SANTOS ENERGIA WIND POWER COMPLEX: SANTO ANTÔNIO DE PÁDUA, SÃO CRISTÓVÃO AND SÃO JORGE

SANTOS ENERGIA PARTICIPAÇÕES S.A.

&

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Table of Contents

A. PROJECT OVERVIEW 1
A1. PROJECT TITLE 2
A2. PROJECT TYPE 2
A3. PROOF OF PROJECT ELIGIBILITY 2
A4. LOCATION 3
A.5. BRIEF SUMMARY OF PROJECT 7
A6. PROJECT ACTION 9
A7. *EX ANTE* OFFSET PROJECTION 11
A8. PARTIES 11
B. METHODOLOGY 13
B1. APPROVED METHODOLOGY 14
B2. METHODOLOGY JUSTIFICATION 14
B3. PROJECT BOUNDARIES 14
B4. IDENTIFICATION OF GHG SOURCES AND SINKS 15
B5. BASELINE 15
B6. PROJECT SCENARIO 16
B7. REDUCTIONS AND ENHANCED REMOVALS 16
B8. PERMANENCE 16
C. ADDITIONALITY 17
C1. REGULATORY SURPLUS TEST 18
C2. COMMON PRACTICE TEST 18
C3. IMPLEMENTATION BARRIERS TEST 33
D. MONITORING PLAN 45
D1. MONITORED DATA AND PARAMETERS 46
E. QUANTIFICATION 49
E1. BASELINE 50
E2. PROJECT SCENARIO 52
E3. LEAKAGE 52

E4. UNCERTAINTY 53
E5. REDUCTIONS AND REMOVAL ENHANCEMENTS 53
E6. EX-ANTE ESTIMATION METHODS 54
F. COMMUNITY & ENVIRONMENTAL IMPACTS 55
F1. NET POSITIVE IMPACTS 56
F2. STAKEHOLDER COMMENTS 62
G. OWNERSHIP AND TITLE 63
G1. PROOF OF TITLE 64
G2. CHAIN OF CUSTODY 66
G3. PRIOR APPLICATION 66
H. PROJECT TIMELINE 67
H1. START DATE 68
H2. PROJECT TIMELINE 68
ANNEX I 69
ANNEX II 71
ANNEX III 72
ANNEX IV 73

A.
PROJECT OVERVIEW

A1. PROJECT TITLE

"Santos Energia Wind Power Complex: Santo Antônio de Pádua, São Cristóvão and São Jorge".

A2. PROJECT TYPE

Renewable energy generation connected to the GRID. According to CDM's[1] category of project activity: Sectoral Scope 1 – Energy Industries (Renewable Source).

A3. PROOF OF PROJECT ELIGIBILITY

Proof of project eligibility is presented in Table A.1, according to ACR Standard v.3.0, Chapter 3.

Table A.1: *Santos Energia Wind Power Complex: Santo Antônio de Pádua, São Cristóvão and São Jorge Project proof of eligibility.*

CRITERION	ACR REQUIREMENT	PROJECT'S PROOF OF ELIGIBILITY
Start Date	Non-AFOLU projects with a Start Date of 01 January 2000, or later are eligible for registration. Projects whose Start Date is more than two years prior to the date of listing must provide documentation that GHG mitigation was an objective as of the Start Date.	The project start date is November 11, 2014. See attached info on Annex III.
Crediting Period	The Crediting Period for non-AFOLU projects shall be seven (7) years, unless otherwise specified in the relevant ACR sector standard or approved methodology.	The crediting period for this project is seven (7) years, with possibility for renewal.
Real	GHG reductions and removals shall exist prior to issuance.	All emissions from the project are being claimed ex-post.
Direct Emissions	Project Proponent shall own, have control, or document effective control over the GHG sources/sinks from which the emissions reductions or removals originate. If the Project Proponent does not own or control the GHG sources or sinks, the Proponent shall document that effective control exists over the GHG sources and/or sinks from which the reductions/removals originate.	The project does not result in direct emissions. All GHG emissions reductions are indirect and within project boundary. Santos Energia controls the emissions related to the wind power plants. Grid-related emissions are within the National Electric System, responsibility of the Brazilian Government.
Offset Title	Project Proponent shall provide documentation and attestation of undisputed title to all offsets prior to registration, including chain of custody documentation if offsets have ever been sold in the past.	All necessary documentation is presented on Section G of this document.
Land Title	Proponent should provide documentation and/or attestation of land title.	All necessary documentation is presented on Section G of this document.

[1] CDM – Clean Development Mechanism.

