CLEAN DEVELOPMENT MECHANISM
PROJECT DESIGN DOCUMENT FORM (CDM-PDD)
Version 03 - in effect as of: 28 July 2006

CONTENTS

SECTION A. General description of project activity

A.1. Title of the project activity:

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Electricity generation from renewable sources - Windfarms Santa Clara I, Santa Clara II, Santa Clara III, Santa Clara IV, Santa Clara V, Santa Clara VI and Eurus VI

Version: 02a (Version on which answers regarding EB Request for Review were inserted).

Date: 10/05/2012

A.2. Description of the project activity:

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The proposed project activity consists in the implementation and operation of seven new wind electricity generation facilities, Santa Clara I, II, III, IV, V, VI and Eurus VI, located in Parazinho, in the Rio Grande do Norte state, Brazil. The project activity will employ 94 horizontal-axis aerogenerators (model: Enercon E82 E2), each with 2.0 MW (total nominal capacity: 188 MW). Santa Clara I, II, III, IV, V, VI will use 15 aerogenerators each, whereas Eurus VI will use the remaining 4 aerogenerators. By the time of completion of this document, the physical implementation of the project activity had not yet begun.

The project activity will deliver 726,712 MWh/year of renewable electricity to the National Interconnected System (*Sistema Interligado Nacional* - SIN). In the baseline[1], electricity delivered to the grid by the project activity would have been generated by the operation of grid-connected power plants and by the addition of new generation sources, as reflected in the combined margin (CM) calculations. Hence, the project activity will promote GHG emissions reductions by displacing fossil fuel-based electricity generation that would otherwise occur.

The project boundary includes CO_2 emissions from electricity generation in fossil fuel fired power plants that are displaced due to the project activity. Project and leakage emissions are not expected.

The project activity contributes to the host country's sustainable development in the following ways:

- **Contribution to local environmental sustainability**: The project activity will produce renewable electricity from low environmental impact wind power plants;
- **Contribution to the net workplace generation**: New job posts will be created by the project activity, especially during project implementation;
- **Contribution towards the diversification of the electric mix and towards energetic security**: The period when there is the greatest abundance of wind resources is coincident with the period of the smallest hydraulic availability, in Brazil. Hence, wind-based electricity generation is complementary to hydroelectricity, which contributes to the security of renewable electricity supply throughout the year and, hence, to the diminishment of the dependence upon fossil fuels during the dry season[2].

[1] The baseline scenario is the same as the scenario existing prior to the start of implementation of the project activity.

[2] Brasil, Agência Nacional de Energia Elétrica, *Atlas de Energia Elétrica do Brasil* (Brasília, DF: ANEEL) <http://www.aneel.gov.br/aplicacoes/Atlas/download.htm>.

- **Contribution to technological learning and technological development**: This type of project can stimulate similar initiatives inside the Brazilian energy sector and encourage the development of modern and more efficient renewable energy units throughout Brazil.

A.3. Project participants:

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Table 1. Project participants.

Name of Party involved (*) ((host) indicates a host party)	Private and/or public entity(ies) project participants (*) (as applicable)	Kindly indicate if the Party involved wishes to be considered as project participant (Yes/No)
Federative Republic of Brazil (host)	CPFL Geração de Energia S/A	No
	Key Consultoria e Treinamento Ltda.	
(*) In accordance with the CDM modalities and procedures, at the time of making the CDM-PDD public at the stage of validation, a Party involved may or may not have provided its approval. At the time of requesting registration, the approval by the Party(ies) involved is required.		

A.4. Technical description of the project activity:

A.4.1. Location of the project activity:

A.4.1.1. Host Party(ies):

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Host Party: Federative Republic of Brazil

A.4.1.2. Region/State/Province etc.:

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State: Rio Grande do Norte

A.4.1.3. City/Town/Community etc.:

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Municipality: Parazinho

A.4.1.4. Details of physical location, including information allowing the unique identification of this project activity (maximum one page):

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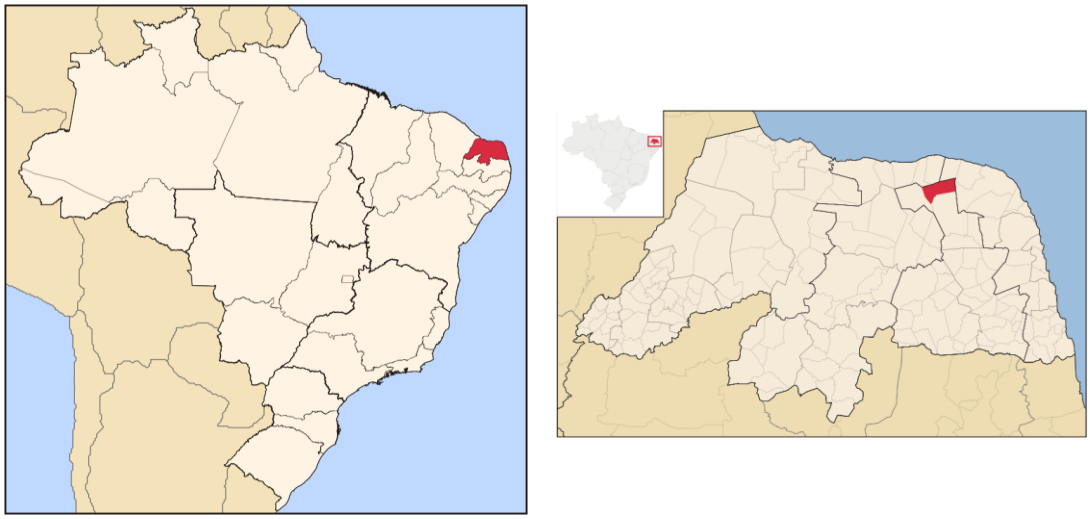

Figure 1. Geographic location of the project activity. Left panel: the localization of the Rio Grande do Norte state within Brazil is depicted in red. Right Panel: the localization of the municipality of Parazinho in the Rio Grande do Norte state is depicted in red.

The reference geographic coordinates of the units of the project activity are depicted in Table 2.

Table 2. Reference geographic coordinates of the project units[3]

Unit Name	Latitude	Longitude
Santa Clara I	- 5.2611	- 35.8982
Santa Clara II	- 5.2529	- 35.9091
Santa Clara III	- 5.2716	- 35.9129
Santa Clara IV	- 5.2393	- 35.9077
Santa Clara V	- 5.2647	- 35.9270
Santa Clara VI	- 5.2374	- 35.9160
Eurus VI	- 5.2352	- 35.9368

A.4.2. Category(ies) of project activity:

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Sectoral scopes: 01: Energy Industries (renewable sources).

A.4.3. Technology to be employed by the project activity:

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Wind energy is defined as the kinetic energy contained by moving air masses (wind). Its use for the production of electricity occurs by means of the conversion of translational kinetic energy in

[3] Energetic Research Enterprise (*Empresa de Pesquisa Energética* – EPE). Entrepreneurship Data Sheet (*Ficha de Dados*). Santa Clara I, II, III, IV, V, VI, and Eurus VI. The geographic coordinates have been converted from degrees, minutes, seconds of arc to decimal degrees using a DMS Converter (http://vancouver-webpages.com/META/DMS.html).

rotational kinetic energy and, then, by means of the conversion of the former form of energy into electricity, by means of the employment of wind turbines or aerogenerators[2].

Environmental pros of wind-based electricity generation recognizably include: contribution for atmospheric emissions reduction (including non-GHG gases) by thermoelectric plants, smaller demand for the construction of new large hydropower plants reservoirs, and the reduction of the risk derived from hydrological seasonality, in light of the aforementioned complementary nature of wind-based and hydroelectric electricity generation in Brazil[2].

Amongst the main negative environmental impacts of wind power plants, noise generation impacts can be mentioned. The noise is generated by the movement of the blades and varies according to the equipment specifications. Also, one could mention the possibility of the electromagnetic interference, which may disturb communication and data transmission systems (radio, television, etc.). Such interferences are particularly related to the material used in the manufacture of the blades. Additionally, possible interference upon bird routes should be considered[2].

As previously mentioned, the proposed project activity consists in the implementation and operation of seven new wind electricity generation facilities, Santa Clara I, II, III, IV, V, VI and Eurus VI, located in Parazinho, in the Rio Grande do Norte state, Brazil, at sites where no electricity generation facilities existed prior to the implementation of the project activity. The project activity will employ 94 horizontal-axis aerogenerators (model: Enercon E82 E2), each with 2.0 MW (total nominal capacity: 188 MW). Santa Clara I, II, III, IV, V, VI will use 15 aerogenerators each, whereas Eurus VI will use the remaining 4 aerogenerators.

It is important to mention that in the moment of the decision-making, the project activity had a different configuration of plant load factor. In that moment, the third review of the wind certification was not completed. So, the project proponent used to calculate the expected energy generation in the investment analysis the gross value of the plant load factor provided by Camargo & Schubert's simulations, sent to CPFL on 03 December 2009[4] (The project activity would deliver 704,480 MWh/year). All assumptions of the expected energy generation of the investment analysis are described in ***Sub-step 2c.*** The Table 3 below summarizes the information about the plant load factor of each electricity generation facilities in the decision-making context.

Table 3. Basic information about the plant load factor of each electricity generation facilities in the decision-making context.

Unit Name	Gross PLF[4]	Losses[5]	PLF[5]
Santa Clara I	47.9%	6.4%	44.83%
Santa Clara II	46.0%	6.4%	43.08%
Santa Clara III	45.4%	6.4%	42.52%
Santa Clara IV	44.7%	6.4%	41.79%
Santa Clara V	45.3%	6.4%	42.43%
Santa Clara VI	45.1%	6.4%	42.18%
Eurus VI	45.0%	6.4%	42.13%

[4] Document from Carmargo Schubert with the detailed technical analysis and calculations of plant load factor and expected energy generation, provided to the DOE.

[5] Document from CPFL with the expected energy generation, provided to the DOE.

The Table 4 below summarizes the information about each electricity generation facilities with the current plant load factor of the project activity. As shown in ***Sub-step 2d. Sensitivity analysis*** of this document, the additionality of the project activity is not compromised by the changes in the plant load factor.

Table 4. Basic **information about each electricity generation facilities**

Unit Name	Numbers of aerogenerators[6]	Model[6]	Installed Capacity[6]	PLF[6]
Santa Clara I	15	Enercon E82 E2	30 MW	46.30%
Santa Clara II	15	Enercon E82 E2	30 MW	43.40%
Santa Clara III	15	Enercon E82 E2	30 MW	42.90%
Santa Clara IV	15	Enercon E82 E2	30 MW	44.80%
Santa Clara V	15	Enercon E82 E2	30 MW	42.60%
Santa Clara VI	15	Enercon E82 E2	30 MW	44.90%
Eurus VI	4	Enercon E82 E2	8 MW	43.60%

The project activity will deliver 726,712 MWh/year of renewable electricity to the National Interconnected System (Sistema Interligado Nacional - SIN). In the baseline[1], electricity delivered to the grid by the project activity would have been generated by the operation of grid-connected power plants and by the addition of new generation sources, as reflected in the combined margin (CM) calculations. Hence, the project activity will promote GHG emissions reductions by displacing fossil fuel-based electricity generation that would otherwise occur.

Wobben, the aerogenerator supplier to the project activity, belongs to the Enercon GmbH group, which is one of the world's largest manufacturers of wind turbines[7]. Wobben/Enercon was the first manufacturer of large-scale (800 – 3,000 kW) wind turbines in South America[8], being installed in Brazil since 1995[9]. Its manufacturing facilities are located in Germany, Sweden, Brazil, Turkey and Portugal. By March 2010, Enercon was responsible for over 16,000 installed wind turbines and 20 GW across the world[10].

The aerogenerator "E82 E2" is designed for medium wind speed[11] regime and for a lifetime of 20 years[12]. It is a wind turbine with a three-blade rotor, active blade adjustment (adjustment of

[6] Camargo Schubert Reports (*Certificação de Medições Anemométricas e Certificação de Produção de Energia*), Ref. C&S-CEG-271/10 (rev-03), C&S-CEG-272/10 (rev-03), C&S-CEG-273/10 (rev-03), C&S-CEG-274/10 (rev-03), C&S-CEG-275/10 (rev-03), C&S-CEG-276/10 (rev-03) and C&S-CEG-277/10 (rev-03).

[7] Wobben Windpower. Enterprise (*Empresa*) - http://www.wobben.com.br/empresa1.htm - Accessed in 13/07/2010.

[8] Wobben Windpower. http://www.wobben.com.br/. Accessed in 11/06/2010.

[9] Wobben Windpower. Common questions about windpower and Wobben (*Perguntas comuns sobre energia eólica e a Wobben*) - http://www.wobben.com.br/TireSuasduvidas.htm - Accessed in 13/07/2010.

[10] ENERCON at a glance - http://www.enercon.de/en/_home.htm - Accessed in 13/07/2010.

[11] Wobben Windpower. Products and Services (Produtos e Serviços). Aerogenerator E-82 (Aerogerador E-82). http://www.wobben.com.br/produtos_Servicos_e82.htm. Accessed in 02/09/2010.

[12] ENERCON GmbH – Lifetime of the Wind Turbine ENERCON E-82

pitch) and variable speed operation with a nominal power of 2,000 kW. Its diameter of 82 m and hub height of 78-108 m allows E82 E2 to effectively use the existing wind conditions for electricity generation[13].

