AENOR

Contact person: Mª 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 FOR REVIEW. ANNEXES.

"Bii Stinu Wind Energy Project" (1581)

ANNEXES

Annex 0: "Levelized cost Istmo.xls" (Excel file attached).

Annex I: Levelized Cost – Bii Stinu Project: Sensitivity Analysis.

Annex II: Levelized Cost for combined cycle plants

Annex III: Official Forecast of generation mix in Mexico.

Annex IV: Regulatory importance for wind energy development.

Annex V: Country Risk.

Annex VI: Further details considered to validate the barriers.

ANNEX I: Levelized cost – Bii Stinu project: sensitivity analysis

The below included costs have been calculated according to:

i) A discount rate of 8%[1]

i) An exchange rate of 10.83 pesos/US$.

ii) The below terms are included for the calculation of the levelized cost in Bii Stinu wind farm:

Terms Included in Expenses	Terms Included in Investment Costs
Land Leases Operation and Maintenance (Preventive & Corrective) Insurances: • Civil Responsibility • Material Damages • Loss of Profit General Expenses: • Administration and accounting • Technical Team • Offices • Others Other Expenses: • Studies and Projects	Initial Development Costs Use of Land and Construction License: • Construction Licenses • Payment for land use (Investment Phase) Development Costs Engineering and Project Management Wind Turbine Generators Civil Works Electric Infrastructure Others/contingencies Evacuation Line/ Transmission Infrastructure

[1] 8% discount rate has been considered in order to be consistent with discount rates used in the data publicly available

The next table shows the sensibility of the levelized cost in relation to the discount rate and investment cost variation.

Discount Rates Variation	Levelized Cost	Construction Investment				
	86.04	-10%	-5%	0%	5%	10%
	8.0%	83,14	86,35	**89,56**	92,76	95,97
	8.5%	85,13	88,46	91,78	95,11	98,44
	9.0%	87,16	90,61	94,06	97,51	100,96
	9.5%	89,23	92,81	96,38	99,96	103,53
	10.0%	91,35	95,05	98,75	102,45	106,15
	10.5%	93,50	97,33	101,16	104,99	108,82
	11.0%	95,69	99,65	103,62	107,58	111,54
	11.5%	97,93	102,02	106,11	110,21	114,30
	12.0%	100,20	104,43	108,65	112,88	117,11
	12.5%	102,51	106,87	111,24	115,60	119,97
	13.0%	104,85	109,35	113,86	118,36	122,87
	13.5%	107,23	111,88	116,52	121,16	125,81
	14.0%	109,65	114,44	119,22	124,01	128,79
	14.5%	112,10	117,03	121,96	126,89	131,82
	15.0%	114,59	119,66	124,74	129,81	134,89

Discount Rates Variation	Levelized Cost	Expenses				
	86.04	-10%	-5%	0%	5%	10%
	8.0%	87,01	88,28	**89,56**	90,83	92,10
	8.5%	89,26	90,52	91,78	93,05	94,31
	9.0%	91,55	92,81	94,06	95,31	96,57
	9.5%	93,89	95,14	96,38	97,63	98,87
	10.0%	96,28	97,51	98,75	99,98	101,22
	10.5%	98,70	99,93	101,16	102,39	103,62
	11.0%	101,18	102,40	103,62	104,84	106,06
	11.5%	103,69	104,90	106,11	107,33	108,54
	12.0%	106,25	107,45	108,65	109,86	111,06
	12.5%	108,84	110,04	111,24	112,43	113,63
	13.0%	111,48	112,67	113,86	115,05	116,24
	13.5%	114,16	115,34	116,52	117,70	118,88
	14.0%	116,87	118,05	119,22	120,40	121,57
	14.5%	119,62	120,79	121,96	123,13	124,30
	15.0%	122,41	123,58	124,74	125,90	127,06

The data above included is also provided in a complementary excel spreadsheet.

Furthermore, in “The Costs of generating electricity” (march 2004) report carried out by PB Power for The Royal Academy of Engineering[2], the levelized costs of an onshore wind farm is calculated and the result is 72.95 US$/MWh with the next assumptions:

ii) A discount rate of 7.5%

iii) An exchange rate of 1.9715 £/US$.

iv) The study excludes some costs such as those of transmitting electricity over the transmission and distribution system to an end–consumer, which may increase the levelized cost from 15% to 25%.