Additional	Every project shall use either an ACR-approved performance standard and pass a regulatory surplus test, or pass a three-pronged test of additionality in which the project must: 1) exceed regulatory/legal requirements; 2) go beyond common practice; and 3) overcome at least one of three implementation barriers: institutional, financial or technical.	Project's additionality is demonstrated in Section C, according to ACR's three-pronged test.
Project Baseline Scenario	Project Proponents shall use appropriate methodologies and tools to estimate and update project baselines.	Approved CDM methodology ACM0002, v.15.0 (EB 79) was used, as presented in Section B.
Permanent	For projects with a risk of reversal of GHG emission reductions/removals, Project Proponents shall assess risk using an ACR-approved risk assessment tool.	Avoided GHG emissions from this project are permanent and cannot be reversed once they have occurred, due to the nature of the project.
Net of Leakage	Project Proponents must deduct leakage that significantly reduces the GHG emissions reduction and/or removal benefit of a project.	According to CDM methodology ACM0002, v.15.0, EB 79, leakage must not be considered, as presented in Section E.
Independently Validated and Verified	ACR requires third-party validation and verification, by an ACR-approved verifier, at specified intervals in order to issue new ERTs.	The project will be submitted to third-party (validation and verification after ACR first screening). The third-party is Ruby Canyon Engineering.
Community & Environmental Impacts	Project Proponents shall document in the GHG Project Plan a mitigation plan for any foreseen negative community or environmental impacts, and shall disclose in their Annual Attestations any negative environmental or community impacts or claims of negative environmental and community impacts.	Project's community and environmental impacts are net positive, as presented in Section F.

A4. LOCATION

The Santos Energia Wind Power Complex (from this point, "The Project") is composed of three *Wind* Power Plants (from now on, WPP): *Santo Antônio de Pádua* (SAP), *São Cristóvão* (SC) and *São Jorge* (SJ). All Plants are located in Trairí City, Ceará State, Brazil.

Trairí city is located in Ceará State with 50,638 habitants according to the Brazilian Institute of Geography and Statistics – IBGE in 2010[2]. Trairí municipality area[3] corresponds to 926 km^2 and the Human

[2] IBGE – Instituto Brasileiro de Geografia e Estatística. The 2010 Census Collection. Available in: http://www.ibge.gov.br/home/estatistica/populacao/censo2010/resultados_dou/CE2010.pdf . Accessed in: August 11, 2011.

[3] IBGE – Instituto Brasileiro de Geografia e Estatística. Official Territorial Area. Available in: http://www.ibge.gov.br/home/geociencias/areaterritorial/area.php?nome=Trairi&codigo=&submit.x=25&submit.y=14 . Accessed in: August 11, 2011.

Development Index is 0.632 according to the Human Development Report (PNUD, 2000)[4]. The location of Trairí city is represented in and Figure A.1.

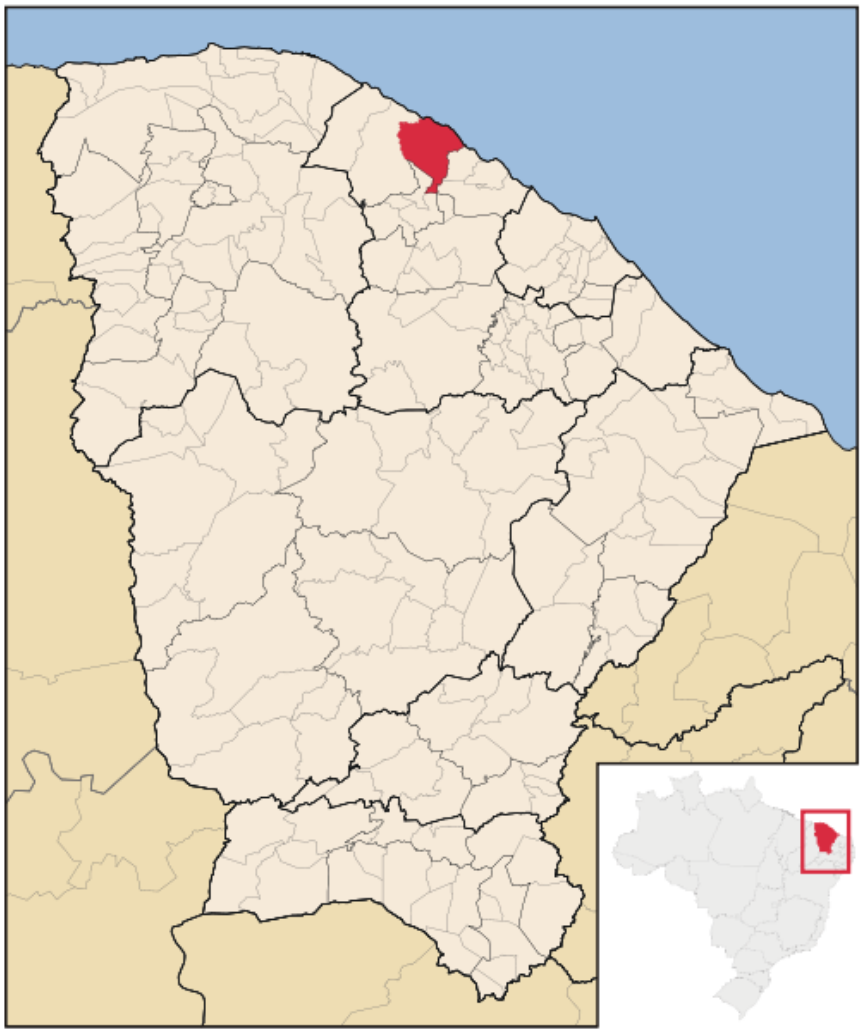

Figure A.1: *Project Location. Ceará State highlighted in Brazil.*

The geographic coordinates of each site, according to ANEEL Data Sheets, are presented in the Table A.2. The geographic coordinates and the location of each wind turbine are presented are Table A.3 and Figure A.2, respectively.

