la ciudad de Rivas.

Ministerio del Ambiente y los Recursos Naturales
Teléfonos: (505) 233-1111 al 13
Km. 12 1/2 Carretera Norte, frente a Corporación
de Zonas Francas. Apartado Postal 5123
Managua, Nicaragua



Annex 3: Participant's list of attendance (Second Stakeholder consultation)

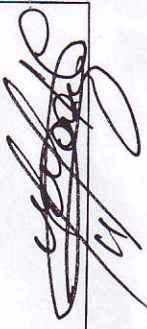
PRESENTACION PROYECTO EÓLICO AMAYO
BAJO EL MECANISMO DE DESARROLLO LIMPIO
LISTADO DE ASISTENTES
29 DE MAYO DE 2008
HOTEL NICARAO INN
RIVAS, NICARAGUA

NOMBRE	INSTITUCION	TELEFONO	CORREO ELECTRONICO	FIRMA
Esperanza Richardson	Concejala	9362664		
José Modesto Martínez	la Virgen			
Silvia López	la Virgen			
Yolanda Rivera Ortega	electroindustrial s.a	2442296	yrivera@netport.com.ni	
ISRAEL GONZA	"	"	isgonza@netport.com.ni	
Nestor Gómez Salas	Particular	2401140 4816363	nestor.gomez.salas@gmail.com	
León Pereira S.	Particular	283-5314 412-3725	leonp@netport.com.ni	
Gastón Rappaccioli	Barcentro	278-2777	grappaccioli@barcentro.com.ni	
Dyax Delgado	Barcentro	"	adelgado@barcentro.com.ni	
Andrés Delgado	Barcentro	5730001	andresdelgado@barcentro.com.ni	

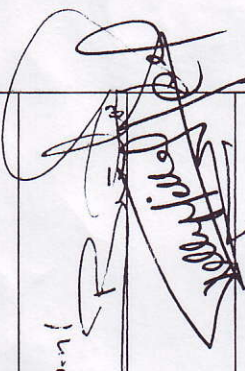
PRESENTACION PROYECTO EÓLICO AMAYO
BAJO EL MECANISMO DE DESARROLLO LIMPIO
LISTADO DE ASISTENTES
29 DE MAYO DE 2008
HOTEL NICARAO INN
RIVAS, NICARAGUA

NOMBRE	INSTITUCION	TELEFONO	CORREO ELECTRONICO	FIRMA
Julio Cesar Rocha Romero	Consultor Particular	268-0419 630-3535	jeirocha@turbonett.com.ni jeirocha@turbonett.com.ni	
Sandra Gutierrez	Multi consult	2782530 6072928	energia1@multiconsult.com.ni sandra.gutierrez@polco.es	
Andrés Rojas L.	Pl. de Rivas	5638732	-	
Fernando Rojas Giovanni Caprotti	Alcaldía de Rivas RESUR	563-4571 8206957	fernandofont@rin.gov.ni gcaprotti@hotmail.com	
Antonio Villalobos	UDOLT	5634485	sege@UDOLT.edu.ni	
Diana Rosales	NicaNet S.A.	558-0095	adm@nicanet.com	
Norma Banco	NicaNet S.A.	558-3858	norma_banco@nicanet.com	
Adilia Villalobos	Ministerio de Energía y Minas	222-4920	adilia.villalobos@mem.gov.ni	
Marty Danus J.	Propietaria de la Amayo	88 05186	martydanus@gmail.com	

PRESENTACION PROYECTO EÓLICO AMAYO
BAJO EL MECANISMO DE DESARROLLO LIMPIO
LISTADO DE ASISTENTES
29 DE MAYO DE 2008
HOTEL NICARAO INN
RIVAS, NICARAGUA

NOMBRE	INSTITUCION	TELEFONO	CORREO ELECTRONICO	FIRMA
Leonel Díaz	MARENA	5634264		
Pedro Fernando Aguilar	MARENA	5634264	rodrigo.21.2001@marena.com	
Ana Isabel Martínez		56333356		
José Ernesto Centeno P.	Empresario	96333775		Ernesto Centeno
Reinilde López H	Alcaldía Rivas	404411 56334117		
EDUARDO PUEBLO	Particular	6966717		
Marcia Jarama	Alcaldía	5633455		
Manuel Jarama P.	R.R.P.	8343592		
Manuel José Torrealba	Particular			MJS. T.B
Manuel Madriz	OND/ MARENA	233-44-55		

