

Contact person: M^a Carmen González
e-mail: magonzalez@aenor.es
Mobile: 34 669240223

Génova 6
28004 Madrid, Spain
Phone: 34 914326004
Fax: 34 91 3190581

CDM Executive Board

RESPONSE TO REQUEST OF REVIEW

“Santo Domingo Wind Energy Project” (1586)

AENOR had performed the validation of “Santo Domingo Wind Energy Project” No. 1586 located in Mexico. The request for registration was made on 23/01/2008 and was under review from 15/03/2008 to 11/05/2008.

Four requests for review have been issued, which are identical to each other.

We thank the CDM Executive Board and the Secretariat for giving us the opportunity to clarify about our considerations in validating the project mentioned.

Please find below AENOR response to the issues raised by the request for review.

Request for review:

“The DOE shall describe how it has validated that the project is additional based on generic investment cost comparison between wind and natural gas power generation, the IRR calculation without a benchmark and generic barriers to wind energy development.”

In order to provide and extend details about the validation of the issues mentioned on the request for review, AENOR has prepared the following clarifications.

Santo Domingo Wind Energy Project was deemed by AENOR as additional according to the CDM UNFCCC requirements and the “Tool for the demonstration and assessment of additionality” version 03, based on the conclusions obtained from the application of different means of validation and the assessment of the project specific evidences and sources of information, relying on the local knowledge of the Validation team designated with a Mexican member of AENOR.

Three different questions have been included in the request for review:

a) **“The project is additional based on generic investment cost comparison between wind and natural gas power generation”**

AENOR has considered the investment costs comparison between wind and gas natural power generation (CCGT) reasonable and applicable to the proposed project since the trend in Mexican energy system is the increase of gas natural powered plants. Validation of this issue was made on the basis of official data published by SENER (Energy Secretary, Government of Mexico) in “Electric sector forecast 2006-

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2015". Evolution of the installed capacity in the last years in Mexico according to SENER is as follows:

- In 2005, CCGT represented 57% and wind 0.0064% of the total (46,228 MW)
- In 2006, CCGT represented 64% and wind 0.17% of the total (48,780 MW)

In 2005, 32.74 % of total power generation in Mexico came from CCGT and GT, and wind power generation represented 0.0021% of the total.

According to mentioned Mexican official forecasts, the technology that is expected to participate mainly in the electricity generation in 2015 is CCGT with an estimated 51.4% share of the total generation.

Reference:

http://www.sener.gob.mx/webSener/res/PE_y_DT/pub/Prospectiva%20Sector%20Electrico%20FINAS.pdf

http://www.sener.gob.mx/webSener/res/PE_y_DT/pub/Prospectiva%20Gas%20Natural%202007-2016%20FINAS.pdf

Data used in the investment cost comparison between wind and gas natural power generation have been verified with local information published by:

- Mexican official sources: CFE, Federal Commission of Electricity and Universidad Anáhuac del Norte (México): 432 USD/Kw as the average investment cost for gas natural power plants in México.
- international sources as the International Energy Agency: 1370 USD/Kw as the investment cost of La Venta II (wind farm registered as a CDM project on 25/06/2007)

Reference:

<http://www.cfe.gob.mx/es/LaEmpresa/generacionelectricidad/>

<http://www.las-ans.org.br/Papers%202007/pdfs/Paper065.pdf>

b) "The IRR calculation without a benchmark"

Additionality of the proposed project has been demonstrated by using a barrier analysis according to Step 3 of the "Tool for the demonstration and assessment of additionality" version 03. The means of validation of the barrier analysis are included in paragraph c) of this document.

Considering the criteria stated in the mentioned Tool, and having demonstrated the additionality of the project by a barrier analysis, it is not mandatory to follow the Step 2, investment analysis. Even so, the demonstration of the additionality has been reinforced by an investment analysis using Option II in Sub-step2b.

An investment comparison analysis has been carried out including key financial indicators that have been considered suitable for the proposed project by AENOR.

A financial model including five different excel files was provided to AENOR by the project developer, that was assessed by the validation team and the same results of calculations were obtained.

Comparison of the identified financial indicators (project IRR and equity IRR) has been done for the two situations (identified alternatives) more suitable for the project participant (which core business is the development of wind farms) and for the location of the proposed project activity:

- implementation of the project with CDM incentives
- implementation of the same project without the CDM revenues

In addition, a sensitivity analysis was carried out taking into account different ranges of fluctuation of relevant parameters: price of tCO₂, construction investment and electricity price. The range of variations was deemed reasonable by AENOR for the specific context of the proposed project on the basis of the assessment of official data from SENER (Energy Secretary, Government of Mexico).

All files of the financial model validated by AENOR are provided to the Executive Board for verification as attached documents.

c) “Generic barriers to wind energy development”

The project activity has been considered additional by AENOR on the basis of a barrier analysis reinforced by an investment analysis, after verifying the reliability and credibility of all the data, documents, assumptions and justifications provided by the project developer by means of consultation with independent national/local sources of information.