[4] PNUD – Programa das Nações Unidas para o Desenvolvimento (UNDP – United Nations Development Programme). Available in: http://www.pnud.org.br/atlas/ranking/IDHM%2091%2000%20Ranking%20decrescente%20(pelos%20dados%20de%202000).htm Accessed in: August 11, 2011.

Table A.2: *Project's geographic UTM coordinates, zone 24 S. Datum: SIRGAS 2000.*

GEOGRAPHIC COORDINATES	SANTO ANTÔNIO DE PÁDUA[5]	SÃO CRISTÓVÃO[6]	SÃO JORGE[7]
E (m)	475,044	472,500	472,200
N (m)	9,638,200	9,639,900	9,641,100

Table A.3: *Individual geographic UTM coordinates for each wind turbine*, zone 24 S. Datum: SIRGAS 2000.

WIND TURBINE	GEOGRAPHIC COORDINATES	SANTO ANTÔNIO DE PÁDUA WPP	SÃO CRISTÓVÃO WPP	SÃO JORGE WPP
1	E (m)	474,970	472,410	473,759
	N (m)	9,638,449	9,639,632	9,641,186
2	E (m)	475,094	472,440	471,439
	N (m)	9,637,599	9,639,184	9,641,851
3	E (m)	474,901	472,301	473,072
	N (m)	9,637,462	9,639,878	9,641,222
4	E (m)	474,926	472,968	471,389
	N (m)	9,637,839	9,639,377	9,641,435
5	E (m)	475,017	472,401	472,267
	N (m)	9,638,051	9,640,343	9,641,166
6	E (m)	474,964	473,211	472,214
	N (m)	9,638,251	9,640,078	9,640,753
7	E (m)	474,991	472,365	471,311
	N (m)	9,638,668	9,640,556	9,640,994
8	E (m)	-	471,494	471,539
	N (m)	-	9,640,066	9,641,641
9	E (m)	-	471,165	472,267
	N (m)	-	9,639,666	9,641,395
10	E (m)	-	471,292	471,229
	N (m)	-	9,639,872	9,640,777
11	E (m)	-	472,313	472,249
	N (m)	-	9,640,130	9,640,959
12	E (m)	-	473,175	471,384
	N (m)	-	9,639,872	9,641,208
13	E (m)	-	472,536	-
	N (m)	-	9,639,389	-

[5] *Santo Antônio de Pádua* geographic coordinates are described in ANEEL Technical Data Sheet. The document is available for consultation at the evidence list under the name *Ficha Técnica – Outorga Atualizada - SAP.*

[6] *São Cristóvão* geographic coordinates are described in ANEEL Technical Data Sheet. The document is available for consultation at the evidence list under the name *Ficha Técnica – Outorga Atualizada - SC.*

[7] *São Jorge* geographic coordinates are described in ANEEL Technical Data Sheet. The document is available for consultation at the evidence list under the name *Ficha Técnica – Outorga Atualizada - SJ.*