PRESENTACION PROYECTO EÓLICO AMAYO
BAJO EL MECANISMO DE DESARROLLO LIMPIO
LISTADO DE ASISTENTES
29 DE MAYO DE 2008
HOTEL NICARAO INN
RIVAS, NICARAGUA

NOMBRE	INSTITUCION	TELEFONO	CORREO ELECTRONICO	FIRMA
Bernardo Torres Guerrero	OND L / MARENA	233 44 55	btorres@marena.gob.ni	
Jelis Villalobos	OND L / MARENA	✓	vilalobos@marena.gob.ni	
Ignacio Delgado	Urisport	233 4420	meamof@urisport.com	

PRESENTACION PROYECTO EÓLICO AMAYO
BAJO EL MECANISMO DE DESARROLLO LIMPIO
LISTADO DE ASISTENTES
29 DE MAYO DE 2008
HOTEL NICARAO INN
RIVAS, NICARAGUA

NOMBRE	INSTITUCION	TELEFONO	CORREO ELECTRONICO	FIRMA
Ramiro de Harbano	Harbano	56341264 44341863	enver.perez@gmail.com	
Roberto Lopez Vaz	IDE-Decam	.		
EVERER PEREZ.	LAMSA.	829-6760	enver.perez@gmail.com	

Annex 4: Copy of the original announcement of the complementary stakeholder consultation



Consorcio Eólico Amayo S.A. tiene el agrado de invitar a organismos gubernamentales y no gubernamentales, así como al público interesado a participar en la consulta pública complementaria del Proyecto Eólico Amayo, el cual consiste en la instalación de 19 aerogeneradores de 2.1 MW cada uno, con una capacidad instalada de 39.9 MW para la generación de energía eléctrica.

Al proveer de electricidad a la red nicaragüense mediante una fuente de energía limpia y renovable como es el viento, se estará sustituyendo el uso de combustibles derivados del petróleo, reduciendo así las emisiones de gases de efecto invernadero (GEI). Es por esto que el proyecto se está desarrollando dentro del Mecanismo de Desarrollo Limpio del Protocolo de Kyoto para generar los llamados Certificados de Reducción de Emisiones. El objetivo de esta invitación es presentar a la comunidad y a los actores relacionados, el proyecto en general, así como los beneficios ambientales y socioeconómicos que se obtendrán del mismo.

El evento se desarrollara el día jueves 26 de marzo del 2009, a las 2:00 p.m., en el Hotel Nicarao Inn, en la ciudad de Rivas.

Annex 5: Participant's list of attendance (Complementary Stakeholder consultation)



Consulta Publica Parque Eolico Amayo

Lista de Asistentes

Fecha: 26 de Marzo, 2009

Lugar: Hotel Nicarao Inn, Rivas

Nombre	Firma	Institucion/Organismo/ Empresa	Email
1 Karen Alvarado Reyes		La Virgen	
2 Hilda H. Solerone H.		La Virgen	
3 MAURICIO MEDINA M		MINISTERIO DE ENERGIA	mauricio.medina@minenergia.ni
4 Roberto Ortega A.		ARIDEPH	Roberto.ortega@yahoo.com
5 Maria Auxiliadora Gomez		Fundacion ETEA	auxiliadora.gomez@yahoo.com
6 Secundino Escobedo		Alcaldia Rivas	mambiontobias@hotmail.com
7 CARLOS V. QUERZ		INOCENTES C.A.	
8 Healey Espinoza		Alcaldia	
9 Analia Caproth		Sta Clotilde	caproth85@hotmail.com
10 Ronald Hernandez		Rivas/Alcaldia Concejo	
11 Maria Asencion Montiel		La Virgen	
12 Nelys Menaca		Ministerio, Rivas	nelysmenaca@yahoo.com
13 Eulina Leytcano		Rivas/Alcaldia	
14 Esperanza Pineda		Alcaldia Rivas	esperanzaet@yahoo.com

[illegible]