The rotating component of the generator and the rotor consist in a single unit. These two parts are connected directly to the hub so they can spin at the same low speed. Once the gearbox and other rotating parts do not exist, the energy losses between the rotor and generator, noise emissions, the use of oil in the gearbox and mechanical wear are reduced drastically[13].

The first plant to be installed by Wobben is in operation since December 1998 (*Taíba*, Ceará, 5 MW)[14], hence wind-power electricity generation technologies developed by Wobben are all well known in the wind power industry and have proven themselves over the time.

The overview of the technical characteristics of the E82 E2 aerogenerator is provided in Table 5.

Table 5. ENERCON E82 E2 technical overview.

Operational data	
Rated power	2.0 MW
Cut-in wind speed	2.5 m/s
Cut-out wind speed	28-34 m/s
50 years gust wind speed	59.5 m/s
Wind class*	IEC IIA
Rotational speed	6 to18 rpm
Rotor	
Power Control	Pitch
Diameter	82 m
Swept area	5,281 m^2
Blade material type	Epoxy-bounded fibreglass
Generator	
Type	ENERCON direct-drive synchronous annular generator
Rated power	2,000 kW
Protection	IP 23
Braking system	
Aerodynamical brake	- 3 independent systems with blade pitching mechanism - Rotor Brake - Rotor Lock
Certification*	Compliance with IEC 61400-1: Wind turbines – Part 1: Design requirements, 3rd Edition 2005-08 – Wind Turbine Class II A

[13] ENERCON E-82 E2 2 MW – Technical Description (*Descrição Técnica*)

[14] Wobben Windpower. Installed wind plants (*Plantas Eólicas Instaladas*) http://www.wobben.com.br/usinas.htm. Accessed in 13/07/2010.

Source: ENERCON E-82 E2 2MW – Aerogenerator Characteristics (*Características do Aerogerador).* *Type Certificate TC 100201, Rev. 0

It is noteworthy that there are no environmental restrictions in the area, such as permanent conservation areas (*Áreas de Preservação Permanente* – APP). Moreover, possible interference with environment will be also minimized through the adoption of mitigation and environmental control measures.

The environmental aspects of the project activity are discussed in the Environmental Impact Assessment on the project activity, summarized in Section E.

The information provided above demonstrates that the project activity employs environmentally safe and sound technology.

A.4.4. Estimated amount of emission reductions over the chosen crediting period:

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Table 6. Estimated amount of emission reductions over the chosen crediting period.

Years	Annual estimation of emission reductions in tonnes of CO_2e
From July 2012	74,679
2013	149,358
2014	149,358
2015	149,358
2016	149,358
2017	149,358
2018	149,358
2019	149,358
2020	149,358
2021	149,358
Till June 2022	74,679
Total estimated reductions (tonnes of CO_2e)	**1,493,575**
Total number of crediting years	10
Annual average over the crediting period of estimated reductions (tonnes of CO_2e)	149,358

A.4.5. Public funding of the project activity:

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There is no public funding involved on this project activity.

SECTION B. Application of a baseline and monitoring methodology

B.1. Title and reference of the approved baseline and monitoring methodology applied to the project activity:

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Approved consolidated baseline and monitoring methodology ACM0002 – "Consolidated baseline methodology for grid-connected electricity generation from renewable sources", Version 12.1.0.

This methodology also refers to the latest approved versions of the following tools:

- "Tool to calculate the emission factor for an electricity system". Latest approved version at the time of conclusion of the PDD: **2**;
- "Tool for the demonstration and assessment of additionality". Latest approved version at the time of conclusion of the PDD: **6.0.0**;

B.2. Justification of the choice of the methodology and why it is applicable to the project activity:

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The proposed project activity consist in the installation of a grid-connected renewable power generation facility at a site where no renewable power plant was operated prior to the implementation of the project activity (greenfield plant). This is in accordance with the applicability conditions of ACM0002/Version 12.1.0. Therefore, this methodology was applied to the project activity.

Furthermore, the project activity fulfils the remaining applicability conditions of ACM0002/Version 12.1.0 in the following ways:

- "The project activity is the installation, capacity addition, retrofit or replacement of a power plant/unit of one of the following types: hydro power plant/unit (either with a run-of-river reservoir or an accumulation reservoir), wind power plant/unit, geothermal power plant/unit, solar power plant/unit, wave power plant/unit or tidal power plant/unit";
- The project activity does *not* involve:
    - Switching from fossil fuels to renewable energy sources at the site of the project activity;
    - Biomass fired power plants;
    - Hydro power plants that result in new reservoirs or in the increase in existing reservoirs where the power density of the power plant is less than 4 W/m^2

B.3. Description of the sources and gases included in the project boundary:

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The spatial extent of the project boundary includes the project power plants (i.e. Santa Clara I, II, III, IV, V, VI and Eurus VI) and all power plants connected physically to the electricity system that the CDM project power plant is connected to, i.e., SIN. Emission sources and gases included in the project boundary are depicted in **Table 7**.

Table 7. Emissions sources included in the project boundary, as per ACM0002/Version 12.1.0

Source		Gas	Included?	Justification/Explanation
Baseline	Power plants supplying energy to SIN	CO_2	Yes	Main emission source.
		CH_4	No	Minor emission source.
		N_2O	No	Minor emission source.

Project Activity	For geothermal power plants, fugitive emissions of CH_4 and CO_2 from non-condensable gases contained in geothermal steam.	CO_2	No	Not applicable.
		CH_4	No	Not applicable.
		N_2O	No	Not applicable.
	CO_2 emissions from combustion of fossil fuels for electricity generation in solar thermal power plants and geothermal power plants.	CO_2	No	Not applicable.
		CH_4	No	Not applicable.
		N_2O	No	Not applicable.
	For hydro power plants, emissions of CH_4 from the reservoir.	CO_2	No	Not applicable.
		CH_4	No	Not applicable.
		N_2O	No	Not applicable.

A flow diagram of the project boundary, physically delineating the project activity, representing emissions sources and gases included in the project boundary and the monitoring variables, is depicted in Figure 2.

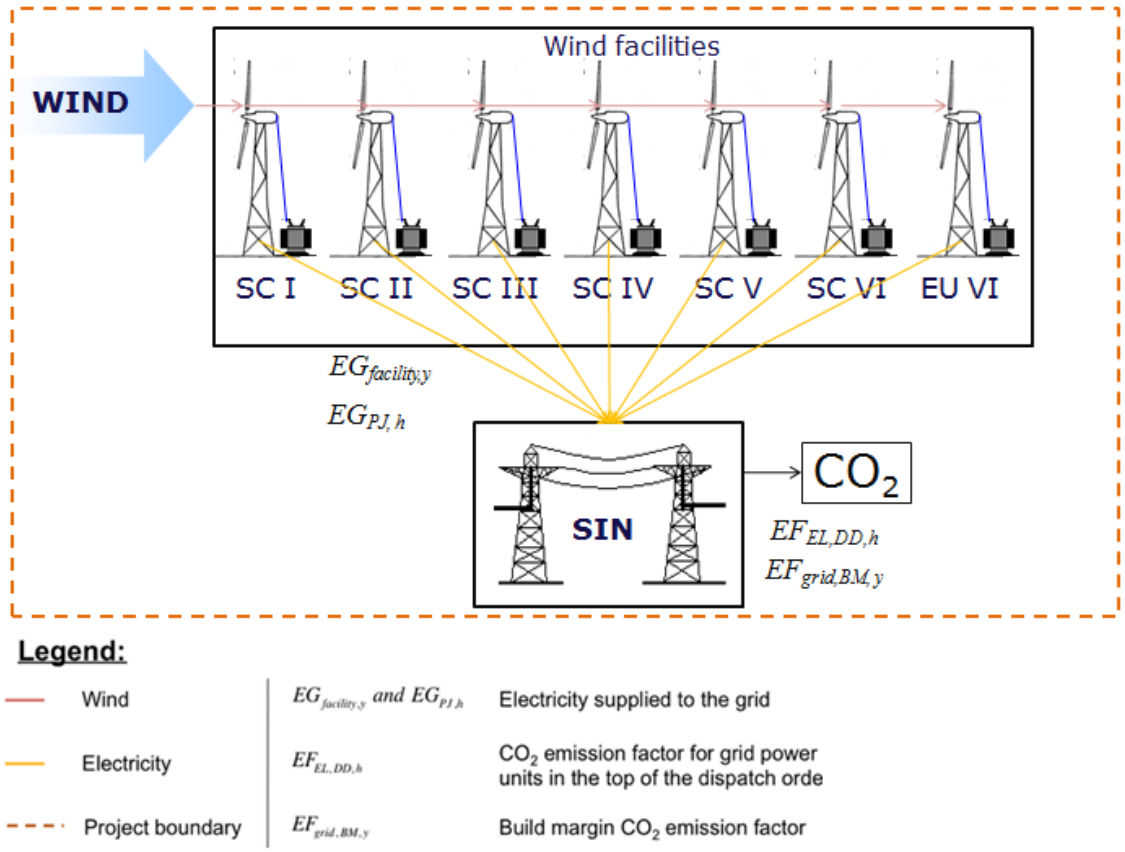

Figure 2. Project boundary. Monitored variables are depicted. Baseline emissions consist of CO_2 emissions from fossil fuel combustion for the generation of electricity by the plants connected to SIN as reflected in its combined margin.

B.4. Description of how the baseline scenario is identified and description of the identified baseline scenario:

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As per ACM0002/Version 12.1.0, since the project activity is the installation of a new grid-connected renewable power plant/unit, the baseline scenario is the following:

> *"Electricity delivered to the grid by the project activity would have otherwise been generated by the operation of grid-connected power plants and by the addition of new generation sources, as reflected in the combined margin (CM) calculations described in the "Tool to calculate the emission factor for an electricity system"".*

B.5. Description of how the anthropogenic emissions of GHG by sources are reduced below those that would have occurred in the absence of the registered CDM project activity (assessment and demonstration of additionality):

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As per ACM0002/Version 12.1.0, the additionality of the project activity shall be demonstrated and assessed using the latest version of the "Tool for the demonstration and assessment of additionality".

The Starting Date of the project activity, 14 December 2009, represents the realization of Brazilian 2nd Reserve Power Auction (*2º Leilão de Energia de Reserva - Leilão nº 003/2009 - LER-2009*[15]), in which the seven electricity generation facilities Santa Clara I, II, III, IV, V, VI and Eurus VI had its energy contracted and its contract for the supply of equipment and services validated. According to the Memorandum of Understanding signed with Wobben on 11 December 2009, if the project proponent is successful in its participation at the Brazilian 2nd Reserve Power Auction, the project proponent and Wobben agree to enter into the contracts for the supply of equipment and services for the project activity[16] (the main component of total required investments). So, inline with the Glossary of CDM terms (version 05), the starting date of the project activity is 14 December 2009.

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

Sub-step 1a: Define alternatives to the project activity:

The identified realistic and credible alternative scenarios available to the project participants are:

- The project activity undertaken without being registered as a CDM project activity;
- The continuation of the current situation (no project activity undertaken).

Sub-step 1b: Consistency with mandatory laws and regulations:

All identified alternatives are in accordance with laws and regulations.

Step 2: Investment analysis

The investment analysis determines whether the proposed project activity is not economically or financially feasible, without the revenue from the sale of certified emission reductions (CERs).

The investment analysis was conducted according to the "Tool for the demonstration and assessment of additionality" *version 6.0.0 and the* "Guidelines on the Assessment of Investment Analysis" *version 3.1*, therefore the following sub-steps shall be undertaken:

Sub-step 2a. Determine appropriate analysis method:

The project activity generates incomes other than CDM related income, hence simple cost analysis cannot be applied. Investment comparison analysis is not used as there is no evidence that the proposed baseline scenario leaves project proponents no other options than to make an

[15] 2nd Reserve Power Auction (*2º Leilão de Energia de Reserva - Leilão nº 003/2009 - LER-2009*) - http://www.ccee.org.br/cceeinterdsm/v/index.jsp?vgnextoid=ec41d74d98114210VgnVCM1000005e01010aRCRD - Accessed in 13/07/2010

[16] Clause 2 of the Memorandum of Understanding[16] signed with Wobben on 11 December 2009.

investment to supply the same (or substitute) product or service. Hence, benchmark analysis (Option III) will be used.

Sub-step 2b – Option III. Apply benchmark analysis:

Identification of the financial indicator

The method of the Project Internal Rate of Return (Project IRR) was considered as the most appropriate, once it is the most suitable for the project type and decision context.

Identification of the benchmark

The weighted average cost of capital (WACC) was defined as the benchmark in accordance to the "Guidelines on the Assessment of Investment Analysis" vs. 3.1, paragraph 12: "weighted average costs of capital (WACC) are appropriate benchmarks for a project IRR".

The weighted average cost of capital (WACC) is calculated considering the percentage of debt/equity financing and the average cost of debt and equity financing. The average cost of equity (K_e) financing was calculated using the Capital Asset Pricing Model (CAPM), a widely used pricing model in finance (input data includes publicly available data and standard parameters of the Brazilian and utilities market[17]).

i) Calculation of the required/expected return on equity (K_e)

The required/expected return on equity was calculated using the Capital Asset Pricing Model (CAPM) and defined as a benchmark to the financial return of the shareholders of the company. The equations are described below:

$$K_e = R_f + \beta (R_m - R_f) \quad \text{(Equation 1)}$$

$$\beta = \frac{Cov(R_i, R_M)}{\sigma^2_M} \quad \text{(Equation 2)}$$

K_e= Required/expected return on equity obtained through equation 1.