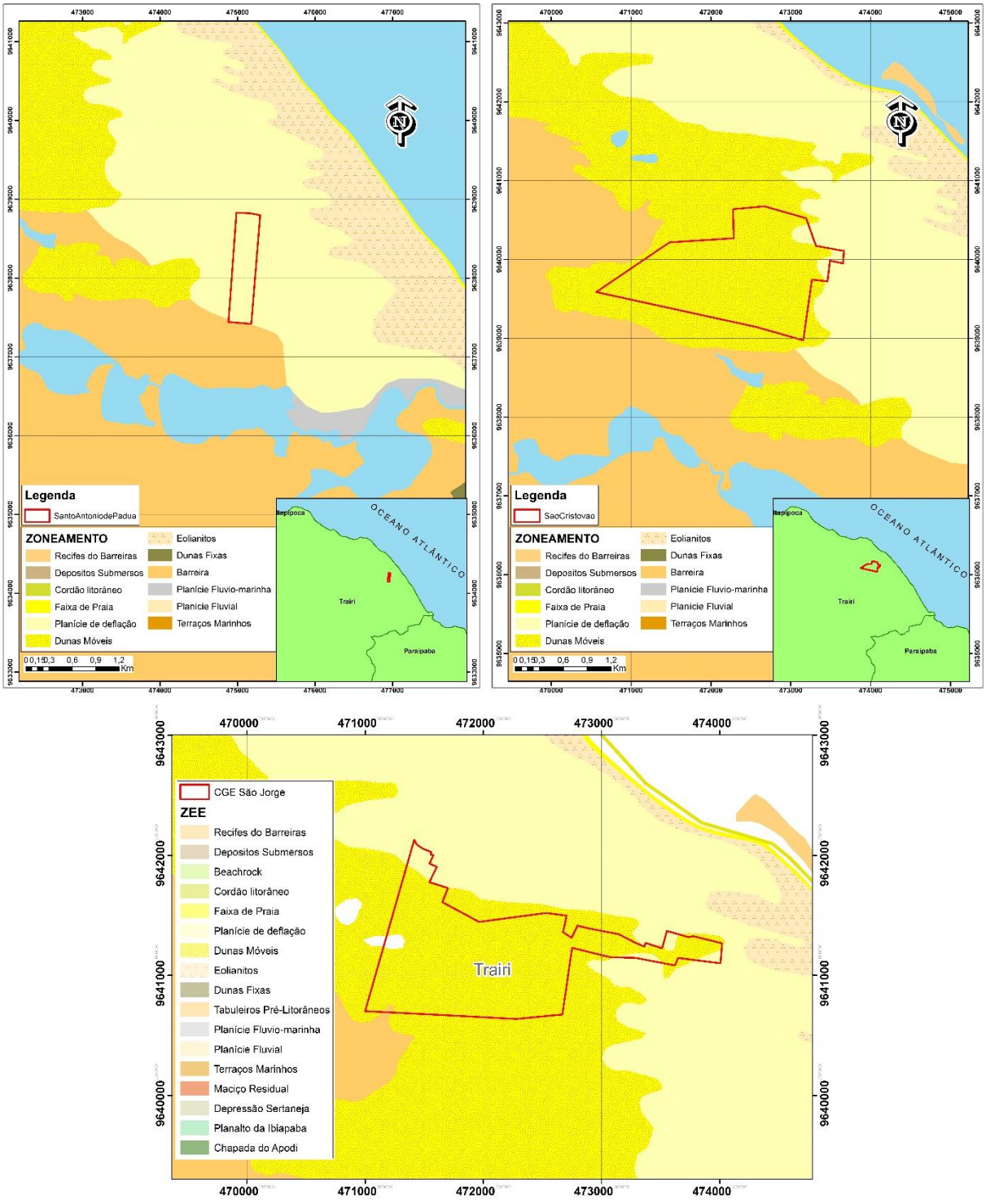

Figure A.2: *Santo Antônio de Pádua, São Cristóvão and São Jorge Wind Power Plants Locations.*

A.5. BRIEF SUMMARY OF PROJECT

Background information

The primary objective of the Wind Power Plants considered in this Green House Gas (GHG) Project Activity is to help meet Brazil's rising demand for energy due to economic growth and to improve the supply of electricity. At the same time, it intends to contribute to the environmental, social and economic scenarios, by increasing the share of renewable energy consumption for Brazil (and for the region of Latin America and the Caribbean).

The Latin America and the Caribbean region countries have expressed their commitment towards achieving a target of 10% renewable energy for the total energy use in the region. Through an initiative from the Ministers of the Environment in 2002 (UNEP-LAC, 2002)[8], a preliminary meeting of the World Summit for Sustainable Development (WSSD) was held in Johannesburg in 2002. In the WSSD final Plan of Implementation no specific targets or timeframes were stated, however, their importance was recognized to achieve sustainability in accordance with the Millennium Development Goals[9].

The privatization process initiated in 1995 arrived in conjunction with the expectation of adequate tariffs (fewer subsidies) and more attractive prices for generators. It drew the attention of investors to possible alternatives not available in the centrally planned electricity market. Unfortunately, the Brazilian energy market lacked a consistent expansion plan, with the biggest problems being political and regulatory uncertainties. At the end of the 1990's a strong increase in demand in contrast with a less-than-average increase in installed capacity caused the supply crisis/rationing from 2001/2002. One of the solutions the Government provided was flexible legislation favoring smaller independent energy producers. In addition, the possibility of being assisted by the Clean Development Mechanism of the Kyoto Protocol also drew the attention of investors regarding renewable energy projects.

In this context, the proposed project activity can be seen as another opportunity of energy supply, in order to avoid a situation similar to what happened in 2001, as well as a contribution to the Brazilian goals in sustainable development. This indigenous and cleaner source of electricity will also have an important contribution to environmental sustainability through the reduction of carbon dioxide (CO^2) emissions. The project activity reduces GHG emissions by avoiding electricity generation from fossil fuel sources, which would be generated (and emitted) in the absence of the project.

[8] **UNEP-LAC (2002).** Final Report of the 7th Meeting of the Inter-Sessional Committee of the Forum of Ministers of Environment of Latin America and the Caribbean. United Nations Environment Programme, Regional Office for Latin America and the Caribbean. May 15 to 17, 2002, São Paulo (Brazil).