Consulta Pública Parque Eólico Amayo

Lista de Asistentes

Fecha: 26 de Marzo, 2009

Lugar: Hotel Nicarao Inn, Rivas

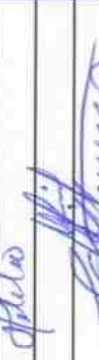
Nombre	Firma	Institucion/Organismo/ Empresa	Email
21 Maria Magdalena Rodriguez		Parque Virgen	
22 Luis Yara Solorzano		La Virgen	
23 Eleanora Rodriguez		La Virgen	
24 Angela del S. Acosta		La Virgen	
25 Adilio Cruz Rocha		La Virgen	
26 Ricardo Ortega		Parque Virgen	5635683
27 Hara Garcia Torres		ARIDEDH	8301374
28 FRANK BRACHTL T.		MANAGUA (8666057)	frbrachtel@yahoo.com
29 Ruth Rodriguez		FISCALIA (RIVAS)	
30 Jairo Pineda Espinoza		Unep Pte. J. K. DEDH	unepunep@unep.com
31 Leonidas Cruz		MANAGUA - RIVAS	563038
32 Juan Manuel Cubillo		MAG FOR - RIVAS	jeanmanuel@hotmail.com
33 Carlos Gadea		Asp. Gadea - Rivas	magr-1033@pbos.es
34 Alexandra Solorzano Prado		Col. San Pedro Claver - Nind.	alacaluna210193@hotmail.com
35 Susana Mejia Incer		Alcaldia - Rivas	8358308
36 Camilina Perez		Nicaragua - Rivas	4885539

Consulta Publica Parque Eolico Amayo

Lista de Asistentes

Fecha: 26 de Marzo, 2009

Lugar: Hotel Nicarao Inn, Rivas

Nombre	Firma	Institucion/Organismo/ Empresa	Email
37 Valdez Henrriquez G		Oxfam TB	rhenriquez@oxfam.org.ni
38 Maria Esther Collado Moya		HIPED - Rivas y S ^a Jorge	merkerblado58@yahoo.es
39 ANNETTE V. RUBIEN		MEMI	annetteclauk@nmg-d.ni
40 Humberto Buzanov B		Fundacion Transvicio	fundaciontransvicio@yahoo.com
41 Hilda Gertrud Rivas		MULTICONSULT	admon@multiconsult.com.ni
42 Mario Orozco		MULTICONSULT	mayro-zk@yahoo.com
43 M ^a Patricia Dominguez		UNAG	unite.aso345@yahoo.com
44 Bismark Castro Blum		Paroamerica Energy	bcastro@paroamericaenergy.com
45 Alcio Canazo Cano		Mesoamerica energy	a-cano2003@mesoamericaenergy.com
46 Orlando J. Trana		Fisco las Lomas	
47 DOUGLAS VILLALBA		WALMART	
48 Ramona Velasco		ARIDEH	Yamirca Velasco@yahoo.com
49 FELIX O. CASTILLO G		INSTIT. NAC. O. Residencial	fcastillo73@yahoo.com
50 Antonio Villalobos		UPOLTE - Rivas	SPK.RIVAD@edu.ni
51 Juan Ramon Silva Solis		Alcalde de Rivas	javrasol@yahoo.es
52 Arlen Orozco V.		Alcalde de Rivas	arlen-orozco@hotmail.com
53 Milen Morales		OPR	millemorales@yahoo.com
54 DONDE ESPUROS		IAETI - MANAGUA	donde.espuros@netel.ni
55 Rosa Argentin Lopez		Conceptal - Rivas	RosaLopez45@hotmail.com

Annex 6: Comments in the questionnaires

Questions in the questionnaires Participants	1. What is your level of participation in communal decision making?	2. What kind of participation do you exercise regarding environmental problems in the area?	3. What position do you have with regard to the development of the project?	4. What are the possible impacts (positive/negative) of the projects the neighbors and country?
G.P.C. Transport Coordinator Ana María Solórzano M.	High, Our neighborhood is organized and the Project is located inside our community development.	Medium	Positive, I appreciate all the project's benefits for both the community and the country	According to the presentation, the impacts will be positive. We hope the Project will bring benefits to each of the energy users, lowering the price of our energy bill.
Citizen Empowerment Committee (CEC) for Education La Virgen (Rivas) Ángela del Socorro Aburto	Medium, I'm in the CEC	None, I don't think the project will generate any problems, quite the opposite	Positive, Cheaper energy for Nicaragua, it is good to generate our own electricity	It is a good Project since it will generate energy from our own resources in a progressive level not just for the neighborhood but for the country in general
MAGFOR –Rivas Jeovani Álvarez Cubillo	Medium; the zone is not heavily populated. Extensive lands will facilitate project development.	Medium; according to the exposition, the reports do not show significant impacts in local fauna, Therefore the system will benefit us since no CO2 emissions or other	Positive; Project contributes with the country's development, provides additional income and reduces oil imports.	Job creation, economic development, pollution reduction