β = Sensitivity of the asset's returns to market returns calculated through equation 2. Where: Cov (R_i,R_m) is the covariance of the Asset Return (R_i) and the Market Return (R_m), and σ^2_M is the Variance of Market Return.

R_f = Expected Return on a Risk Free Asset
Data used: Long Term Brazilian Treasury Bond (type NTN-B) of years 2006, 2007, 2008, 2009.
Rationale: Governments control the printing of currency, which reduces probability of default, therefore approximating to a risk free asset concept. The Treasury bond used is NTN-B

[17] As defined in the "Tool for the Demonstration and Assessment of Additionality" vs. 6.0.0, Sub-step 2b, Option III: "*the financial/economic analysis shall be based on parameters that are standard in the market, considering the specific characteristics of the project type, but not linked to the subjective profitability expectation or risk profile of a particular project developer"*.

(maturity date: 15th of May 2035), which is a long-term bond that reflects a comparable horizon to an investment in a wind energy project in Brazil.
Source: Publicly Available - Brazilian National Treasury: http://www.tesouro.fazenda.gov.br/tesouro_direto/

$\mathbf{R_m}$= Expected Return on a Risky Asset (Market Return)
Data used: Daily Return of Bovespa Index of years 2006, 2007, 2008, 2009.
Rationale: According to BMF&Bovespa website: "The *Bovespa Index* is the main indicator of the Brazilian stock market's average performance. Ibovespa's relevance comes from two facts: it reflects the variation of BM&FBOVESPA's most traded stocks and it has tradition, having maintained the integrity of its historical series without any methodological change since its inception in 1968". Therefore it is a credible index to reflect returns on risky assets (market return).
Source: Publicly Available - BMF&BOVESPA: http://www.bmfbovespa.com.br

$\mathbf{R_i}$= Expected Return on a Energy Sector Asset
Data used: Daily Return of Bovespa Index of years 2006, 2007, 2008, 2009.
Rationale: According to the Tool for the demonstration and assessment of additionality", Sub-Step 2b, Paragraph 29: "When applying Option II or Option III, the financial/economic analysis shall be based on parameters that are standard in the market, considering the specific characteristics of the project type, but not linked to the subjective profitability expectation or risk profile of a particular project developer".
The BMF&Bovespa's Electric Power Index (IEE) satisfies this applicable additionality tool as, according to BMF&Bovespa the index has "the purpose of providing a segmented view of the stock market performance. They are composed by the most significant publicly-held companies of specific economic sectors, representing the aggregated performance of the sector considered".
Source: Publicly Available - BMF&BOVESPA: http://www.bmfbovespa.com.br

ii) Calculation of the cost of debt financing (K_d)

The cost of debt financing refers to the expected value that the decision makers of the company expected at the moment of the investment decision. The debt-financing agent is the Brazilian Development Bank – BNDES, and the risk spread of between lower and higher possible spread according to the wind energy section of BNDES' institutional presentation (provided to the DOE), the expected risk spread can cross-checked with previous projects developed by the company (evidenced by CPFL's releases of Financial Results).

iii) Benchmark established

The required/expected rate of return achieved with the assumptions described and calculated in the "Electricity Sector - Benchmark.xlsx" spreadsheet is 12.01% in real terms. This is the benchmark defined to assess the additionality of the project activity and may be compared to the Project IRR.

Sub-step 2c. Calculation and comparison of financial indicators:

Calculation of the Project IRR:

The cash flow spreadsheet contemplates the following main assumptions:

- Assumption 1 – Electricity Tariff

The electricity tariff of R$/MWh 150.00 price is evidenced by the document published by the Electric Power Commercialization Convention - CCEE regarding the 2nd Reserve Energy Auction (December/2009) results (provided to the DOE).

- Assumption 2 – Amount contracted and expected generation

The expected energy generation is evidenced by Camargo & Schubert's simulations sent to CPFL on 03 December 2009 (email from Carmargo Schubert, document with detailed technical analysis and calculations provided to the DOE) and reflects the long-term net expected energy generation with 50% surplus probability (P50).

The contracted energy of 76MW is the fixed amount of energy authorized for sale by the Brazilian regulatory agency, and the maximum amount of energy subject to sale in the auction. Variable energy (higher or lower than the fixed amount) must also be considered according to conditions explained in clause 6 of the "Annex II – Reserve Energy Contract" of the "2nd Reserve Energy Auction Rules".

The losses in the Brazilian Grid are shared amongst the energy generation players in Brazil and are discounted for effective sales meanings. CPFL Geração de Energia's electricity technicians analysed the losses occurred in recent years and recommended the application of 2.5% of energy losses in the Brazilian Grid for the related project activity (document provided to the DOE for details).

Note: The P50 value used as assumption in the CDM project activity additionality assessment is an optimistic value for decision making for a wind energy generation entrepreneur considering wind natural characteristics and the pioneering factor of wind energy projects in Brazil. To exemplify this, the National Bank of Economic and Social Development – BNDES considers a 90% surplus probability-P90 (evidenced by the BNDES presentation), therefore a much lower generation (as described in the wind generation certification provided to the DOE) is considered in the decision making process in banker's view.

- Assumption 3 – Investments

The investments presented in the financial spreadsheet totalizes R$ 5,123,360 / MW installed and has four main components:

- Wind Turbine Generators: it is the major investment component, and is evidenced by the Term sheet signed in 11/12/2009 (evidence provided to the DOE) between the project proponent and the wind turbine generator supplier Wobben Windpower / Enercon (worldly recognized player of the wind energy sector) and the letter sent a day after the energy auction (15/12/2009) from Wobben Windpower's Sales Superintendent to CPFL Geração de Energia's Project Development Director to register their negotiation during the energy auction and the consequent discount granted over the wind energy generator price.

- Electrical components: This item was estimated by CPFL's internal technical team that analysed three items: (1) Voltage Network, (2) Substation, (3) Transmission Line. And

then the acquisition and implementation costs were estimated crossing the project needs with the documents: "Transmission lines and Substations Reference Costs" (Portuguese: "Referência de Custos de LTs e SEs") made by Centrais Elétricas Brasileiras S.A - ELETROBRÁS and the *Banco de Preço de Referência of Brazilian Electricity Regulatory Agency – ANEEL*.

For crosscheck means, estimated value does not differ much to the effective value (contracted after the energy auction), representing a 3.5% positive variation.

- Environmental: Estimated by internal specialists considering several required Environmental Programs and Plans to be conducted before and during the construction of the power facilities. The detailed budget was provided to the DOE.

- Others: It includes owner's engineer services, insurance for the implementation period, anemometric towers, communication systems and several consultancies. The detailed budget was provided to the DOE.

- Assumption 4 – Operation and Maintenance (O&M)

The total O&M value is composed by O&M of the Wind Power Plants and the O&M of the transmission lines.

The O&M of the wind power plants is evidenced by the Term sheet signed in 11/12/2009 (evidence provided to the DOE) between the project proponent and the wind turbine generator supplier Wobben Windpower / Enercon (worldly recognized player of the wind energy sector) and the letter sent a day after the energy auction (15/12/2009) from Wobben Windpower's Sales Superintendent to CPFL Geração de Energia's Project Development Director to register their negotiation and the discount granted during the auction over the O&M values. The values applied ranges from R$ 45,000.00/turbine to R$99,000.00.

The O&M of the transmission lines will be conducted by the project proponent's team and was estimated according to previous experiences. The amount of 1.5% applied over substation and voltage network costs was applied totalling R$500,000 per year. This value has demonstrated to be an adequate estimation in previous projects. The detailed explanation by CPFL's team was provided to the DOE.

- Assumption 5 – Sectoral Charges and Costs

- Transmission Costs:
The transmission costs considered was defined to the "João Camara 230kV" sub-station and is referenced in Table IX (page 33) of ANEEL's Technical Note 092/2009 from 09th November 2009.
A 50% discount must be applied to this cost according to ANEEL Normative Resolution # 77, dated in 18/08/2004.

- TFSEE Tariff:
In accordance with Decree #2410 and ANEEL Dispatch #4774, the TFSEE was calculated according to the following formula: Annual TFSEE = 0.5% X 363.60 X 188,000.

- Assumption 6 – Debt and Financial Costs

BNDES is considered for the financing structure as its standard terms for wind power plants. The terms defined by the company's decision makers are: 75% of the required investment financed by debt and interest rate composed by TJLP rate + 0.9% + 0.91% risk spread, with two years of grace period and 16 years of amortization. These terms are based in previous projects and market conditions. The spread is in accordance to the indication of the National Bank of Economic and Social Development – BNDES for wind projects (according to BNDES presentation provided to DOE).

- Assumption 7 – Taxes

Income Taxes – All Special Purpose Companies (SPE) of the project activity are eligible to the presumed profit regime as its gross revenues are lower than R$ 48,000,000.00 (article 46 of Law 10637 dated in 2002). According to the Income Rate Regulation of 1999 (RIR/99) the applicable gross revenues percentage to compose the income rate basis is 8% and the income rate is 25%. And the social contribution on net income (CSLL) is calculated over a 12% of revenues basis (Article 22 of the Law #10,684), and a 9% rate is applied according to Article 3 of the Law #11,727.

PIS/PASEP Tax – 0.65% is applied according to article 52 of the Normative Instruction #247, from November 2002.

Cofins Tax – 3.00% is applied according to article 52 of the Normative Instruction #247, from November 2002.

- Assumption 8 – General Costs, Expenses and Others

- Land Lease – 1.5% of Gross Revenues
This amount is defined by contracts with Land Owners (provided to the DOE).

- Fixed Costs – R$ 700,000.00 per year
Annual fixed budget are calculated according to estimated annual costs of Publications (Local Newspaper, Official Gazette), Vigilance, Auditing and Trips of CPFL's Technical Team. General evidences to certify costs are provided to the DOE.

- Environmental Costs – R$ 250,000.00 per year
Salary and Charges of an Environmental Specialist, Food and Transport Expenses, Trips/Hotels, consultancies and technical services and others (cell phone, postal services and minors). The calculation is provided to the DOE.

- Insurance Costs – 0.25% of the project's CAPEX
This assumption was defined by CPFL's Corporate Insurance Department based in three main factors: (1) technical analysis considering the energy sources, location, equipments and others; (2) market analysis; (3) previous experiences in energy projects.

- Project Acquisition – R$ 32,769,669.75
Contracts established before the Energy Auction plus R$ 22,612.75 for incurred and expected consultancy expenses (a R$ 60,000.00 limit for expenses is fixed in the contract).

- Assumption 9 – Depreciation

The average depreciation value is 4.3% per year. It is calculated by applying the depreciation rates defined by ANEEL.

The companies involved in this project activity are qualified as "presumed profit" (please see the item regarding tax rate). In this specific taxation regime, tax rates are calculated over revenues and not over gross profits, therefore the depreciation has no impact in the project's internal rate of return.

- Assumption 10 – Period of Assessment

The total period of assessment is 20 years from the start of operations date of 01/July/2012 according to the auction PPA (Power Purchase Agreement) period.

The Annex II – Reserve Energy Contract of the Auction Rules states that the end of the reserve energy contract is set in 30th of June 2032 and that this date does not affects rights or obligations of the parts that occurred previously to this event (paragraphs 4.1 and 4.6). As the variable income is received in 24 monthly instalment payments of the next quadrennium (paragraph 8.14 of the Annex II – Reserve Energy Contract), two years must be added after the end of the PPA in order to account variable income receivables.

Result:

After applying the assumptions enumerated above and others described in the investment analysis spreadsheet, the Project IRR is 10.81% in nominal terms.

Assuming a CER prices ranging from 9 Euros to 16 euros (according to report made by a carbon market specialist company, New Energy Finance) and emission factor of 0.39 tCER/MWh (latest emission factor published by the Brazilian DNA at the decision making moment: $EF_{grid,OM,2008}$ = 0.4766 and $EF_{grid,BM,2008}$ = 0.1458), the project IRR with the inclusion of CER Revenues is 11.42%, which is a significant increase in project proponent's financial return.

Comparison of the Project IRR and the Benchmark rate:

According to the Tool for the demonstration and assessment of additionality, Sub-step 2c, sub-item 34. (b): *"The financial benchmark, if Option III (benchmark analysis) is used. If the CDM project activity has a less favourable indicator (e.g. lower IRR) than the benchmark, then the CDM project activity cannot be considered as financially attractive".*

Thus, without the CDM revenues, the proposed CDM project is not financially feasible, that is, the Project IRR of 10.81% in nominal terms is lower than the reference of 12.01%.

Project IRR of 10.81% < Benchmark rate of 12.01 %

Sub-step 2d. Sensitivity analysis:

Sensitivity analysis was carried out to demonstrate that the conclusion regarding financial/economic (un) attractiveness is robust to reasonable variations in the critical assumptions. Variables that constitute more than 20% of either total project costs or total revenues were subject to variation until the benchmark is achieved:

Electricity Tariff

Required variation to achieve the benchmark: +7.85%

Comments: According to the Auction Rules, this price will not change along the PPA period. Therefore this positive variation in the electricity tariff could never occur.

Energy Generation

Required variation to achieve the benchmark: +9.8%

Comments: According to the Auction Rules the contracted energy will not change along the PPA period. The effective energy generation has seasonal variations resulting in lower and higher production levels, the energy generation level estimated by the specialized consultancy Camargo Schubert tends to be achieved in a long-term basis. Therefore this positive variation in the effective energy generation would hardly occur when the 20 years period of assessment is considered.