[9] WSSD Plan of Implementation, Paragraph 19 (e): *"Diversify energy supply by developing advanced, cleaner, more efficient and cost-effective energy technologies, including fossil fuel technologies and renewable energy technologies, hydro included, and their transfer to developing countries on concessional terms as mutually agreed. With a sense of urgency, substantially increases the global share of renewable energy sources. The goal is to increase its contribution to total energy supply, recognizing the role of national and voluntary regional targets, as well as initiatives, where they exist, and ensuring that energy policies are supportive to developing the countries' efforts to eradicate poverty and regularly evaluate available data to review progress to this end."*

Santos Energia & Embrasca / Santo Antônio de Pádua, São Cristóvão and São Jorge Wind Power

Project brief description

The proposed project activity consists of three wind power plants: *Santo Antônio de Pádua, São Cristovão and São Jorge*, with 14.0 MW, 26.0 MW and 24.0 MW of installed capacity, respectively. All projects will be located in Trairí, Ceará State, in the Northeast region of Brazil.

The Project's WPP are owned by three Specific Purpose Societies (from Portuguese, *Sociedades de Propósito Específico - SPE*):

- *Central Geradora Eólica Santo Antônio de Pádua S.A.* (WPP Santo Antônio de Pádua);
- *Central Eólica São Cristóvão S.A.* (WPP São Cristóvão);
- *Central Eólica São Jorge S.A.* (WPP São Jorge);

Santos Energia Participações S.A. controls the SPEs.

The project contributes to sustainable development since it meets present needs without compromising the ability of future generations to meet their own needs, as defined by the Brundtland Commission (1987)[10]. In other words, the implementation of wind power plants ensures renewable energy generation, reduces the demand on the national electric system, avoids negative social and environmental impacts caused by fossil fuel fired thermo power plants, and drives regional economies, increasing the quality of life in local communities.

In summary, the proposed project activity already contributes to the sustainable development in the following aspects:

- ❖ Reducing air pollutants that are emitted from fossil fuel electricity generation from power plants connected to the Brazilian grid (specifically CO_2).
- ❖ Creating job opportunities during the project construction, operation and maintenance, improving capacity related to wind farms in Brazil, through advanced technology transferred from developed countries;
- ❖ Efficiently generating electricity, for which there is a growing demand in the country;
- ❖ Contributing towards national economic development, adding an Independent Power Producer, leading to energy diversification and creation of additional renewable energy sources.

From the above, it can be concluded that the project has reduced environmental impacts and is helping to develop the regional economy, resulting in better quality of life. In other words, environmental sustainability combined with social and economic justice, undeniably contributing to the host country's sustainable development.

[10] **WCED (1987).** Our Common Future. The World Commission on Environment and Development. Oxford University Press.

A6. PROJECT ACTION

The Project activity consists of a Wind Energy Complex composed by three Wind Farms, with a total installed capacity of 64.0 MW. Wind power is the conversion of wind energy into a useful form of energy, such as using wind turbines to make electrical power, as it happens in the Project. Figure A.3 brings a simple demonstration of a WPP.

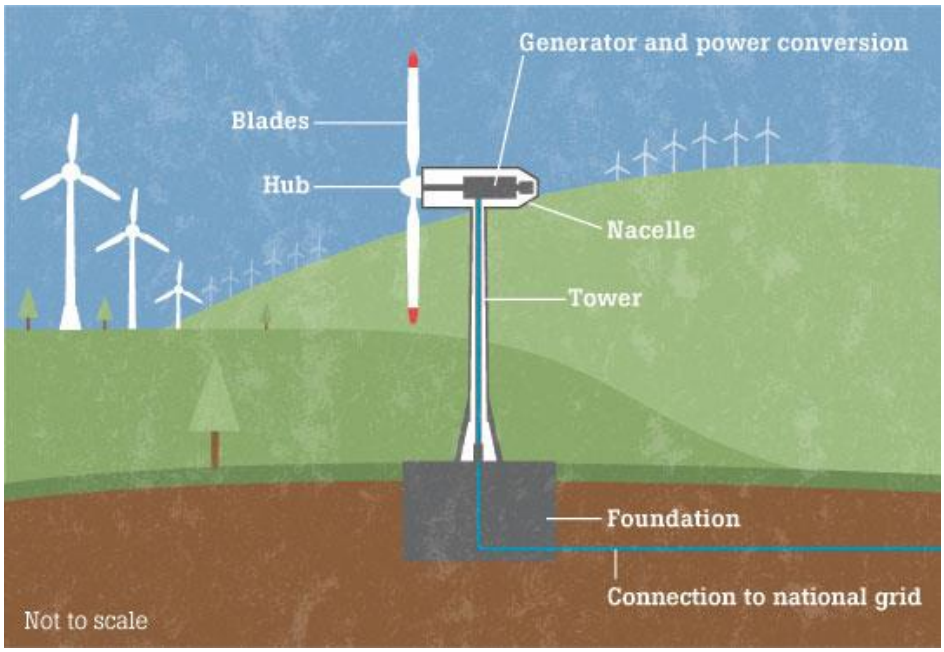

Figure A.3: *Wind power demonstration (not to scale scheme).*

Each of the three wind power plants is connected to an individual collecting net of 12 km of 34.5 kV which transmit the energy produced to an elevating substation, endowed with a 34.5 kV/230 kV electric transformer. This substation is interconnected to the grid through a transmission line of 230 kV to *Pecém II* substation from the local power utility (*CHESF - Companhia Hidroelétrica do São Francisco*). The transmission line has approximately 60 km of extension.