		pollutants are released to the atmosphere.		
MARENA Pedro Rocha Aguilar	Low, Decisions are taken by the territorial delegate together with other institutions	Medium, I've been involved in EIAs in the project surroundings	Positive, for the benefits that will bring to the municipality, the department and the country by lowering energy costs, producing clean energy and job opportunities.	Positive, since it will reduce emissions from the burning of fossil fuels in other power plants
Environment Coordinator (CEC) Karen Altamirano	High, Our neighborhood is organized and the Project is located inside our community development.	Medium, I'm part of the environment commission within the CEC; it is important for the wellbeing of our neighborhood.	Positive, i like everything that benefits both our community and our country.	Positive, according to the presentation. We hope the Project will bring benefits to each of the energy users, lowering the price of our energy bill.
Public Ministry (Rivas) Ruth Elizabeth Rodríguez Martínez	None	Medium. I am currently leading census on crimes to the environment	Positive. It has many benefits for the country specially for the environment, which is already in need for help	Very good since it will contribute to job creation, it will lower the energy bill without polluting the environment
General Attorney's Office Milton Nicolás Montes Arana	High. I represent the State, regarding environment, land ownership, etc.	High. Involved in measuring the project's environmental impact and its viability	Positive. Clean energy, oil imports reduction	Positive. Lowers energy costs, promotes employment, state of the art technology. The negative would be to not expand

				these benefits to the rest of the country
UNAG Maria Cristina Dominguez	Medium. We are a worker's union that includes large to small producers	Medium. We are directly linked to the lands.	Positive. We agree with all the activities that provide development and economical benefits to the country.	Positive: cheap energy, job opportunities, local development, less pollution to the environment.
Student at San Pedro Claver School Vanessa René Delgado Menecal	None.	Medium. I try to explain people the bad consequences of throwing garbage in public places	Positive. It will help the people in the future. Personally, it will provide material for my essay	Positive: energy saving, job opportunities, reduction in oil imports; Negative: affected biodiversity, falling of trees, effect on weather on summer
Private consultant Eng. Frank Brachtel Tejada	None. I assisted the presentation for my own technical-professional interest	None. I assisted the presentation for my own technical-professional interest	Positive. This is the most efficient way to generate energy, developed in due time and form. Congratulations.	Positive: Savings in oil imports; minimum or zero pollution to the environment, increased energy available; increased job opportunities; carbon credits. Negative: May affect natural landscapes. Grade from 1 to 10: Positive impacts: 9 –

				Negative impacts: 1
ETEA Foundation for Development and Cooperation María Auxiliadora Gómez	Medium. We participate on the municipality's roundtables. We bring institutional support to the latter.	Low. The private projects we finance should contribute positively with the environment	Positive. I believe the project complies all the current regulations.	Positives. It will have a multiplicative effect; It lowers fuel dependency; lowers energy price to the consumer; it will bring more security to potential investors.
Finca Las Lomas de Carlos A. Barrios V. Orlando José Traña	Low. I'm not from Rivas, I'm working there temporally.	Medium. I am now living and working by the lake.	Positive. It will reduce blackouts.	Will have great impact which makes us proud as Nicaraguans
Rivas City Hall Mario García	Medium. I belong to the technical team of project evaluation of the city of Rivas	Low. My work is related to the land registry.	Positive. It benefits the people of the municipality and contributes to improve the environment.	-
Rivas' City Hall Juan Ramón Solís Salas	High. We have the responsibility to give construction permits to projects located in our municipality.	High. We work together with the environment dept. Any environmental issue is of great interest for us in order to mitigate any anomalies to	Positive. Any project that contributes with local or national welfare is of great importance.	According to the studies presented, positive not only for locals but for the whole region of south Nicaragua since it will reduce energy costs and provide renewable