It is important to note that the additionality of the project activity is not compromised by the changes in the plant load factor, shown in the section A.4.3. With the current plant load factor the energy generation increases only 3.16%, below the amount required to achieve the benchmark.

Capital Expenditures (CAPEX)

Required variation to achieve the benchmark: -9.15%

Comments: This reduction would hardly occur once over 85% of the expected CAPEX has a defined price defined (at the decision making time) in the Term sheet with turbine supplier. This means that the remaining items of the project's CAPEX such as civil construction and electromechanical components would have to increase over 80% in order to achieve the benchmark, which is a very unlikely scenario.

Operation and Maintenance (O&M)

Required variation to achieve the benchmark: -88.5%

Comments: An 88.5% reduction in O&M costs is not possible once its major component is the O&M of the wind power plants which was already contracted in the moment of the decision making (more details in Step 2, sub-step 2c).

The sensitivity analysis shows that the investment analysis provided a valid argument in favour of the additionality of the proposed project activity, since it consistently supports, for a realistic range of assumptions, the conclusion that **the project activity without CERs revenues is unlikely to be financially/economically attractive**.

Step 3: Barrier analysis

This step was not applied.

Step 4: Common practice analysis

Sub-step 4a: Analyze other activities similar to the proposed project activity

The demonstration of the common practice analysis was developed on two bases: (i) one by analysing all the plants under operational conditions by the time of completion of the PDD, not distinguishing their differences in terms of installed capacity if compared with the proposed project activity; and (ii) by analysing operational plants by the time of completion of the PDD by using the step-wise contained in the Tool for the demonstration and assessment of additionality" (version 6.0.0), paragraph 47.

(i) Analysis of all plants under operation in Brazil by the time of completion of PDD.

There are 45 operating wind power plants in Brazil, summing 794.3 MW of installed capacity, which represents 0.73% of the total installed capacity in the country (Table 8). Moreover, there are two wind power units being constructed in Brazil, summing 70.0 MW of installed capacity, which corresponds to 0.40% of the total electricity production capacity being added in the country (Table 9).

Table 8. Electricity production entrepreneurships in operation in Brazil*

Type	Number of units	Verified installed capacity (kW)	Verified installed capacity (%)
Mini and Micro Hydroelectric Plants (≤ 1 MW)	315	179,700	0.16%
Wind power plants	45	794,334	0.73%
Small hydroelectric plants (1 MW – 30 MW)	369	3,140,827	2.88%
Solar plants	1	20	0.00%
Large hydroelectric plants	168	75,861,799	69.51%
Thermoelectric plants	1,340	27,149,050	24.88%
Nuclear plants	2	2,007,000	1.84%
Total	1,925	109,132,730	100.00%

*Source: National Electric Energy Agency (*Agência Nacional de Energia Elétrica* - ANEEL)/Generation Database (*Banco de Informação de Geração* - BIG). Available at: http://www.aneel.gov.br/aplicacoes/capacidadebrasil/capacidadebrasil.asp. Accession date: 11/06/2010.

Table 9. Electricity production entrepreneurships under construction in Brazil*

Type	Number of units	Authorized installed capacity (kW)	Authorized installed capacity (%)
Mini and Micro Hydroelectric Plants (≤ 1 MW)	1	848	0.00%

Wind power plants	2	70,050	0.40%
Small hydroelectric plants (1 MW - 30 MW)	63	866,391	4.96%
Large hydroelectric plants	16	10,128,500	58.03%
Thermoelectric plants	49	5,037,271	28.86%
Nuclear plants	1	1,350,000	7.74%
Total	132	17,453,060	100.00%

*Source: National Electric Energy Agency (*Agência Nacional de Energia Elétrica* - ANEEL)/Generation Database (*Banco de Informação de Geração* - BIG). Available at: http://www.aneel.gov.br/aplicacoes/capacidadebrasil/capacidadebrasil.asp. Accession date: 11/06/2010.

The data depicted in Table 8 and Table 9 show that the participation of wind-based electricity is still not significant in the electric matrix in Brazil. Moreover, it should be noted that most wind-based electricity generation entrepreneurships in Brazil accrue from one of the following incentive mechanisms: CDM and PROINFA[18].

PROINFA (*Programa de Incentivo às Fontes Alternativas de Energia Elétrica*/Program of Incentive to Alternative Sources of Electric Energy) was launched in 2002 with the objective of increasing the participation of electricity produced from wind and biomass sources and from small hydroelectric plants in the National Interconnected System (SIN). PROINFA is based on feed in tariffs and was designed to have 2 phases. The first phase initially set a quota of 3.3 GW of new generation capacity equally distributed among wind, biomass and small hydro. After the program was launched, part of the quota of biomass was transferred to wind projects[18].

The program foresees the implementation of 144 plants, totaling 3,299.40 MW of installed capacity, being 1,191.24 MW from 63 small hydroelectric plants (1 MW - 30 MW), 1,422.92 MW from 54 wind plants and 685.24 MW from 27 biomass plants. It is estimated that till the end of 2010, 68 (1,591.77 MW) entrepreneurships will start operation, being 23 small hydroelectric plants (414.30 MW), 2 biomass plants (66.50MW) and 43 wind plants (1,110.97 MW)[18].

Projects developed under PROINFA have a 20-year Power Purchase Agreement signed with the state-owned electricity utility ELETROBRÁS[18]. PROINFA presets the price of the electricity paid to generators as a technology specific economic value, which is defined as the value that guarantee, for a defined timeframe and efficiency level, the economic feasibility of a typical project based on alternative sources of energy. It is worthy mentioning that the prices paid by PROINFA are higher than those practiced by the market[19].

Besides, electricity generation companies that had Electricity Purchase and Sale Contracts signed with ELETROBRÁS in the ambit of PROINFA could take up a loan from the National Development Bank (*Banco Nacional do Desenvolvimento* - BNDES). Under the so-called Program of Financial Support to Investments in Alternative Sources of Electric Energy in the Ambit of PROINFA (*Programa de Apoio Financeiro a Investimentos em Fontes Alternativas de*

[18] Programa de Incentivo às Fontes Alternativas de Energia Elétrica/ *Program of Incentive to Alternative Sources of Electric Energy*. Available at: http://www.mme.gov.br/programas/proinfa. Accession date: 11/06/2010.

[19] Alves de Brito, M.L. 2009. Investments in Wind Energy in Brazil: Comparing PROINFA and CDM project finance. Master Thesis. Graduate School of Humanities and Social Sciences. University of Tsukuba, Japan.

Energia Elétrica no Âmbito do PROINFA), borrowers could finance up to 70% of financeable items, where the first installment could be paid up to third month after the operation start date with up to 10-year amortization periods[20].

It is worthy mentioning that "PROINFA also aims at the reduction of GEE, in the terms of UNFCCC, contributing to sustainable development" and "it's the attribution of ELETROBRÁS the direct or indirect development of the processes of preparation and validation of PDDs, registration, monitoring, and certification of the emissions reductions, and the commercialization of carbon credits obtained by PROINFA". "The resources originated from the activities related to the CDM or other carbon markets will be destined to the reduction of the costs of PROINFA"[21]. In that sense 12 PROINFA wind projects in Brazil are being/were developed as CDM projects (Table 10).

Both wind plants under construction, and 36 out of 45 operating wind plants in Brazil accrue from PROINFA incentives (Table 10). Importantly, 2 out 9 non-PROINFA operating plants are being developed as CDM projects (Table 10). Moreover, within the group of the 7 non-CDM and non-PROINFA wind plants, *Fernando de Noronha* plant is located in the Fernando de Noronha Archipelago, which is served by a hybrid wind-diesel isolated electric complex. *Morro do Camelinho* is a 1 MW experimental power plant owned by the state-owned power utility CEMIG (*Companhia Energética de Minas Gerais*/Energy Company of Minas Gerais), which was implemented in 1994 with support from the German Government[2]. Similarly, *Olinda* is an experimental power plant operated by the Brazilian Wind-Power Center (*Centro Brasileiro de Energia Eólica*)[22], which is a research institute whose objectives are "to produce and publish scientific knowledge in the areas aerodinamics, aeroeleasticity, control, quality of energy, energy hybrid systems, and assessment of wind-power potential and other topics related to the technology of wind turbines"[23]. *Prainha*, *Taíba* and *Mucuripe* belong to the company Wobben Wind Power Industria e Comércio Ltda[22]. Wobben projects, constructs, assembles, operates and maintains wind power plants, and was the first Brazilian company to manufacture large scale aerogenerators (800 – 3,000 kW)[8]. Hence, they posses an intrinsically higher competitiveness in regards to the acquisition of the aerogenerators in comparison to other project proponents, which do not manufacture the wind turbines themselves, such as the proponents of the current project activity. "Wobben Windpower Industria e Comercio Ltda" manufactures the wind turbines themselves (it was the first Brazilian company to manufacture large scale WTGs) and these projects (Prainha, Taíba, Mucuripe and Palmas Windpower plants) are examples of easier access to wind technology than to other project developers and obtained smaller implementation costs than entrepreneurs for these services. Based on such information, Wobben has advantages in developing wind power projects for energy generation because they are involved in the production chain of WTGs, differently of CPFL Geração – project participant.

[20] Program of Financial Support to Investments in Alternative Sources of Electric Energy in the Ambit of PROINFA/*Programa de Apoio Financeiro a Investimentos em Fontes Alternativas de Energia Elétrica no Âmbito do PROINFA*. Available at: http://www.mme.gov.br/programas/proinfa/galerias/arquivos/programa/resolproinfa.pdf. Accessed in 14/06/2010.

[21] Federal Decree 5025 of March 30th of 2004. Available at: http://www.planalto.gov.br/ccivil/_Ato2004-2006/2004/Decreto/D5025.htm. Accessed in 14/06/2010.

Palmas is currently owned and operated by *Centrais Eólicas do Paraná Ltda.*[22], which, in turn, is owned by the State-owned power utility *Companhia Paranaense de Energia* (COPEL)[24]. However, *Palmas* was formerly co-owned by Wobben (70%) and COPEL (30%)[25]. Hence, one may affirm that *Palmas* had an environment comparable to that of *Prainha*, *Taíba* and *Mucuripe* at time of its implementation.

It is important to emphasize that the projects *Prainha*, *Taíba*, *Mucuripe* and *Palmas* are much lower if compared with the proposed project activity. While the project activity has 188 MW of installed capacity, such projects have: 10, 5, 2,4 and 2.5 MW, respectively, so more than eighteen times larger than *Prainha* and more than seventy eight times larger than Mucuripe. In the discussion of the common practice section (ii), these plants are not part of the similar activities, considering the range determined for comparison, obviously because they are not large as well to be inside the +/- 50% range.

In light of the facts above, it is possible to conclude that, at the moment of the conclusion of this document, there were no operating entrepreneurships comparable to the project activity, in regards to investment climate.

(ii) Common practice analysis by using the step-wise contained in the "Tool for the demonstration and assessment of additionality" (version 6.0.0), paragraph 47 - operational plants by the time of completion of the PDD.

Since the project activity belongs to measure (b) described in paragraph 6 of the "Tool for the demonstration and assessment of additionality" (version 06.0.0), the common practice analysis was conducted according to the paragraph 47 of the aforementioned tool.

The stepwise for common practice assessment available in the mentioned Tool, was followed and presented below:

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

Since installed capacity of the project activity is 188.0 MW, the output range of the common practice analysis is 94.0 – 282.0 MW (+/-50% installed capacity).

Lists of wind electricity generation plant units (large scale hydro power units, small scale hydro power units, wind energy units, thermal energy units, nuclear energy units and solar energy units) operating in Brazil are published regularly by ANEEL (Brazilian National Electric Agency – *Agência Nacional de Energia Elétrica*) (Table 11, column 3); nevertheless, in order to be consistent with the investment analysis and the *ex-ante* calculation of the project activity, the windfarm complexes' installed capacity were considered in the output range determination (Table 11, column 6), instead of individual wind units' installed capacity (Table 11, column 5).

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

Considering the 24-windfarm complexes in operation in Brazil, 20 do not deliver the same capacity as the project activity, considering the output range established in step 1 above (Table 11, column 7). 2 out of the remaining 4 wind farms are under CDM validation (Table 11, column 8). Therefore, there are 2 wind farms in operation in Brazil that deliver the same capacity as the project activity and are not under CDM validation or already registered (Table 11, column 10, last line).

$$N_{all} = 2$$

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

According to the step-wise contained in the Tool for the demonstration and assessment of additionality" (version 6.0.0), paragraph 47, "different technologies are technologies that deliver the same output and differ by at least one of the following:

(…)

(iv) Investment climate in the date of the investment decision, *inter alia*:

- Access to technology;
- Subsidies or other financial flows;
- Promotional policies;
- Legal regulations".

Wind farms being developed under PROINFA (detailed described below) are considered as plants that are under different promotional policies than the project activity, accordingly to the aforementioned concept.

Considering the discussion regarding the PROINFA, mentioned in the present section item (i), 2 out 2 wind farms in operation in Brazil that deliver the same capacity as the project activity and are not under CDM validation or already registered are developed under PROINFA, i.e. apply technology different that the one applied in the proposed project activity (Table 11, columns 10 and 11) and cannot be compared to the present project activity.