The equipment and technology utilized in the proposed project activity has been applied to similar projects all over the world. The technology implemented in the Project is listed on Table 5.

The chosen Project Start Date was the same date when the plants are starting to provide energy to the grid: November 11, 2014 [11].

[11] The starting date of projects is November 11, 2014, when the National Agency of the Brazilian Grid (ANEEL), has authorized the beginning of commercial operations for SAP, SC and SJ, according to three separate Ordinances: #4.374 – 12 MW for Santo Antônio de Pádua (Nov 10th 2014); # 9 – 2 MW for Santo Antônio de Pádua (Jan 5th 2015); # 4.375 – 26 MW for São Cristóvão (Nov 10th 2014); # 4.376 – 24 MW for São Jorge (Nov 10th 2014).

Table A.4: *Project technical description according to the ANEEL Technical Data Sheet [12].*

Wind Power Plant		***Santo Antônio de Pádua***	***São Cristóvão***	***São Jorge***
TURBINES				
General	Model	G97 – 2.0MW	G97 – 2.0MW	G97 – 2.0MW
	Quantity	7	13	12
	Nominal Power (MW)	2.0	2.0	2.0
	Installed Capacity (MW)	14.0	26.0	24.0
	Manufacturer	GAMESA	GAMESA	GAMESA
Rotor	Diameter (m)	97	97	97
	High (m)	78	78	78
	Area swept (m²)	7,390	7,390	7,390
	Nominal revolutions (rpm)	9.6 to 17.8	9.6 to 17.8	9.6 to 17.8
	Number of blades	3	3	3
Operational Data	Cut-in-wind speed (m/s)	3	3	3
	Cut-out-wind speed (m/s)	25	25	25
	Rated wind speed (m/s)	12	12	12
GENERATORS				
General	Nominal output (kW)	2,000	2,000	2,000
	Quantity	4	4	4
	Frequency (Hz)	50/60	50/60	50/60
	Voltage (V)	690	690	690

[12] The separate documents by plant are available for consultation (Ficha Técnica ANEEL).

A7. *EX ANTE* OFFSET PROJECTION

Estimated GHG reductions by year are presented in Table A.5.

Table A.5: *Ex-ante estimations of the Project's GHG Emission Reductions.*

YEAR	PROJECT ACTIVITY EMISSIONS (tCO_2e)	BASELINE EMISSIONS (tCO_2e)	LEAKAGE (tCO_2e)	OVERALL EMISSION REDUCTIONS (tCO_2e)
2014 (from Nov 11)	0	17380	0	17380
2015	0	124384	0	124384
2016	0	124384	0	124384
2017	0	124384	0	124384
2018	0	124384	0	124384
2019	0	124384	0	124384
2020	0	124384	0	124384
2021 (up to Nov 10)	0	107004	0	107004
Total (tCO_2e)	0	**870.686**	0	**870.686**
Annual (tCO_2e)	0	**124.384**	0	**124.384**

A8. PARTIES

Project Participants:

1) **SANTOS ENERGIA**

COMPANY:

Description: Santos Energia is the company responsible for the three WPP presented in this project.
Responsibilities: Each WPP included in the project is owned by one Specific Purpose Society, as already referred in Section A.5 of this document. All of them are controlled by Santos Energia Participações S.A., who has control over all project operation and monitoring information.
Contact information:
Contact: Marcelo Dal'Ava Mariano
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Phone: +55 85 3055-3650
E-mail: marcelo.mariano@santosenergia.com.br
Homepage: www.santosenergia.com.br

TEAM:

- Haroldo Maia – Financial Director
- Marcelo Mariano – Technical Director
- Engineers: Davi Girão, Leandro Brito and Adriano Furtado
- Alaide Bezerra - Financial Controller

2) EMBRASCA ENVIRONMENTAL CONSULTING

COMPANY:

Description: EMBRASCA is an environmental consulting company located in the Midwest of Brazil that has been specializing itself in the services business, which major themes are the implementation of social and environmental responsibility programs (directed to enterprises and other institutions), environmental monitoring (regarding activities with a great impact, such as construction) e environmental marketing, by guiding its clients into appropriate communications methods in the environmental scenario. Since 2002, Embrasca has chosen to work in a specialized way in the carbon market business, due to the imminent preoccupation associated with the climate change.