[2] The Britain’s national academy for engineering

ANNEX II: Levelized cost for combined cycle generation plants

Regarding the terms included in the calculation of the levelized cost, shadowed is shown the most similar case to Bii Stinu wind farm:

Source	Date	Link	Technology	Country	Levelized cost	Discount rate	Hypothesis: Terms included
Internalización de externalidades en los costos de generación de centrales eléctricas de carbón, ciclo combinado y nucleares*	July 2007	http://www.las-ans.org.br/Papers%202007/pdfs/Paper065.pdf	CC - Gas	Mexico	50.77 US$/MWh	8%	Investments cost Fuel cost Operation and maintenance cost Electricity generated in each year
Economic Analysis of the Levelized Cost of electricity Generation	2005	http://www.inspi.ufl.edu/icapp06/program/abstracts/6475.pdf	CC - Gas	Mexico	57.84 US$/MWh	8%	Investment cost with the interest rate Operation and maintenance cost Fuel cost Overnight cost Electricity generated in each year
A review of electricity unit cost estimates	2006	mhttp://www.ukerc.ac.uk/Downloads/PDF/07/0706_TPA_A_Review_of_Electricity.pdf	CC - Gas	Mexico	37.91 US$/MWh**	-	Investment expenditures Capital cost Operation and maintenance cost Fuel cost Electricity generated in each year
PDD La Ventosa wind Energy Project	2007	http://cdm.unfccc.int/UserManagement/FileStorage/0ONU73P0F885B1KVU9LF4ZW925TJAU	CC - Gas	Mexico	58.9 US$/MWh*	10%	Investments cost Debt cost Operation and maintenance cost Interest Taxes Return on capital Electricity generated in each year

*Internalization of externalities in generation costs of coal power plants, combine cycles and nuclear plants ** 1.9715 £ / US$

ANNEX III: Official forecast of generation mix in Mexico

Type of power plant [MW]	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	% as of 2015
Hydro	10.536	10.536	11.290	11.290	11.290	11.290	12.040	12.179	12.179	12.779	13.679	20,73%
CC	13.255	15.655	16.823	16.823	19.061	19.956	20.792	22.934	24.994	27.147	27.327	41,42%
Gas	2.598	2.915	2.629	2.629	2.586	2.436	2.436	2.436	2.436	2.436	2.436	3,69%
Diesel	178	178	224	224	235	235	235	239	239	239	239	0,36%
Wind	3	86	86	187	288	592	592	592	592	592	592	0,90%
Free *	0	0	0	0	0	43	374	1.108	2.079	2.929	5.279	8,00%
Fuel	12.935	12.809	12.771	12.547	12.080	11.164	10.414	9.506	8.290	7.240	7.240	10,97%
Geo.	960	960	960	960	960	1.043	1.043	1.043	1.043	1.043	1.043	1,58%
Coal	2.600	2.600	2.600	2.600	2.600	3.278	3.278	3.278	3.278	3.978	4.678	7,09%
Dual **	2.100	2.100	2.100	2.100	2.100	2.100	2.100	2.100	2.100	2.100	2.100	3,18%
Nuclear	1.365	1.365	1.365	1.365	1.365	1.365	1.365	1.365	1.365	1.365	1.365	2,07%
Mobile plants	3	3	3	3	3	3	3	3	3	3	3	0,00%
Total [MW]	**46.534**	**49.207**	**50.851**	**50.728**	**52.568**	**53.505**	**54.672**	**56.783**	**58.597**	**61.850**	**65.980**	
Wind percentage	0,01%	0,17%	0,17%	0,37%	0,55%	1,11%	1,08%	1,04%	1,01%	0,96%	0,90%	

Table 4. Forecast of power installation in Mexico in the future. Source: Sener, "Prospectiva del sector eléctrico 2006-2015"