Therefore, $N_{diff} = 2$

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

$$F = 1 - \frac{N_{diff}}{N_{all}} \Rightarrow F = 1 - \frac{2}{2} \Rightarrow F = 0.00$$

Outcome of step 4a: **Since $F = 0.00$ (i.e. lower than 0.2) and $N_{all} - N_{diff} = 2 - 2 = 0$ (i.e. lower than 3), the proposed project activity is not a common practice within the sector in the applicable geographical area.**

Sub-step 4b: Discuss any similar Options that are occurring:

Activities similar to the project activity are not widely observed nor commonly carried out, and hence the **project activity is not common practice in the relevant sector in the country**. Corroborating with that conclusion, one may mention the fact that there are three other non-PROINFA wind projects in Brazil, which still have not started construction, but are being developed as CDM projects (currently at validation stage)[26,27,28].

Since all step above have been satisfied, **the project activity is additional**.

[26] Jaguarão wind farm, CDM Project: http://cdm.unfccc.int/Projects/Validation/DB/6CXYWGRBO0SOOGH34RVRSCN1K46OQ5/view.html. Accessed in: 11/06/2010.

[27] Serra dos Antunes wind farm, CDM Project: http://cdm.unfccc.int/Projects/Validation/DB/3I96I5K6CL7810JG5G1OEZIZKS7S04/view.html. Accessed in: 11/06/2010.

[28] Livramento wind farm, CDM Project: http://cdm.unfccc.int/Projects/Validation/DB/WLLN3C8AW52MUD1B7XX1CKRW4ZOXBS/view.html . Accessed in: 11/06/2010.

Table 10. Operating and under construction wind electricity generation entrepreneurships in Brazil.

Plant	Authorized installed capacity (MW)[1,2]	State[1,2]	Status[1,2]	PROINFA?[3]	CDM?	CDM Status
Albatroz	4.50	PB	Operating	Yes	No	N.A.
Atlântica	4.50	PB	Operating	Yes	No	N.A.
Bons Ventos	50.00	CE	Operating	Yes	No	N.A.
Camurim	4.50	PB	Operating	Yes	No	N.A.
Canoa Quebrada	57.00	CE	Operating	Yes	Yes[4]	Validation[4]
Caravela	4.50	PB	Operating	Yes	No	N.A.
Coelhos I	4.50	PB	Operating	Yes	No	N.A.
Coelhos II	4.50	PB	Operating	Yes	No	N.A.
Coelhos III	4.50	PB	Operating	Yes	No	N.A.
Coelhos IV	4.50	PB	Operating	Yes	No	N.A.
Eólica Água Doce	9.00	SC	Operating	Yes	Yes[9]	Registered[9]
Eólica Canoa Quebrada	10.50	CE	Operating	Yes	No	N.A.
Eólica de Bom Jardim	0.60	SC	Operating	Yes	No	N.A.
Eólica de Fernando de Noronha	0.23	PE	Operating	No	No	N.A.
Eólica de Prainha	10.00	CE	Operating	No	No	N.A.
Eólica de Taíba	5.00	CE	Operating	No	No	N.A.
Eólica Icaraizinho	54.60	CE	Operating	Yes	Yes[5]	Validation[5]
Eólica Olinda	0.23	PE	Operating	No	No	N.A.
Eólica Paracuru	23.40	CE	Operating	Yes	Yes[5]	Validation[5]
Eólica Praias de Parajuru	28.80	CE	Operating	Yes	No	N.A.
Eólica-Elétrica Experimental do Morro do Camelinho	1.00	MG	Operating	No	No	N.A.
Eólio - Elétrica de Palmas	2.50	PR	Operating	No	No	N.A.
Foz do Rio Choró	25.20	CE	Operating	Yes	Yes[5]	Validation[5]
Gargaú	28.05	RJ	Constructing	Yes	Yes[7]	Validation[7]
Gravatá Fruitrade	4.95	PE	Operating	Yes	No	N.A.
Lagoa do Mato	3.23	CE	Operating	Yes	Yes[4]	Validation[4]

Macau	1.80	RN	Operating	No	Yes[10]	Registered[10]
Mandacaru	4.95	PE	Operating	Yes	No	N.A.
Mataraca	4.50	PB	Operating	Yes	No	N.A.
Millennium	10.20	PB	Operating	Yes	No	N.A.
Mucuripe	2.40	CE	Operating	No	No	N.A.
Parque Eólico de Beberibe	25.60	CE	Operating	Yes	No	N.A.
Parque Eólico de Osório	50.00	RS	Operating	Yes	Yes[8]	Registered[8]
Parque Eólico do Horizonte	4.80	SC	Operating	No	Yes[11]	Registered[11]
Parque Eólico dos Índios	50.00	RS	Operating	Yes	Yes[8]	Registered[8]
Parque Eólico Enacel	31.50	CE	Operating	Yes	No	N.A.
Parque Eólico Sangradouro	50.00	RS	Operating	Yes	Yes[8]	Registered[8]
Pedra do Sal	18.00	PI	Operating	Yes	No	N.A.
Pirauá	4.95	PE	Operating	Yes	No	N.A.
Praia do Morgado	28.80	CE	Operating	Yes	No	N.A.
Praia Formosa	104.40	CE	Operating	Yes	Yes[5]	Validation[5]
Presidente	4.50	PB	Operating	Yes	No	N.A.
RN 15 - Rio do Fogo	49.30	RN	Operating	Yes	Yes[6]	Validation[6]
Santa Maria	4.95	PE	Operating	Yes	No	N.A.
Taíba Albatroz	16.50	CE	Operating	Yes	No	N.A.
Volta do Rio	42.00	CE	Constructing	Yes	No	N.A.
Avante	4.95	PE	Operating	Yes	No	N.A.

1 - ANEEL: Operating wind entrepreneurships. http://www.aneel.gov.br/aplicacoes/capacidadebrasil/GeracaoTipoFase.asp?tipo=7&fase=3. Accessed in 11/06/2010.

2 - ANEEL: Wind entrepreneurships under construction. http://www.aneel.gov.br/aplicacoes/capacidadebrasil/GeracaoTipoFase.asp?tipo=7&fase=2. Accessed in 11/06/2010.

3 - PROINFA: Contrated entreprenerships. http://www.eletrobras.com/elb/Proinfa/services/eletrobras/ContentManagementPlus/FileDownload.ThrSvc.asp?DocumentID={5EE94F36-806D-4A91-956B-326204F743B3}&ServiceInstUID={9C2100BF-1555-4A9D-B454-2265750C76E1}&InterfaceInstUID={18F15ED9-1E73-4990-8CC6-F385CE19FF17}&InterfaceUID={72215A93-CAA7-4232-A6A1-2550B7CBEE2F}&ChannelUID={B38770E4-2FE3-41A2-9F75-DFF25AF92DED}&PageUID={ABB61D26-1076-42AC-8C5F-64EB5476030E}&BrowserType=IE&BrowserVersion=6. Accessed in 11/06/2010.

4 - http://cdm.unfccc.int/Projects/Validation/DB/HMOI5ZUNC27YH7DVBYBCFCRPUZWQ09/view.html. Accessed in 11/06/2010.
5 - http://cdm.unfccc.int/Projects/Validation/DB/HSLJUUZ9G0RMHT1A6S1F14IMVIZ45B/view.html. Accessed in 11/06/2010.
6 - http://cdm.unfccc.int/Projects/Validation/DB/BQQ32CCBBQ2342SUQ84SKA1T3NLEC0/view.html. Accessed in 11/06/2010.
7 - http://cdm.unfccc.int/Projects/Validation/DB/J6EQPTU2VOQJKGG6LHWEERQVH5Z72F/view.html. Accessed in 11/06/2010.
8 - http://cdm.unfccc.int/Projects/DB/DNV-CUK1158843861.54/view. Accessed in 11/06/2010.
9 - http://cdm.unfccc.int/Projects/DB/SGS-UKL1156244716.38/view. Accessed in 11/06/2010.
10 - http://cdm.unfccc.int/Projects/DB/DNV-CUK1167973931.45/view. Accessed in 11/06/2010.
11 - http://cdm.unfccc.int/Projects/DB/SGS-UKL1151534607.76/view. Accessed in 11/06/2010.

Table 11: Operating and under construction wind electricity generation entrepreneurships in Brazil.

Number	Windfarm Complex	Plant[1]	Brazilian State[1]	Verified installed capacity (kW)[1]	Total verified installed capacity (MW)	Step 2: Inside the output range (12.0 - 36.0 MW)	Step 2: CDM?	Step 2: CDM - Status?	Step 3 (different technology): PROINFA?	Step 3 (different technology): PROINFA's contract number[2]	Similar ("No" or "Wind plant name"
1	Vale dos Ventos Geradora Eólica[3]	Albatroz	PB	4.500	45.000	No		No	Yes	24	**No**
		Atlântica		4.500						30	
		Camurim		4.500						26	
		Caravela		4.500						33	
		Coelhos I		4.500						32	
		Coelhos II		4.500						25	
		Coelhos III		4.500						29	
		Coelhos IV		4.500						27	
		Mataraca		4.500						31	
		Presidente		4.500						28	
2	Windfarm Complex Aracati[6]	Bons Ventos	CE	50.000	138.500	Yes		No	Yes	51	**No**
		Canoa Quebrada		57.000						2	
		Parque Eólico Enacel		31.500						10	

3	-	Eólica Água Doce	SC	9.000	9.000	No		Yes: Registered[8]	Yes	1	**No**
4	Windfarm Complex Rosa dos Ventos[9]	Eólica Canoa Quebrada	CE	10.500	13.730	No		Yes: Validation[9]	Yes	53	**No**
		Lagoa do Mato		3.230						54	
5	-	Eólica de Bom Jardim	SC	0,6	0,6	No		No	Yes	21	**No**
6	-	Eólica de Prainha	CE	10.000	10.0	No		No	No	-	**No**

					00						
7	-	Eólica de Taíba	CE	5.000	5.000	No		No	No	-	**No**
8	Windfarm Complex Icaraí[10]	Eólica Icaraizinho	CE	54.600	207.600	Yes		Yes: Validation[10]	Yes	48	**No**
		Eólica Paracuru		23.400						49	
		Foz do Rio Choró		25.200						43	
		Praia Formosa		104.400						034 / 034A / 034B / 034C	
9	Windfarm Complex Eletrowind[11]	Eólica Praias de Parajuru	CE	28.804	99.604	Yes		No	Yes	4	**No**
		Praia do Morgado		28.800						5	
		Volta do Rio		42.000						6	
10	-	Eólio - Elétrica de Palmas	PR	2.500	2.500	No		No	No	-	**No**
11	-	Gargaú	RJ	28.050	28.	No		Ye	Yes	35	**No**

					0 5 0			s: V a l i d a t i o n [13]			
12	Windfarm Complex Gravatá[14]	Gravatá Fruitrade	PE	4.950	24.750	No		No	Yes	39	**No**
		Mandacaru		4.950						37	
		Pirauá		4.950						3	
		Santa Maria		4.950						41	
		Xavante		4.950						38	
13	-	Macau	RN	1.800	1.800	No		Yes: R e g i s t	No	-	**No**

								registered[15]			
14	-	Millennium	PB	10.200	10.200	No		No	Yes	23	**No**
15	-	Mucuripe	CE	2.400	2.400	No		No	No	-	**No**
16	-	Parque Eólico de Beberibe	CE	25.600	25.600	No		No	Yes	12	**No**
17	Windfarm Complex Osório[16]	Parque Eólico de Osório	RS	50.000	150.000	Yes		Yes: Registered	Yes	9	**No**
		Parque Eólico dos Índios		50.000						7	
		Parque Eólico Sangradouro		50.000						8	

								[16]			
18	-	Parque Eólico do Horizonte	SC	4.800	4.800	No		Yes: Registered[17]	No	-	**No**
19	-	Pedra do Sal	PI	18.000	18.000	No		No	Yes	36	**No**
20	-	RN 15 - Rio do Fogo	RN	49.300	49.300	No		Yes: Validati	Yes	11	**No**

								on[19]			
21	-	Taíba Albatroz	CE	16.500	16.500	No		No	Yes	50	**No**
22	-	Eólica Olinda	PE	230	230	No		No	No	-	**No**
23	-	Eólica-Elétrica Experimental do Morro do Camelinho	MG	1000	1000	No		No	No	-	**No**
24	-	Eólica Fernando de Noronha	PE	230	230	No		No	No	-	**No**
					Count	**4**			**2**		

[1] National Electric Energy Agency (ANEEL - Agência Nacional de Energia Elétrica): Generation Database (BIG - Banco de Informação de Geração). Available at http://www.aneel.gov.br/aplicacoes/capacidadebrasil/GeracaoTipoFase.asp?tipo=7&fase=3. (reference: BrazilianElectricityGenerationMatrix_ANEEL_20120103).

[2] Eletrobras: PROINFA. Available at http://www.eletrobras.com/elb/data/Pages/LUMISABB61D26PTBRIE.htm. (reference: PROINFAContracts_20081231).

[3] Windfarm Complex Vale dos Ventos Geradora Eólica. Available at http://www.aneel.gov.br/cedoc/area2006743.pdf.

[4] Windfarm Complex Alegria. Available at http://www.parqueeolicoalegria.com.br/parque.

[5] Windfarm Complex Pegasus. Available at http://www.eletrobras.com/elb/data/documents/storedDocuments/%7B9C2100BF-1555-4A9D-B454-2265750C76E1%7D/%7B86A029DB-D8A2-44BA-BBBF-2DBC8C98B98E%7D/eol_sel.PDF.

[6] Windfarm Complex Aracati. Available at http://www.bonsventos.eng.br/sis.interna.asp?pasta=1&pagina=125.