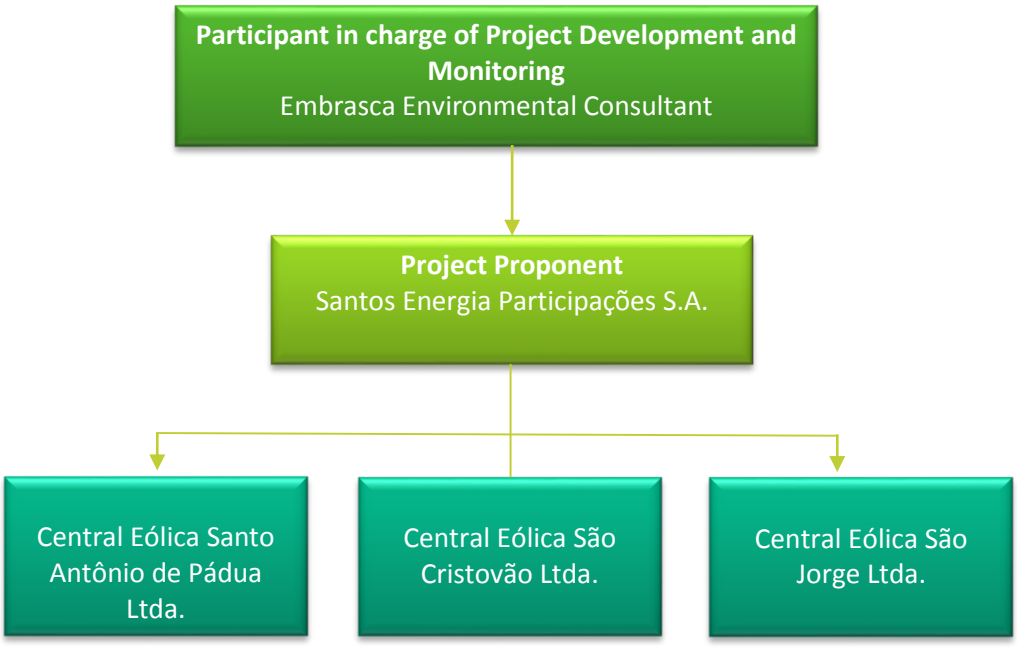
Responsibilities: EMBRASCA will cover all the GHG Project activities, from developing the GHG Project Plan and coordinating the steps to registration, validation, verification and certification, monitoring and communication with ACR staff.

Contact information:

EMBRASCA – Empresa Brasileira de Serviços e Consultoria Ambiental Ltda.
Contact: Mr. Ricardo Fernandes – Director-Partner
Address: Rua Córdoba, Qd. 251, Lt. 03, n.20 – Parque Amazônia, CEP: 74835-030, Goiânia, GO, Brasil.
Phone: +55 62 3097 7433
E-mail: ricardo@embrasca.com.br
Homepage: www.embrasca.com.br

TEAM:

- Elisa da Costa Guida: Project Coordinator (Technical Responsibility Annotation attached – ANNEX IV).
- Ricardo César Fernandes: Project Manager
- Franco Grassi: Financial Director
- Assistant: Pedro Paulo Fernandes da Silva



B.
METHODOLOGY

B1. APPROVED METHODOLOGY

According to ACR Standard v.3.0, ACR requires every project submitted for registration to use an ACR-published or ACR approved methodology. The ACR approved methodology used in this project is CDM **ACM0002, v.15.0 (EB 79): "Large-scale consolidated methodology: Grid-connected electricity generation from renewable sources"**.

The CDM approved methodology is supported by the also CDM tools:

- "Combined tool to identify the baseline scenario and demonstrate additionality", v.05.0.0;
- "Tool to calculate project or leakage CO2 emissions from fossil fuel combustion", v.02;
- "Tool to calculate the emission factor for an electricity system", v.04.0 and;
- "Tool for the demonstration and assessment of additionality", v.07.0.0.
- "Guidelines on Common Practice", v.02.0.
- "Guidelines on the assessment of investment analysis", v.05.

B2. METHODOLOGY JUSTIFICATION

The methodology is applicable to grid-connected renewable power generation project activities that: (a) install a greenfield power plant; (b) involve a capacity addition to (an) existing plant (s); (c) involve a retrofit of (an) existing plant(s); or (d) involve a rehabilitation of (an) existing plant(s)/unit(s); or (e) involve a replacement of (an) existing plants(s)/unit (s).
The proposed project activity comprises four Greenfield plants corresponding to option (a).

B3. PROJECT BOUNDARIES

According to CDM approved methodology ACM0002, v.15.0, the project boundary comprises "*the spatial extent of the project boundary includes the project power plant and all power plants connected physically to the electricity system that the CDM project power plant is connected to*."

On May, 26, 2008, the Brazilian Designated Authority published Resolution #8[13] defining the Brazilian Interconnected Grid as a single system covering all five geographical regions of the country (North, Northeast, South, Southeast and Midwest).
Figure B.1 presents the Project boundary.