		the system.		energy.
Mesoamerica Energy Alejo Carazo Cano	None. I don't live in the area.	None. I don't reside in the area.	Positive. It contributes to the reduction of oil imports	Positives: Less oil dependency; minimum environmental impact; cheaper energy; job creation
Mesoamerica Energy Eng. Bismarck Castro Blandón	High. I'm a project designer in Nicaragua in charge of wind studies.	High. I'm very aware of the need to preserve our flora and fauna, this is the legacy we'll leave for our future generations.	Positive. It will create job opportunities; reduce GHG, lower oil dependency, lower energy price, environment preservation.	The first positive impact is on human beings, then on environment. Job opportunities, tourism promotion, enhance business climate for potential investors. It will reduce energy deficit, oil dependency and increase tax receipts for the municipality.
Rivas City Hall Susana Mejia Incer	None, I don't live by that area	None, we could have had if we lived here before this project	Positive, as long as it contributes to enhance living and economic conditions of the people	Positive: does not generate pollutants. Negative: not much labor is needed, so it will not generate job opportunities.
RESUR Giovanni Caprotti	Medium. I am a landowner on the project's surroundings, but never been part	High. Owner of livestock farm.	Positive. Cheaper energy, no contamination, great expansion potential, creates	Depends; if the energy is delivered to the local grid and if the price is lower then it will

	in environment decision taking.		energetic independence.	have repercussions on the consumer's bill. If both things happen, the impact will be very positive.
Santa Claudia Annalija Caprotti		High. Owner of part of the land where the project is located.	Positive. The project will improve living conditions of Nicaraguans. Its clean energy production will contribute to reduce pollution in the country	All the impacts are positive, for many reasons, for example clean energy generation, jobs for locals, technology transfer and overall improvements in the living conditions of Nicaraguans.
Multiconsult Hilda Tremino Reyes	None.	Medium. As part of an environmental consultant, it is of our interest to become acquainted with all the pros and cons encountered during project development.	Positive. It shows great technological advances in an under developed country, besides from the employments that are being created.	Negative: reduction of wind speed Positive impacts will be shown both on national and municipal levels, besides from increased job opportunities.
Student at San Pedro Claver School Gilmin Dawn Simolina Ageno	None. Because I don't live in the area; still, I think this project will contribute not only to the project area but to the whole country as well	Low. I don't live in the area, but the project will affect the entire country.	Positive. It is non-contaminating resource that should be used.	It will provide income and electricity without contamination; it won't hurt flora and fauna. The main disadvantage is the unpredictability of

				its output.
Student at San Pedro Claver School Eyling Junieth Leyton Lopez	None. I don't live here in Rivas	None, I'm not familiar with the area; however since the project will affect us all we must be aware of it	Positive. It will improve the economy and help in neighbor areas	Impacts are income generation without generating pollution
Student at San Pedro Claver School Alejandra Sanchez Prado	None. I live in Nindirí, Masaya	Low.	Positive. It will contribute with the economical and technological development of the country	Positive: use of native resources for energy generation, turning Nicaragua in a development center. Pollution, environment erosion.
Rivas City Hall Secundino Estrada de L.	High. I'm responsible for Rivas environment.	High. I have responsibilities towards the city hall.	Positive. It's very good because it doesn't contaminate	Deforestation
Independent Consultant Julio César Rocha Romero	None. I live in Managua. I'm professionally interested in the project.	None.	Positive. I consider this type of projects are the best for the country	Oil independency (country level); clean energy production (national and local level); source of employment and income (local level)
Rivas City Hall Roger Palma Rojas	High. I'm the local Director of Planning and Economical Development.	High. The city's Environment Area is under my direction	Positive. It positively affects the country's energy mix.	Positive: cheap domestic energy Negative: Rises prices of productive lands used for agriculture.
MINED Rivas –	Medium. As a	Medium.	Positive, since it	Positive: Reduction