[7] Cerro Chato Wind Farm Project. Available at http://cdm.unfccc.int/Projects/Validation/DB/FAA7M14EV6MNGPASPCDLTD64Q21X0R/view.html.

[8] Água Doce Wind Power Generation Project. Available at http://cdm.unfccc.int/Projects/DB/SGS-UKL1156244716.38/view.

[9] Rosa dos Ventos wind energy projecy. Available at http://cdm.unfccc.int/Projects/Validation/DB/HMOI5ZUNC27YH7DVBYBCFCRPUZWQ09/view.html.

[10] Icaraí Wind Energy Project. Available at http://cdm.unfccc.int/Projects/Validation/DB/HSLJUUZ9G0RMHT1A6S1F14IMVIZ45B/view.html.

[11] Windfarm Complex Eletrowind. Available at http://www.eletrobras.com/elb/data/documents/storedDocuments/%7B9C2100BF-1555-4A9D-B454-2265750C76E1%7D/%7B86A029DB-D8A2-44BA-BBBF-2DBC8C98B98E%7D/eol_sel.PDF.

[12] Palmares Wind Power Plant Project (PWPPP). Available at http://cdm.unfccc.int/Projects/Validation/DB/7FJT8KR0R6Z7X9P37350KVRFZ61QD6/view.html. Accessed on 03/Jan/2012.

[13] Gargaú Wind Power Plant CDM Project Activity. Available at http://cdm.unfccc.int/Projects/Validation/DB/J6EQPTU2VOQJKGG6LHWEERQVH5Z72F/view.html.

[14] Windfarm Complex Gravatá. Available at http://www.portalpch.com.br/index.php?option=com_content&view=article&id=3690:08062010-ventos-novos-do-proinfa&catid=1:ultimas-noticias&Itemid=98.

[15] Petrobras Wind Power Project for Oil Pumping at Macau, Brazil. Available at http://cdm.unfccc.int/Projects/DB/DNV-CUK1167973931.45/view.

[16] Osório Wind Power Generation Project. Available at http://cdm.unfccc.int/Projects/DB/DNV-CUK1158843861.54/view.

[17] Horizonte Wind Power Generation Project. Available at http://cdm.unfccc.int/Projects/DB/SGS-UKL1151534607.76/view.

[18] Windfarm Complex Santa Cruz. Available at http://www.eletrobras.com/elb/data/documents/storedDocuments/%7B9C2100BF-1555-4A9D-B454-2265750C76E1%7D/%7B86A029DB-D8A2-44BA-BBBF-2DBC8C98B98E%7D/eol_sel.PDF.

[19] Rio do Fogo Wind Energy Project. Available at http://cdm.unfccc.int/Projects/Validation/DB/BQQ32CCBBQ2342SUQ84SKA1T3NLEC0/view.html.

[20] Windfarm Complex Mangue Seco. Available at http://fatosedados.blogspetrobras.com.br/2011/11/02/primeiro-parque-eolico-da-petrobras-entra-em-operacao-comercial/.

Demonstration and assessment of prior consideration of the CDM

As per the "Guidelines on the demonstration and assessment of prior consideration of the CDM" (Version 3 - Annex 22/EB49), "for project activities with a starting date on or after 02 August 2008, the project participant must inform a Host Party DNA and the UNFCCC secretariat in writing of the commencement of the project activity and of their intention to seek CDM status".

Accordingly, project participants informed the Brazilian DNA and the UNFCCC Secretariat of the commencement of the project activity and of their intention in seeking the CDM status. Such notification was made within six months of the start date of project activity and contained a brief description of the project activity and the precise geographical location of the project plant. Such notifications, using the standardized form F-CDM- Prior Consideration, were sent for Brazilian DNA and UNFCCC Secretariat in 03/05/2010 and the receipt of such documents has been subsequently confirmed. Documental evidences of these notifications were made available to DOE during validation.

B.6. Emission reductions:

B.6.1. Explanation of methodological choices:

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Project emissions

As per ACM0002/Version 12.1.0, since the project activity is neither a geothermal, solar nor a hydropower plant, $PE_y = 0$.

Baseline emissions

The baseline emissions are to be calculated as follows:

(1) $BE_y = EG_{PJ,y} \times EF_{grid,CM,y}$

Where:

BE_y = Baseline emissions in year y (tCO_2/yr);

$EG_{PJ,y}$ = Quantity of net electricity generation that is produced and fed into the grid as a result of the implementation of the CDM project activity in year y (MWh/yr);

$EF_{grid,CM,y}$ = Combined margin CO_2 emission factor for grid connected power generation in year y calculated using the latest version of the "Tool to calculate the emission factor for an electricity system" (tCO_2/MWh).

Calculation of $EG_{PJ,y}$

Since the project activity is the installation of a new grid-connected renewable power plant at a site where no renewable power plant was operated prior to the implementation of the project activity, then:

(2) $EG_{PJ,y} = EG_{facility,y}$

Where:

$EG_{PJ,y}$ = Quantity of net electricity generation that is produced and fed into the grid as a result of the implementation of the CDM project activity in year y (MWh/yr);

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

Calculation of $EF_{grid,CM,y}$

The project plants will serve Brazilian Interconnected System (SIN). The Brazilian DNA has published the delineation of SIN to be adopted for the purposes of CDM projects. As per Resolution Nº8 of the Brazilian DNA, the electric grid considered in this project activity is considered as a single system consisted by the sub-markets of SIN as the definition of the electric system of the project. Off-grid plants will not be included in the calculation of $EF_{grid,CM,y}$.

$EF_{grid,CM,y}$ will be calculated using the latest version of the "Tool to calculate the emission factor for an electricity system". The following formulae apply:

$$(3) \quad EF_{grid,CM,y} = EF_{grid,OM,y} \times w_{OM} + EF_{grid,BM} \times w_{BM}$$

Where:

$EF_{grid,CM,y}$ = Combined margin CO_2 emission factor in year y (tCO_2/MWh);

$EF_{grid,BM,y}$ = Build margin CO_2 emission factor in year y (tCO_2/MWh);

$EF_{grid,OM,y}$ = Operating margin CO_2 emission factor in year y (tCO_2/MWh);

w_{OM} = Weighting of operating margin emissions factor (75%);

w_{BM} = Weighting of build margin emissions factor (25%).

The weighting factors for build and operating margin were selected according to guidance provided in the "Tool to calculate the emission factor for an electricity system".

The $EF_{grid,OM,y}$ will be calculated according to the *dispatch data analysis*. As per this method OM emission factor is determined based on the grid power units that are actually dispatched at the margin during each hour h where the project is producing electricity and $EF_{grid,OM-DD,y}$ is calculated as follows:

$$(4) \quad EF_{grid,OM-DD,y} = \frac{\sum_h EG_{PJ,h} \times EF_{EL,DD,h}}{EG_{PJ,y}}$$

Where:

$EF_{grid,OM-DD,y}$ = Dispatch data analysis operating margin CO_2 emission factor in year y (tCO_2/MWh);

$EG_{PJ,h}$ = Electricity generation by the project activity in hour h of year y (MWh);

$EF_{EL,DD,h}$ = CO_2 emission factor for grid power units in the top of the dispatch order in hour h in year y (tCO_2/MWh);

$EG_{PJ,y}$ = Total electricity displaced by the project activity in year y (MWh);

h = Hours in year y in which the project activity is generating electricity;

y = Year in which the project activity is displacing grid electricity.

For the crediting period, the build margin emission factor will be updated annually, *ex-post*, including those units built up to the year of registration of the project activity or, if information up to the year of registration is not yet available, including those units built up to the latest year for which information is available.

The parameters $EF_{grid,OM,y}$ and $EF_{grid,BM,y}$ are calculated and published by the Brazilian Inter-ministerial Commission for Global Climate Change, the Brazilian Designated National Authority, according to the most recent version of the "Tool to calculate the emission factor for an electricity system".

Leakage

According to ACM0002, version 12.1.0, *"no leakage emissions are considered. The main emissions potentially giving rise to leakage in the context of electric sector projects are emissions arising due to activities such as power plant construction and upstream emissions from fossil fuel use (e.g. extraction, processing, transport). These emissions sources are neglected."*

Emission reductions

The emission reduction by the project activity during a given year y is calculated as follows:

(5) $ER_y = BE_y - PE_y$

Where,

ER_y = Emissions reductions of the project activity during the year y (tCO_2e)

BE_y = Baseline emissions during the year y (tCO_2e)

PE_y = Project emissions during the year y (tCO_2e)

B.6.2. Data and parameters that are available at validation:

Data / Parameter:	w_{OM}
Data unit:	Fraction
Description:	Weighting of operating margin emissions factor
Source of data used:	"Tool do calculate the emission factor for an electricity system", Version 2
Value applied:	75%
Justification of the choice of data or description of measurement methods and procedures actually applied :	Default value for wind power plants.
Any comment:	--

Data / Parameter:	w_{BM}
Data unit:	Fraction
Description:	Weighting of build margin emissions factor
Source of data used:	"Tool do calculate the emission factor for an electricity system", Version 2
Value applied:	25%
Justification of the choice of data or description of measurement methods and procedures actually applied :	Default value for wind power plants.
Any comment:	--

B.6.3. Ex-ante calculation of emission reductions:

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Emission reductions were *ex-ante* estimated as follows:

(6) $$BE_y = EG_{PJ,y} \times EF_{grid,CM,y}$$

Where:

BE_y = Baseline emissions in year y (149,358 tCO_2/yr);

$EG_{PJ,y}$ = Quantity of net electricity generation that is produced and fed into the grid as a result of the implementation of the CDM project activity in year y (726,712 MWh/yr);

$EF_{grid,CM,y}$ = Combined margin CO_2 emission factor for grid connected power generation in year y calculated using the latest version of the "Tool to calculate the emission factor for an electricity system" (0.2055 tCO_2/MWh).

As per ACM0002/Version 12.1.0 for this project activity, project emissions are zero ($PE_y = 0$) and leakage emissions are not considered.

(7) $ER_y = BE_y - PE_y$

Where:

ER_y = Emissions reductions of the project activity during the year y (149,358 tCO_2e)

BE_y = Baseline emissions during the year y (149,358tCO_2e)

PE_y = Project emissions during the year y (0 tCO_2e)

See detailed ex-ante calculation in the annex spreadsheet "ex_ante_CPFL.xls".

The parameters used for *ex-ante* calculations are compiled in Table **11**.

Table 11. Parameters used for ex-ante calculations

Parameter	Unit	Value	Description	Comment
ER_y	tCO_2/yr	149,358	Emissions reductions in the year y	Calculated
BE_y	tCO_2/yr	149,358	Baseline emissions in year y	Calculated
PE_y	tCO_2/yr	-	Project emissions in the year y	For this project activity (wind-based electricity generation project), emissions are null, as per ACM0002/Version 12.1.0
$EG_{PJ,y}$	MWh/yr	726,712	Quantity of net electricity generation that is produced and fed into the grid as a result of the implementation of the CDM project activity in year y	Estimated as the average total yearly net electricity generation by the project activity, as per Camargo Schubert Reports, Ref. C&S-CEG-271/10 (rev-03), C&S-CEG-272/10 (rev-03), C&S-CEG-273/10 (rev-03), C&S-CEG-274/10 (rev-03), C&S-CEG-275/10 (rev-03), C&S-CEG-276/10 (rev-03) and C&S-CEG-277/10 (rev-03).
$EG_{facility,y}$	MWh/yr	726,712	Quantity of net electricity generation supplied by the project plant/unit to the grid in year y	Estimated as the average total yearly net electricity generation by the project activity, as per Camargo Schubert Reports, Ref. C&S-CEG-271/10 (rev-03), C&S-CEG-272/10 (rev-03), C&S-CEG-273/10 (rev-03), C&S-CEG-274/10 (rev-03), C&S-CEG-275/10 (rev-03), C&S-CEG-276/10 (rev-03) and C&S-CEG-277/10 (rev-03).
$EF_{grid,CM,y}$	tCO_2/MWh	0.2055	Combined margin CO_2 emission factor for grid connected power generation in year y calculated using the latest version of the "Tool to calculate the emission factor for an electricity system"	Calculated
$EF_{grid,OM,y}$	tCO_2/MWh	0.2476	Operating margin CO_2 emission factor in year y	Calculated as the average hourly emission factor, weighted by the hourly net electricity generation

$EF_{grid,BM,y}$	tCO_2/MWh	0.0794	Build margin CO_2 emission factor in year y	Build margin emission factor of the National Interconnected System (2009), as published by the Brazilian DNA (http://www.mct.gov.br/index.php/content/view/74689.html, accession date 12/07/2010)
w_{OM}	Fraction	0.75	Weighting of operating margin emissions factor	Default value for wind-based electricity generation projects, as per "Tool to calculate the emission factor for an electricity system", Version 2
w_{BM}	Fraction	0.25	Weighting of build margin emissions factor	Default value for wind-based electricity generation projects, as per "Tool to calculate the emission factor for an electricity system", Version 2

B.6.4 Summary of the ex-ante estimation of emission reductions:

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Table 12. Summary of the ex-ante estimation of emission reductions

Year	Estimation of project activity emissions (tonnes of CO_2e)	Estimation of baseline emissions (tonnes of CO_2e)	Estimation of leakage (tonnes of CO_2e)	Estimation of overall emission reductions (tonnes of CO_2e)
From July 2012	-	74,679	-	74,679
2013	-	149,358	-	149,358
2014	-	149,358	-	149,358
2015	-	149,358	-	149,358
2016	-	149,358	-	149,358
2017	-	149,358	-	149,358
2018	-	149,358	-	149,358
2019	-	149,358	-	149,358
2020	-	149,358	-	149,358
2021	-	149,358	-	149,358
Till June 2022	-	74,679	-	74,679
Total (tonnes of CO_2e)	-	**1,493,575**	-	**1,493,575**

B.7. Application of the monitoring methodology and description of the monitoring plan:

B.7.1 Data and parameters monitored:	
Data / Parameter:	$EG_{facility,y}$
Data unit:	MWh
Description:	Quantity of net electricity generation supplied by the project plant to the grid in year y
Source of data to be used:	Measurements at project activity site.
Value of data applied for the purpose of calculating expected emission reductions in section B.5	726,712
Description of measurement methods and procedures to be applied:	This parameter will be continuously analyzed and monitored values will be averaged monthly and yearly for each unit of the project activity. The total quantity of net electricity generation corresponds to the sum of the electricity generation by the seven units of the project activity.
QA/QC procedures to be applied:	Measurement results will be cross-checked with records for sold electricity.
Any comment:	Corresponds to the yearly consolidation of $EG_{PJ,h}$. Ex-ante estimated as the predicted average total yearly net electricity generation by the project activity , as per Camargo Schubert Reports, Ref. C&S-CEG-271/10 (rev-03), C&S-CEG-272/10 (rev-03), C&S-CEG-273/10 (rev-03), C&S-CEG-274/10 (rev-03), C&S-CEG-275/10 (rev-03), C&S-CEG-276/10 (rev-03) and C&S-CEG-277/10 (rev-03).