ANNEX IV: Regulatory importance for wind energy development

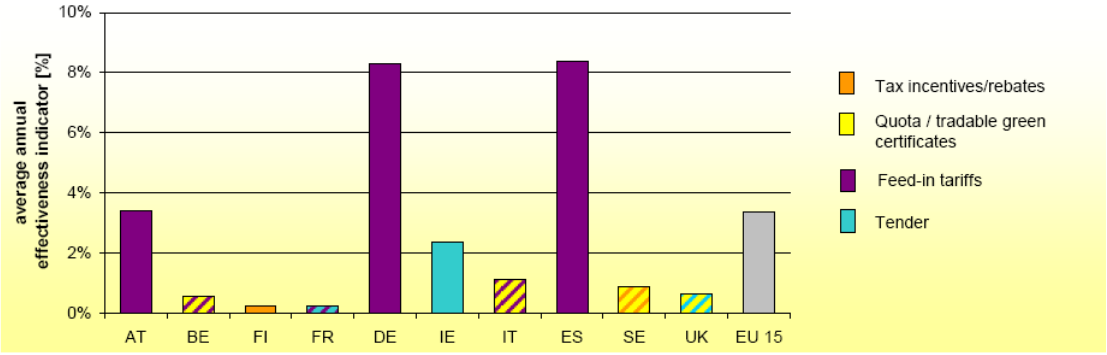


Figure 8. *Effectiveness indicator for wind on-shore electricity in the period 1997-2004.*
Note: The relevant policy schemes during this period are shown in different colours

Source: Monitoring and evaluation of policy instruments to support renewable electricity in EU Member States. German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety

The above included figure shows the average annual effectiveness indicator for wind on-shore electricity generation for the years 1997-2004 for all countries selected in the referenced study.

- Germany and Spain - two countries with long term stability of RES-E support based on feed-in systems - show a significantly higher effectiveness than the rest of the countries considered here.
- The three Member States Germany, Spain, and Ireland with the highest effectiveness during the considered period did not experience a major policy shift during the entire period 1997-2004.
- Therefore, according to the information in the study the best progress towards the targets set in the RES-E directive was achieved in countries with stable support systems and low overall barriers.
- The effectiveness of the promotion of innovative technologies like wind energy has been the highest in countries having feed-in tariffs as their main support system, even though not all feed-in countries are equally successful.

ANNEX V: Country risk

<HELP> for explanation. EquityEQRP

EQUITY RISK PREMIUM

BASE COUNTRY DATA

Country	MEXICO
ISO Code	MXN
Expected Market Return	16.200
Risk Free Rate	9.054
Country Premium	7.146

EQUITY SPECIFIC DATA

Cemex SAB de CV CEMEXCP MM

Applied Beta	1.090	Beta	1.090
		Equity Risk Premium	7.79

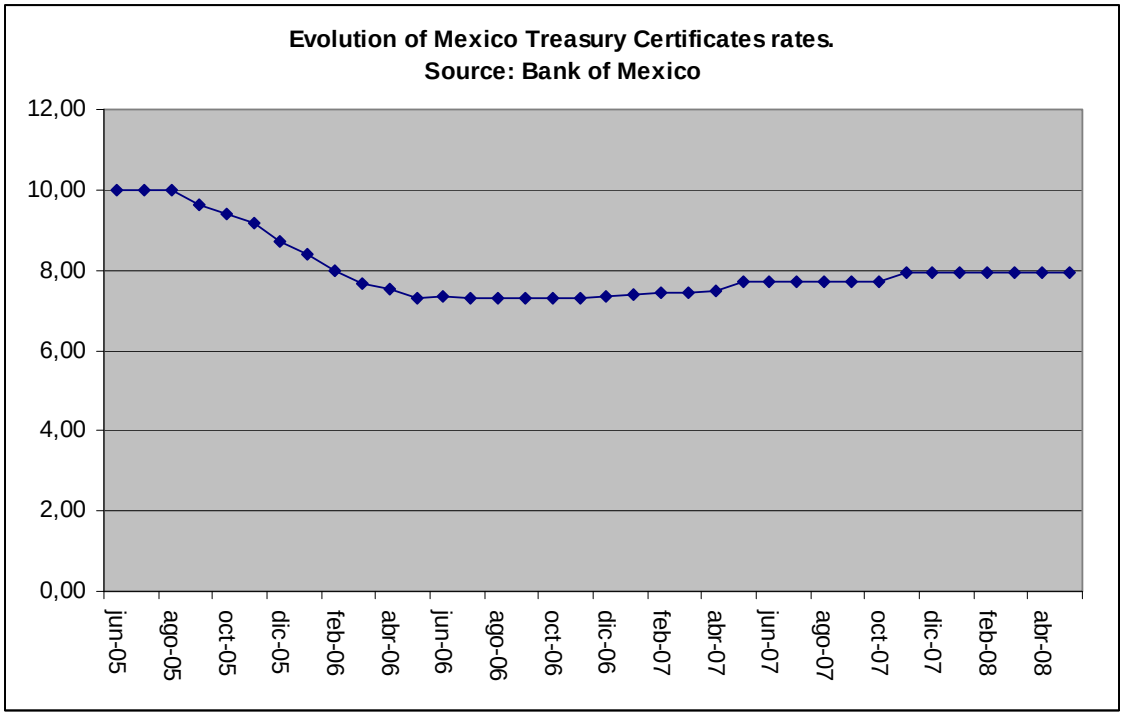
Australia 61 2 9777 8600 Brazil 5511 3048 4500 Europe 44 20 7330 7500 Germany 49 69 9204 1210 Hong Kong 852 2977 6000
Japan 81 3 3201 8900 Singapore 65 6212 1000 U.S. 1 212 318 2000 Copyright 2008 Bloomberg Finance L.P.
G764-559-0 25-Jun-2008 21:39:15