San Jorge Lic. María Esther Collado N.	MINED delegate I i'm involved in decision taking regarding education, environment and health	Environment is a priority at MINEO due to the current level of deterioration. We are permanently making campaigns in favor of the environment. I look over water.	will reduce global warming due to the reduction of GHG	in blackouts, reduction of global warming, reduction of GHG. Negative: I think once the project is operational its impact on the environment, specially migrating birds, should be studied. Neutral: We don't know it's real costs for a household.
FUNDEMUR Octavio Ortega Arana	Medium. I am part of the environmental commissions within the municipality.	Medium, we are part of the decision making process.	Neutral. It should not harm the environment and show transparency in its tax payments.	We expect cheaper and cleaner energy and that local work force is hired.
ARIDEDH Mara Francely García Torrez	High. ARIDEDH is an association for human rights. The role we play is to defend the community's rights.	High. It is the right of every citizen to live in a healthy environment which does not affect his way of living or developing.	Neutral. It should not violate the citizen's rights nor the environment.	We expect clean energy for a better life quality, job generation for the communities where the project is located and its surroundings, and above all that the worker's rights are not violated.
President of ARIDEDH Yanina Vilchez R.	High. ARIDEDH is an association for human rights. It's our responsibility to aim for the future of our	High. Since the environment is part of humans and it's our right to have a healthy environment	Positive. I have cleared my concerns and I feel that the project is in compliance with	Positive: development of our society. Negative:

	country since it's the right of all		local regulations	
Nelcys René Menocal	None. I live in Nindirí, Masaya	None. I'm interested in the goals, though, like every Nicaraguan.	Positive. I believe it's very important for the country as a novel technology project	Positive: contribution to the economy and the families. Minor or null effect on the environment in the project area
Inst. Nacional Rosendo López Félix O. Castrillo Guzmán	None. I'm not a resident of that area and therefore I do not take part in the decision taking.	Low. I have little incidence since we do not take part of the decision making process or we are not taken into account.	Positive. My opinion is very positive, independently of the nature of the project, as long as it contributes with local and national development.	It will only have impact for local and national inhabitants: a) job opportunities, b) clean healthy energy; c) rise in tourism; d) enrichment of landscapes
CEC La Virgen Esperanza Pichardo M	High. My role is to take the project's demands to the government so that they can be implemented.	Medium. As a representative I've always tried to avoid open field disposal incineration and landfills and stagnant water reservoirs and to keep the hygiene of households.	Positive. This project will improve the economy due to the attraction of tourists to our community, which will be 100% benefited from job creation.	It does not pollute our lake nor the atmosphere; it's a solution to blackouts, lowers energy costs for all Nicaragua.
Rivas City Hall - Vice Major of Rivas Esperanza Núñez Tenorio	None. I'm originally from the city of Rivas.	Medium. I do not have direct participation although I do have intervention on a general level within the major's office through its	Positive, of course, since it implies the increase of energy availability, lower costs, and resources for socio economic	Since this is a national project, its benefits will spread through all the country. This is a new experience that the people of Rivas celebrate. I hope that Project

		education and environmental areas	projects within the Riva's City Hall	Amayo will achieve the expected success. We trust that it will contribute to reduce blackouts in benefit of the people of Nicaragua.
ARIDEDH José Daniel Bejarano	High. Human rights, environment.	High. Everything that threatens is a violation of a right.	Neutral.	The project will have economic impacts; social impacts should be monitored as well as disadvantages to the people of the area and be defensive towards that.
IMAFOR RIVAS Leónidas Conjado	Medium. Since IMAFOR is part of the environment commission of Rivas.	High. Since IMAFOR is part of the environment commission of Rivas.	Positive. Since the project benefits the entire community, avoiding energy interruptions.	Positive since it will generate cheaper energy for consumers and it will create job opportunities to the people of Rivas.

Annex 7: Participant's list of attendance (On site visit)



Consulta Publica Parque Eolico Amayo
 Lista de Asistentes
 Fecha: 26 de Marzo, 2009
 Lugar: Hotel Nicarao Inn, Rivas
 Visita al sitio - 5pm

Nombre	Firma	Institucion/Organismo/ Empresa	Email
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Rosa Argentina Lopez		Alcaldia	

Consulta Pública Parque Eólico Amayo

Lista de Asistentes

Fecha: 26 de Marzo, 2009

Lugar: Hotel Nicarao Inn, Rivas

Visita al sitio - 5 pm.

Nombre	Firma	Institucion/Organismo/ Empresa	Email
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María Estación Huelo		La Virgen.	
Angela M. S. Porto		La Virgen	
Roberto Espinoza		Rivas - Rivas	
Ronald Hernández S.		Alcaldía Rivas	
Orlando J. Triana		Junta la Permas	
Del Rangel María Rodríguez		La Virgen	
Aracelia Salazar	A.M.S.	La Virgen	
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NELGYS Mena		Hindiri, Moraya	