Data / Parameter:	$EF_{grid,OM,y}$
Data unit:	tCO_2/MWh
Description:	Operating margin CO_2 emission factor in year y
Source of data to be used:	Brazilian Interministerial Commission on Global Climate Change
Value of data applied for the purpose of calculating expected emission reductions in section B.5	0.2476
Description of measurement methods and procedures to be applied:	As per the most recent version of the "Tool to calculate the emission factor for an electricity system".
QA/QC procedures to be applied:	As per the most recent version of the "Tool to calculate the emission factor for an electricity system".
Any comment:	Ex-ante estimated operating margin emission factor of the National

	Interconnected System (2009), as published by the Brazilian DNA (http://www.mct.gov.br/index.php/content/view/74689.html, accession date 12/07/2010).

Data / Parameter:	$EF_{grid,BM,y}$
Data unit:	tCO_2/MWh
Description:	Build margin CO_2 emission factor in year y
Source of data to be used:	Brazilian Interministerial Commission on Global Climate Change
Value of data applied for the purpose of calculating expected emission reductions in section B.5	0.0794
Description of measurement methods and procedures to be applied:	As per the most recent version "Tool to calculate the emission factor for an electricity system".
QA/QC procedures to be applied:	As per the most recent version of the "Tool to calculate the emission factor for an electricity system".
Any comment:	Ex-ante estimated build margin emission factor of the National Interconnected System (2009), as published by the Brazilian DNA (http://www.mct.gov.br/index.php/content/view/74689.html, accession date 12/07/2010).

Data / Parameter:	$EF_{grid,CM,y}$
Data unit:	tCO_2/MWh
Description:	Combined margin CO_2 emission factor for grid connected power generation in year y.
Source of data to be used:	Brazilian Interministerial Commission on Global Climate Change -
Value of data applied for the purpose of calculating expected emission reductions in section B.5	0.2055
Description of measurement methods and procedures to be applied:	As per the most recent version "Tool to calculate the emission factor for an electricity system".
QA/QC procedures to be applied:	As per the most recent version of the "Tool to calculate the emission factor for an electricity system".
Any comment:	Calculated using the latest version of the "Tool to calculate the emission factor for an electricity system"

B.7.2. Description of the monitoring plan:

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1. General Considerations

The objective of the monitoring plan is to ensure the complete, consistent, clear, and accurate monitoring and calculation of the emissions reductions achieved by the project activity during the whole crediting period. The project operator (CPFL Geração de Energia S/A) will be responsible for the implementation of the monitoring plan on which is based in monitoring the net electricity dispatched to the grid and the emission factor of the electricity grid.

2. Data and Parameters monitored

Net electricity dispatched to the grid – $EG_{facility,y}$

Monitoring consists of metering the net electricity generated by the project activity. Measurement results will be crosschecked with records for sold electricity and/or with the data provided in the Electric Energy Commercialization Chamber (*Câmara de Comercialização de Energia Elétrica – CCEE*) databank. Data will be measured continuously and will be consolidated hourly and monthly. Monthly values will be used for crosschecking electricity sales records. Records pertaining to the meters used in the project activity (type, model and calibration reports) will be kept accordingly.

The Operator of National Electric System (*Operador Nacional do Sistema Elétrico* - ONS) regulates, by means of its Grid Procedures[29] (*Procedimentos de Rede*), *inter alia*, the measurements of electricity production for invoicing (12nd module). Information related to this module are necessary to maintain the Measurement for Invoicing System (*Sistema de Medição para Faturamento – SMF*) according to the standard specified in the document Technical Specifications of Measurement for Invoicing (*Especificação Técnica das Medições para Faturamento*) to assure not only the control of energy accounting process by CCEE, but also the determination of demands by ONS[30].

Generally, SMF is a system composed of the main and backup measurers, by the potential and current transformers, the channels of communication between energy agent/project participant and CCEE, and the system for data collection and measurement for invoicing[31].

According to the ONS Grid Procedures – Submodule 12.1, the SMF should be installed in the connection of the plants with the energy network to measure the net generation of these plants, which will be used for accounting and settlement of electricity in the CCEE.

Data stored on the meters is collected by the System of Energy Data Collection (*Sistema de Coleta de Dados de Energia – SCDE*) of CCEE, remotely and automatically through direct access to the meters of the project participant. These collected data are processed in SCDE for electricity accounting by CCEE and are available to all energy market participants to control their respective incomes[31].

[29] Operator of National Electric System (*Operador Nacional do Sistema Elétrico* - ONS). Grid Procedures (*Procedimentos de Rede*). www.ons.org.br/procedimentos/index.aspx. Accessed in 14/07/2010.

[30] Operator of National Electric System (*Operador Nacional do Sistema Elétrico* - ONS). Grid Procedures (*Procedimentos de Rede*). Module 12 – Submodule 12.1 (*Módulo 12 - Submódulo 12.1*). www.ons.org.br/procedimentos/index.aspx.

[31] Operator of National Electric System (*Operador Nacional do Sistema Elétrico* - ONS). Grid Procedures (*Procedimentos de Rede*). Module 12 – Submodule 12.2 (*Módulo 12 - Submódulo 12.2*). www.ons.org.br/procedimentos/index.aspx.

The energy meters shall be: multi-phase, 3 elements, 4 wire (for 4 wire systems), of system rated frequency, rated current according to the secondary of current transformer, nominal voltage according to the secondary of potential transformer. The meters shall have independence of elements and sequence of phases, ensuring the same performance in monophasic and three-phasic testing[31].

The measurement systems are designed and implemented in accordance with the standards of the Brazilian Association of Technical Standards (*Associação Brasileira de Normas Técnicas – ABNT*) or International Electrotechnical Commission - IEC, ensuring the quality of the system. In addition, the meters will have certificate of conformity of design approved and issued by the National Institute of Metrology Standardization and Industrial Quality (*Instituto Nacional de Metrologia, Normalização e Qualidade Industrial – INMETRO*)[31].

Regarding the class of accuracy of energy meters, they will meet all relevant metrological requirements prescribed in Metrological Technical Regulation (*Regulamento Técnico Metrológico – RMT*) for Class 0.2 of energy meters, approved by INMETRO. Class 0.2 of energy meter, also identified as index D energy meters admits error in measurements of up to + / - 0.2%[31].

The energy meters possess mass memory capable of storing the data of active, reactive and demand energy in a bidirectional manner, voltages and currents at intervals of integration programmable from 5 to 60 minutes during the minimum period of 32 days. These meters will also be equipped with a system of preservation and salvage of records in case of power loss, storing data in non-volatile memory for at least 100 hours. In addition, they possess at least two independent communication ports with concurrent access or that allow the prioritization of one of them. One will be for the exclusive use of the CCEE and the other for access of agents involved in the measurement point. The CCEE communication port will be coupled to a stable and good performance internet channel, which will be established under a VPN tunnel (Virtual Private Network) between the meter and the CCEE. The meters will be able to manage concurrent access to its communications ports in order to allow full time access to mass memory records of meters via CCEE communication port[31].

Besides electricity measurements are performed by the project owners, all the electricity dispatched to the grid by the project activity will be monitored online by CCEE. This entity is responsible for the monthly readings and keeping the records of the energy generated. If any problem happens at the local meter level, the reading lecture corresponding to the amount of energy during the time of the problem will not be lost due to online reading performed by CCEE. As mentioned before, in order to assure the quality of data used in the emission reductions calculation, the project proponents will provide access to the DOE the records of CCEE databank, because the data from this entity will serve to crosscheck the electricity dispatched to the grid.

Backup meters are equal or equivalent to the main meters, installed on the same panel, with the same information for current and voltage and under the same technical standards.
In order to ensure the effectiveness operation of SMF, preventive maintenance must be carried out and, where necessary, also corrective maintenance. Inspections are also conducted in order to verify the correct operation of meters[31].

The frequency for preventive maintenance of the SMF is a maximum of two years. This schedule may be changed based on the historical occurrence observed in all plants, considering

the schedule of stops. The meter that, after calibration, displays errors outside the range specified by the standard must be replaced[32].

The calibration of meters shall be conducted by a qualified organization that must comply with national standards and industrial regulations to ensure the accuracy. After calibration, the meters must be sealed to assure the safety and the calibration certificates must be archived with the other monitoring records. The deadline for meter's calibration follows, therefore, the "Grid Procedures" from the ONS Module 12, Sub-module 12.3. By the time of completion of this document, the frequency of calibration is a maximum of two years, but in the case of any changes occurred in the ONS Grid Procudures, the project owners shall follow the rules from the relevant sector organizations (e.g. ONS, ANEEL, CCEE, etc).

All the meters installed were tested and calibrated in accordance with regulations provided by CCEE where all the requirements were fufilled. Moreover if any errors are detected in the measuring device, it will be immediately replaced by the backup meter that will be previously calibrated. The damaged measuring device will be repair, recalibrate and will return to the monitoring system.

Emission Factor – , $EF_{grid,OM,y}$, $EF_{grid,BM,y}$ and $EF_{grid,CM,y}$

The monitoring plan also includes parameters such as the operating margin CO_2 emission factor for power units in the top of the dispatch order ($EF_{grid,OM,y}$), the build margin CO_2 emission factor ($EF_{grid,BM,y}$) of SIN and the combined margin CO_2 emission factor ($EF_{grid,CM,y}$). These parameters will be obtained from the Brazilian Interministerial Commission for Climate Change, which calculates and publishes $EF_{grid,OM,y}$ and $EF_{grid,BM,y}$ according to the most recent version of the "Tool to calculate the emission factor for an electricity system". These published parameters, along with the records of the net electricity supplied to SIN by the project activity, will be used for the calculation of the yearly combined margin ($EF_{grid,CM,y}$) and, ultimately, for the calculation of the emission reductions achieved by the project activity.

All data collected as part of monitoring will be archived and kept at least for 2 years after the end of the crediting period or 2 years after the last issuance of CER for this project activity, whichever occurs later.

3. Monitoring Structure

The monitoring of the data from the project activity will be done centrally at the ***Centro de Operação da Geração* – COG,** situated at the CPFL Energia headquarters, in Campinas – São Paulo. The **COG** account with the support of a data remote reading system known as ZFA, manufactured by the German company ITF / EDV. This system is able to communicate with

[32] Operator of National Electric System (*Operador Nacional do Sistema Elétrico* - ONS). Grid Procedures (*Procedimentos de Rede*). Module 12 – Submodule 12.3 (*Módulo 12 - Submódulo 12.3*). www.ons.org.br/procedimentos/index.aspx.

protocols and systems simultaneously, performing the collection, transport and availability of measurement data. The ZFA has a database and a communication server, integrated with the meters used in the monitoring plan.

The generation data are stored, and the system allows the reporting within the daily, weekly, monthly or yearly periodicity, according to user request. The query to the server can be made online by CPFL and CCEE, which accesses in the real-time the gross and the net electricity generation by the seven units of the project activity. The monitoring routine is already a common practice for the project proponent, since CPFL has other projects in operation inside the Clean Development Mechanism – CDM. Thus, the project proponent has an internal procedure named *GED 11193 - Crédito Carbono – Arquivamento de Documentos para o CDM*[33] that sets the criteria for the storage of data related to CDM project activities.

The operational and management structure that the project operator will implement in order to monitor emission reductions achieved by the project activity is given in the flowchart below:

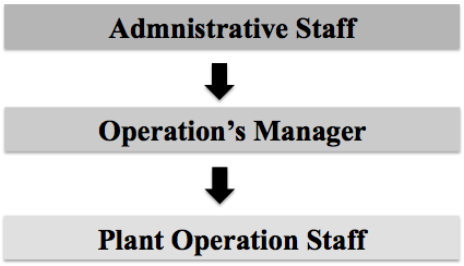

Figure 3. Operational and management structure that the project operator will implement in order to monitor emission reductions achieved by the project activity.

The roles and responsibilities within the structure outlined in are described in detail in the paragraphs below.