Bloomberg´s equity risk premium.

América Latina: Calificaciones de Riesgo País Según Moody's
Largo Plazo en Moneda Extranjera

País	Junio 06		Septiembre 06		Diciembre 06		Marzo 07		Junio 07		Septimbre 07	
	Largo plazo	Tendencia	Largo plazo	Tendencia	Largo plazo	Tendencia	Largo plazo	Tendencia	Largo plazo	Tendencia	Largo plazo	Tendencia
Costa Rica	Ba1	Estable	Ba1	Estable	Baa3	Estable	Baa3	Estable	Baa3	Estable	Baa3	Estable
EL Salvador	Baa3	Estable	Baa3	Estable	Baa3	Estable	Baa3	Estable	Baa3	Estable	Baa3	Estable
Guatemala	Ba2	Estable	Ba2	Estable	Ba2	Positiva	Ba2	Positiva	Ba2	Positiva	Ba2	Positiva
Honduras	B2	Estable	B2	Estable	Ba3	Estable	Ba3	Estable	Ba3	Estable	Ba3	Estable
Nicaragua	Caa1	Estable	Caa1	Estable	B3	Estable	B3	Estable	B3	Estable	B3	Estable
Rep. Dominicana	B3	Estable	B3	Estable	B1	Estable	B1	Estable	Ba3	Estable	Ba3	Estable
Brasil	Ba3	Positiva	Ba2	Estable	Ba1	Estable	Ba2	Estable	Ba2	RUR+	Ba1	Estable
Uruguay	B3	Estable	B3	RUR+	Ba2	RUR+	Ba2	RUR+	Ba2	Estable	Ba2	Estable
Colombia	Ba2	Negativa	Ba2	Estable	Ba1	Estable	Ba1	Estable	Ba2	Positiva	Ba2	Positiva
Chile	Aaa	Positiva	Aaa	Estable	Aa3	Estable	Aa3	Estable	A2	Estable	A2	Estable
Panamá	Ba2	Estable	Ba1	Estable	Baa1	Estable	Baa1	Estable	A3	Estable	A3	Estable
México	Baa2	Estable	Baa1	Estable	A1	Estable	A1	Estable	A1	Estable	A1	Estable
Argentina	B3	Estable	B3	Estable	B2	Estable	B3	Positiva	B3	Positiva	B3	Positiva
Venezuela	B2	Estable	B2	Estable	B1	Estable	B1	Estable	B1	Estable	B1	Estable

Stable tendency of Mexico´s country risk. Centroamerican Monetary Council. September 2007.