All the identified barriers that prevent the proposed project activity were deemed real and credible on the basis of the following:

Institutional, legal, and policy frameworks

The lack of regulation in the specific area of wind energy was checked by means of assessment of information provided by Mexican official sources (CFE, Federal Commission of Electricity and CRE, Energy Regulation Commission) regarding the local sectoral legal framework. The “Electricity Public Service Law” and related Acts, contract forms and other regulations were analysed by AENOR.

To summarize, the key conclusion of the analysis is that current institutional, legal and policy frameworks are not supportive enough to encourage the development and implementation of wind power electricity generation.

References:

<http://www.cfe.gob.mx/es/LaEmpresa/marconormativo/leyes/leyspee/>

http://www.cre.gob.mx/pagina_a.aspx?id=23

Economic and financial barrier

Data used in the investment cost comparison between wind and gas natural power generation have been verified with local information published by:

- Mexican official sources: CFE, Federal Commission of Electricity and Universidad Anáhuac del Norte (México): 432 USD/Kw as the average investment cost for gas natural power plants in México.

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- international sources as the International Energy Agency: 1370 USD/Kw as the investment cost of La Venta II (wind farm registered as a CDM project on 25/06/2007)

AENOR has considered the investment costs comparison between wind and gas natural power generation reasonable and applicable to the proposed project since the trend in Mexican energy system is the increase of natural gas powered plants. Validation of this issue was made on the basis of official data published by CFE:

Reference:

<http://www.cfe.gob.mx/es/LaEmpresa/generacionelectricidad/>

<http://www.las-ans.org.br/Papers%202007/pdfs/Paper065.pdf>

Lack of regulation in wind energy sector regarding incentives for investment has been verified as stated in previous paragraphs. From the analysis of the local legal and policy framework it was concluded that there is not support such as grants or incentives offered by the Mexican Authorities for the development of wind farms.

Electricity average prices included in the PDD: 59 USD/MWh as the average price in 2005 and 68 USD/MWh as the average price in 2006 have been verified by AENOR with data published by the national official source CFE, Federal Commission of Electricity. It was concluded that such prices are in line with official data provided by CFE for that period, after making the conversion to Mexican Peso.

Reference:

<http://www.cfe.gob.mx/Aplicaciones/QCFE/EstVtas/PorTarifa.aspx>

<http://www.gocurrency.com/v2/historic-exchange-rates.php?ccode2=USD&ccode=MXN&frMonth=10&frDay=23&frYear=2007>

Market structure and human resources

Technology for wind turbines components in Mexico comes from other countries since the main wind power manufacturers do not have production facilities in this country. This barrier was checked from information provided by the Mexican Wind Energy Association (AMDEE) and commercial data provided by the wind energy industry.

Reference:

<http://www.amdee.info/index.php>

In relation with the lack of qualified personnel in the area of the project, this issue was confirmed in the interviews with representatives of local community of Santo Domingo (Oaxaca State, Mexico) during the on site visit: Mr. Saúl Morales, President of Comisariado Ejidal and Mr. Gustavo Castillejo, President of the Council for Surveillance in Santo Domingo.

Technical and information barriers

Only limited information about wind resources in Mexico is available. Due to this, the project promoter conducted a specific study about wind resources in Santo Domingo area, making a previous investment. Evidences provided by the project proponent were analysed during validation process: "Wind resource and energy assessment, Santo Domingo wind farm" report (Alatec June 2007) including data obtained from different wind measurement towers at the project site area (from 2000 to 2006).

Other barriers

Land ownership in the region is based on a very ancient system known as “ejidos” that prevents having updated property documents (deem of titles, etc.) which results in barriers to develop any activity in the land requiring long-term commitments. These constraints in property regulation in Mexico were confirmed in the interviews carried out during the on site visit on November 2007. Representatives of the land owners (named “ejidatarios”) confirmed that none of them had a property title. Mr. Saúl Morales President of Comisariado Ejidal and Mr. Gustavo Castillejo, President of the Council for Surveillance in Santo Domingo were interviewed on July 26, 2007.

This is an issue that must be faced up specifically by wind energy projects in comparison with other conventional power sources.

Documents attached:

Financial model:*

- *Summary Eoliatec Pacífico.xls*
- *Investment plan.xls*
- *Eoliatec del Pacifico Phase I.xls*
- *Eoliatec del Pacifico Phase II.xls*
- *Eoliatec del Pacifico Phase III.xls*

** In order to have the model fully operational please take into account the following topics:*

- *Files are linked – therefore make sure all files are open and that links are operational (Check Edit – Links - ...)*
- *Results are shown in the “Summary Eoliatec Pacifico” workbook – Sheet “Financial Parameters”; Key inputs are in sheet “Inputs”*
- *Excel files – “Eoliatec del Pacifico Phase I”, “Eoliatec del Pacifico Phase II”, “Eoliatec del Pacifico Phase III” and “Investment Plan” are back up calculations.*