Administrative Staff: Responsible for go along with the auditor during the verification visit and provide all necessary documents related to the records of the net electricity supply to the grid. If applicable, at the time of verification by DOE, the Administrative Staff will provide access to the records of CCEE databank in order to demonstrate that electricity generation data is consistent and accurate. The Administrative Staff will forward all electronic media-based information to the CDM Consultancy Company at a minimum bimonthly frequency.

Operation`s Manager: Responsible for the general supervision of the COG (*Centro de Operação da Geração*) and for the record keeping and indexing of the data pertaining to the net electricity supply to the grid. Its attributions also include ensuring that the monitored data pertaining to the net electricity generation is continuously sent (online) to the Electric Energy Commercialization Chamber (CCEE – Câmara de Comercialização de Energia Elétrica).

Plant Operation Staff**:** Responsible for the general supervision of the plant operation and for the supervision of the metering. Its attributions also include ensuring that meters included in the present monitoring plan are calibrated and undergo maintenance as per the applicable

[33] The document *GED 11193 - Crédito Carbono – Arquivamento de Documentos para o CDM* has been provided to DOE.

regulations and manufactures' recommendations. Any meter calibration procedures will be reported to the Administrative Staff.

Training procedures

In order to ensure accuracy of the monitored data and to guarantee the quality of the monitoring plan, the Administrative Staff will receive training on monitoring methodologies, procedures and archiving by KeyAssociados Ltda. Then, the CDM Manager will train the project staff in charge of the CDM monitoring. The training course covers: initial training on CDM, monitoring methodology, monitoring procedures and requirements and archiving.

4. Compilation of Monitoring Reports

As previously mentioned, monitored data will be forwarded to the CDM Consultancy Company (**Key Consultoria e Treinamento Ltda.**) at a minimum bimonthly basis. Besides being responsible for collecting the information pertaining to the calculation of the grid emission factor ($EF_{grid,OM,y}$ and $EF_{grid,BM,y}$), the CDM Consultancy Company will compile monitoring reports and will be responsible for the calculation of the emission reductions achieved by the project activity.

B.8. Date of completion of the application of the baseline study and monitoring methodology and the name of the responsible person(s)/entity(ies):

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Date of completion of the application of the baseline and monitoring methodology: 03/11/2010.

Responsible person:
Mr. Breno Rates;
Mr Carlos Henrique Delpupo;
Mr. Carlos Shiguematsu Junior;
Miss. Laura Araujo Alves;
Miss. Luísa Guimarães Krettli;
Mr. Matheus Alves de Brito;
Mr. Rui Dolabella Pereira.

Key Consultoria e Treinamento Ltda. (Project Participant)
Av. Av. Paulista, 37
10º andar – Bela Vista
01311-902- São Paulo - SP
Tel: +55 (11) 3372-9572
E-mail: cdelpupo@keyassociados.com.br
URL: http://www.keyassociados.com.br

SECTION C. Duration of the project activity / crediting period

C.1. Duration of the project activity:

C.1.1. Starting date of the project activity:

>>
14/12/2009

The date indicated above corresponds to that of the 2nd Brazilian Auction of Reserve Energy (*2º Leilão de Energia de Reserva - Leilão nº 003/2009 - LER-2009*[34]), in which the seven electricity generation facilities Santa Clara I, II, III, IV, V, VI and Eurus VI had its energy contracted and its contract for the supply of equipment and services validated. For the present project activity this is the earliest of the date(s) on which the implementation or construction or real action has begun.

C.1.2. Expected operational lifetime of the project activity:

>>
20 years and zero months[12].

C.2. Choice of the crediting period and related information:

C.2.1. Renewable crediting period:

C.2.1.1. Starting date of the first crediting period:

>>
Not Applicable

C.2.1.2. Length of the first crediting period:

>>
Not Applicable

C.2.2. Fixed crediting period:

C.2.2.1. Starting date:

>>
01/07/2012 or the registry date of the project activity at the CDM-UNFCCC, whichever is later.

C.2.2.2. Length:

>>
10 years and zero months.

[34] 2nd Brazilian Auction of Reserve Energy (*2º Leilão de Energia de Reserva - Leilão nº 003/2009 - LER-2009*) - http://www.ccee.org.br/cceeinterdsm/v/index.jsp?vgnextoid=ec41d74d98114210VgnVCM1000005e01010aRCRD - Accessed in 13/07/2010

SECTION D. Environmental impacts

D.1. Documentation on the analysis of the environmental impacts, including transboundary impacts:

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The main objective of Environmental Licensing in Brazil is to standardize environmental impacts assessments and establish control plans for polluting enterprises. The state level environmental agencies are the authority in charge to issue Environmental Permits. In Rio Grande do Norte, the Institute of Sustainable Development and Environment of Rio Grande do Norte (*Instituto de Desenvolvimento Sustentável e Meio Ambiente do Rio Grande do Norte* - IDEMA) is responsible for environmental licensing.

According to the Federal Resolution CONAMA 001/86, activities that utilize natural resources and that are considered as entrepreneurships with high degradation or pollution potential must have their environmental impact assessment and environmental impact report elaborated to obtain the environmental licenses. Electricity generation, independently of the energy source, with potential higher than 10 MW, is amongst these activities.

Therefore the project activity Simplified Environmental Report (*Relatório Ambiental Simplificado* – RAS) [35], that describes environmental impacts caused by project implementation and operation, was submitted to IDEMA, in order to obtain its Previous License (*Licença Prévia* - LP). IDEMA emitted the Previous Licenses for the seven electricity generation facilities establishing the basic requirements to the next phases of licensing. By the meeting of requirements set out in the Previous License, IDEMA has already emitted the Installation Licenses (*Licença de Instalação* - LI) for six electricity generation facilities (Santa Clara I, II, IV, V, and VI) and a Simplified License (*Licença Simplificada* – LS) for wind farm Eurus VI, identified as:

- Santa Clara I – Installation License Nº 2010-038080/TEC/LI-0043, issued in 15/07/2010 and valid until 15/07/2014.
- Santa Clara II – Installation License Nº 2010-038078/TEC/LI-0041, issued in 15/07/2010 and valid until 15/07/2014.
- Santa Clara III – Installation License Nº 2010-038081/TEC/LI-0044, issued in 15/07/2010 and valid until 15/07/2014.
- Santa Clara IV – Installation License Nº 2010-038076/TEC/LI-0040, issued in 15/07/2010 and valid until 16/07/2014.
- Santa Clara V – Installation License Nº 2010-038074/TEC/LI-0039, issued in 15/07/2010 and valid until 15/07/2014.
- Santa Clara VI – Installation License Nº 2010-038079/TEC/LI-0042, issued in 15/07/2010 and valid until 15/07/2014.
- Eurus VI - Simplified License Nº 2010-038090/TEC/LS-0234, issued in 13/08/2010 and valid until 15/07/2012.

[35] **Simplified Environmental Report** (*Relatório Ambiental Simplificado* – RAS): assesses the environmental impacts of project activity and is required by IDEMA for the Previous License (LP) granting. Available for DOE during validation.

The Installations Licenses and Simplified License enumerated above are available for DOE during validation.

D.2. If environmental impacts are considered significant by the project participants or the host Party, please provide conclusions and all references to support documentation of an environmental impact assessment undertaken in accordance with the procedures as required by the host Party:

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The interventions on the physical environment by the project activity in its planning, implementation and operation phases were categorized and their associated environmental impacts were identified in the RAS, as summarized below.

The forecast to the area after installation and operation of the entrepreneurships is that the place will admit a productive activity, which will use natural resources without degrading the environment, once the production of effluents or residues during operation is practically zero. More, the transit of vehicles and people will be minimum, and the environmental changes arising from installation will be compensated or minimized through adoption of mitigation and environmental control measures, reducing the environmental adversities.

During the entrepreneurship installation, the adversities generated to the environment are more significant due to direct interventions in the environmental components, such as vegetation removal, material management, equipment and vehicles transit, which reflect in temporary changing of sonority, air quality and environmental discomfort.

The conclusive prognostic reports the following conclusions:

- The air quality will be kept at current standards level, emphasizing that in the electricity production through wind there is no generation of solid or gaseous effluents;
- The local sonority level may be affected by small changes arising from the emission of noise during operation. In terms of noise level, the emissions are minor or irrelevant, emphasizing that the noise level emitted by the equipment will stay around 45 to 50 dBs about 180 meters from the source. These indexes must be evidenced though monitoring to be done during operation;
- There is no forecast that the entrepreneurships actions will generate changes in underground water resources quality;
- Regarding fauna, the interference in terrestrial species behavior will have a derisive degree, once the area to be cleared occupies a minimum percentage of the land. Regarding winged animals, the turbines may be on the way of some species routes, but accidents of such nature are usually scarce. Therefore, significant accidents with winged animals are unlikely.

Actions to prevent, mitigate or compensate environmental impacts were proposed in the documents. As described in the RAS, there are no significant negative impacts related to the project activity and most of them have low magnitude and short duration, as follows.

The analysis of predictable environmental impacts by the entrepreneurship over the environmental parameters found 189 (100%) identified or predictable impacts for the influence area, with 108 (57.14%) of benefic character and 81 (42.86%) of adverse character. The adverse impacts are identified mainly during implantation phase and will act specially over the physical

environment of the direct influence area. About the adverse effects potential, the impacts of low magnitude and short duration are emphasized.

The positive effects are identified mainly over the socioeconomic environment, with emphasis on greater offer of occupation/income, commerce growth, greater tax collection, landscape recovery and electricity production, effect which shall work as a multiplying agent of economic and social growth in the area of functional influence.

Therefore the RAS concludes that the project is well conceived in technical, economic and environmental terms, meeting all legal constraints to its installation, with feasible implantation and operation.

In the Previous License - LP (*Licença Prévia*), IDEMA imposed some requirements to minimize or eliminate the impacts. By the meeting of requirements set out in the Previous License, IDEMA has emitted the Installation Licenses (*Licença de Instalação* - LI) for six electricity generation facilities (Santa Clara I, II, IV, V, and VI) and a Simplified License (*Licença Simplificada* – LS) for wind farm Eurus VI, also imposing some requirements for the subsequent Operating License (*Licença de Operação* – LO) granting.

The project developer is working in order to meet all requirements set out in Installation License and Simplified License.

SECTION E. Stakeholders' comments

E.1. Brief description how comments by local stakeholders have been invited and compiled:

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Stakeholders' comments were invited in 28/07/2010 following the Designated National Authority procedures for such purpose, defined by Resolution number 07 of the Interministerial Comission for Global Climate Change (CIMGC).

Accordingly, the relevant stakeholders were mapped and invited to visit the website http://www.munduscarbo.com/projetos.htm in order to access the project documentation which includes the CDM-PDD and a correspondent version in Portuguese. This documentation will be accessible on the above mentioned website along the whole registration period.

The following stakeholders received letters communicating the CDM project activity:

- Mayor from project activity Municipality;
- Representatives of the Legislative Chambers from project activity Municipality;
- Local Environmental NGOs;
- State and local environmental agencies;
- Brazilian Forum of NGOs and Social Movements for the Environment and Development (FBOMS);
- National NGOs which objectives are related to the project activity;

- National and international environmental NGOs;
- State and Federal Prosecutors.

E.2. Summary of the comments received:

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So far, amongst the consulted parties only the Federal Prosecution has manifested itself. According to this entity, despite of the project relevance, the Federal Prosecution is forbidden to play consultancy activities, i.e. the entity can not analyses the project.

E.3. Report on how due account was taken of any comments received:

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The Federal Prosecution communication does not include any comment related to the project activity. Thus, it did not imply in any PDD modification.

Annex 1

CONTACT INFORMATION ON PARTICIPANTS IN THE PROJECT ACTIVITY

Organization:	CPFL Geração de Energia S/A
Street/P.O.Box:	Rodovia Campinas Mogi Mirim Km 2.5
Building:	-
City:	Campinas
State/Region:	São Paulo
Postcode/ZIP:	13088-900
Country:	Brazil
Telephone:	+55 19 3756-8318
FAX:	+55 19 3756-8408
E-Mail:	rnsirol@cpfl.com.br
URL:	-
Represented by:	Rodolfo Nardez Sirol
Title:	-
Salutation:	Mr.
Last name:	Sirol
Middle name:	Nardez
First name:	Rodolfo
Department:	-
Mobile:	-
Direct FAX:	+55 19 3756-8318
Direct tel:	+55 19 3756-8408
Personal e-mail:	-

Organization:	Key Consultoria e Treinamento Ltda.
Street/P.O.Box:	Av. Paulista, 37 – 10º andar
Building:	-
City:	São Paulo
State/Region:	SP
Postfix/ZIP:	01311 902
Country:	Brazil
Telephone:	55 11 3372 9595
FAX:	55 11 3372 9577
E-Mail:	contato@keyassociados.com.br
URL:	www.keyassociados.com.br
Represented by:	Carlos Henrique Delpupo
Title:	Technical Director
Salutation:	Mr.
Last Name:	Delpupo
Midle Name:	Henrique
First Name::	Carlos
Departament:	-
Mobile:	-
Direct FAX:	-
Direct tel.:	55 11 3372 9595
Personal E-Mail:	cdelpupo@keyassociados.com.br

Annex 2

INFORMATION REGARDING PUBLIC FUNDING

Not-Applicable. No public funding was granted to the project activity.

Annex 3

BASELINE INFORMATION

All pertinent information is provided throughout the text.

Annex 4

MONITORING INFORMATION

All pertinent information is provided throughout the text.

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