Evolution of Mexico Treasury Certificates rates.
Source: Bank of Mexico
12,00
10,00
8,00
6,00
4,00
2,00
0,00
jun-05
ago-05
oct-05
dic-05
feb-06
abr-06
jun-06
ago-06
oct-06
dic-06
feb-07
abr-07
jun-07
ago-07
oct-07
dic-07
feb-08
abr-08

ANNEX VI: Further details considered to validate the barriers

1. Institutional, legal and policy frameworks

    a. Currently in Mexico there is no law which specifically regulates wind energy generation. This situation substantially hinders wind farm development due to the fact that energy generation costs are still significantly higher than those of other technologies.
    b. In December 2005, the lower chamber of the Mexican Congress approved an initiative, known as the Renewable Energy Utilization Law (LAFRE), which aims to establish a program for renewable energies and sets a target of 8% of national power production to come from 'new' renewable energies by 2012 (excluding large hydro), up from 2% in 2007. However, this law was not approved by the Senate, and thus never became law, since approval of both chambers is necessary in Mexico. Subsequently, political changes in Mexico with the associated changes in the Congress staff have put this initiative on hold. Furthermore the proposed initiative does not give support for projects developed by private investors such as the Bii Stinu project. As of today, there is no premium in Mexico for wind energy projects above the electricity tariff that any fossil fuel plant (with cheaper generation costs) can obtain.
    c. Therefore, this regulatory barrier means that there is a lack of financial support that, given its existence, could enable private investors to develop wind farms with a profitability attractive enough for business risk assumptions.
    d. Proof of such circumstances is given in Annex IV. According to the attached references, those countries in the world that have been able to develop wind farms up to a degree which could be comparable to other electricity generation technologies, have installed a specifically designed feed-in tariff system, such is the case of Austria, Germany and Spain, world leaders in wind energy production implementation.

2. Market structure and human resources

    a. There is a significant lack of personnel in the region with the appropriate training not only in the development and implementation of wind power projects; but also in the operation and maintenance of wind energy technologies which can give rise to a high risk of equipment disrepair and malfunctioning.
    b. Another limitation in the Oaxaca Region will be the need to work with local people in order to meet local requirements negotiated with trade-unions and key stakeholders (land owners, public officers and politicians to employ local people for a broad range of tasks. This barrier will take a significant effort from the project developer to train people in the construction, operation and maintenance of wind farms.
    c. Furthermore, in relation with the lack of qualified personnel in the area of the project, this issue was confirmed in the interviews with a group of land owners from Bii Stinu community (Oaxaca State, Mexico) during the on-site visit.

3. Other barriers: Access to Land.

    a. Another important barrier is the lack of legal land titles for the properties on which the wind farm is to be built. Although most land owners were identified, there was no complete documentation (property register or land register) to support the possession of these lands. Properties have been passed from generation to generation among family members without having done the legal paperwork necessary to accredit the real owners of these properties. This lack of legal framework prevents secured access and use of land for the lifespan of the project.
    b. It may happen that once the wind farm is under operation, anyone pretending to be the "real" land owner could come forward and try to force the project developer to leave the activity or to dismantle the wind turbines installed on his land, with the subsequent legal process. Thus a project developer must be completely certain of land ownership before undertaking the project.
    c. Thus the project developer needs to go through an extensive process researching property ownership on the project lands that includes determining the rightful owners, and assisting these land owners in completing and filing the required documents in order to legalize the ownership of these lands. It requires extensive conversations with the landowners of the lands where the wind turbines will be installed. Also, it required discussions with the local trade unions, key opinion leaders, over a number of years.
    d. In this sense, the Project Participant has supported and advised the landowners to do the legal paperwork necessary to accredit their properties (by the corresponding property register or land register) . This process required to set up an Office of Public Registry in Oaxaca City, financed, among other parties, by the Project Participant, who has to bear costs such as legal fees, notary expenses, etc.
       It has happened many times that, due to the lack of knowledge, farmers do not go to the registry to formalize the change of control of their lands (when they buy or inherited), or simply because it will cost them time and money. The project developer needs to convince and support the land owners to legalize their documents thus promoting stability and assurance with the land rights in the region.

    e. For all the above-mentioned issues, the lack of land registry procedures has been considered a considerable barrier for the Bii Stinu wind farm project development.

       These facts were all confirmed by AENOR during the on-site visit in July 2007.