[13] Comissão Interministerial de Mudança Global do Clima (CIMGC). Available at: <http://www.mct.gov.br/upd_blob/0024/24719.pdf>.

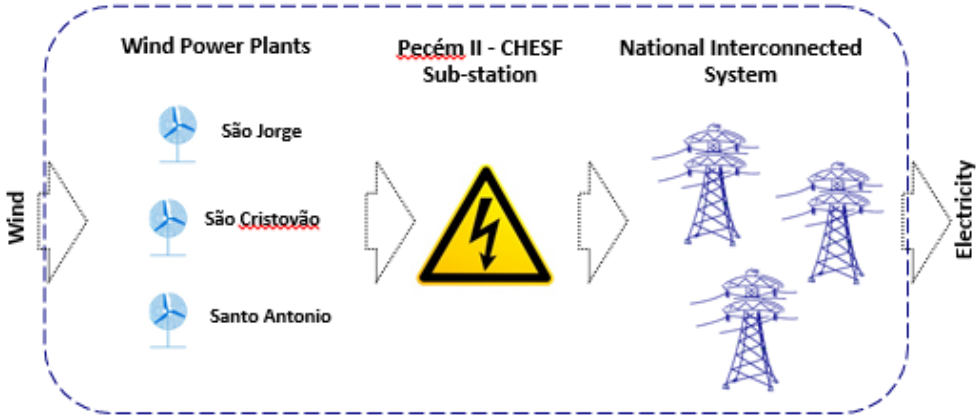


Figure B.1: *Project Boundary.*

B4. IDENTIFICATION OF GHG SOURCES AND SINKS

The GHG sources and sinks considered in the project boundary, according to CDM approved methodology ACM0002, v.15.0, are presented in Table B.1. **Wind power projects include only Baseline GHG sources, regarding CO_2 emissions. According to the methodology, project emissions are not considered for this project activity.**

Table B.1: *GHG sources and sinks considered in CDM methodology ACM0002, v.15.0.*

	SOURCE	GAS	INCLUDED	JUSTIFICATION/EXPLANATION
Baseline	CO_2 emissions from electricity generation in fossil fuel fired power plants that are displaced due to the project activity	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	Yes	Main emission source
		CH_4	Yes	Main emission source
		N_2O	No	Minor emission source
	CO_2 emissions from combustion of fossil fuels for electricity generation in solar thermal power plants and geothermal power plants	CO_2	Yes	Main emission source
		CH_4	No	Minor emission source
		N_2O	No	Minor emission source
	For hydro power plants, emissions of CH_4 from the reservoir	CO_2	No	Minor emission source
		CH_4	Yes	Main emission source
		N_2O	No	Minor emission source

B5. BASELINE

According to CDM approved methodology ACM0002, v.15.0, regarding the identification of the baseline scenario, if 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".

B6. PROJECT SCENARIO

The project scenario consists of the implementation of a Wind Energy Complex, composed of three Wind Farms, with 64.0 MW total installed capacity. The documented start date of the project is November 11, 2014.

Emissions related to the project, as per approved methodology ACM0002, v.15.0, for wind power plants, are not considered, even the ones related to fossil fuel consumption. Leakage emissions are not considered either. CO_2 is the only gas included in the project scenario and is related to baseline emissions.

B7. REDUCTIONS AND ENHANCED REMOVALS

At the baseline scenario, there would not be GHG reductions or removals from the atmosphere. The fossil fuel fired plants action would result in GHG emissions to the atmosphere.

The project reduces GHG emissions by avoiding those fossil fuels emissions with the implementation of three renewable energy power plants, based on wind power generation, with no emissions related to the project activity nor leakage.

In the seven-year crediting period, it is estimated 870,686 tCO_2e of total emissions reductions.

B8. PERMANENCE

The project offsets do not face any risk of reversal because the emissions reductions will occur at the electricity generation moment and cannot be reversed. For this reason, there is no need of applying a method of permanence assurance.

C.
ADDITIONALITY

ACR requires (ACR Standard, v.3.0) that every project should either pass an approved performance standard and a regulatory additionality test, or pass a three-pronged test to demonstrate that the Project Activity is: (i) beyond regulatory requirements; (ii) beyond common practice and; (iii) faces at least one of three implementation barriers (financial, technological or institutional). The three-pronged test option was chosen.

C1. REGULATORY SURPLUS TEST

The project is in accordance to the applicable Brazilians laws and regulations according the following entities:

- National Electric System Operator (ONS, from Portuguese, *Operador Nacional do Sistema Elétrico*);
- Electricity Regulatory Agency (ANEEL, from Portuguese, *Agência Nacional de Energia Elétrica*);
- Ceará State Environmental Agency (SEMACE, from the Portuguese, *Superintendência Estadual do Meio Ambiente)*;

It is important to clarify that the Brazilian Institutional New Model of the Electric Sector allows the private and public agents to decide the amount of energy to be hired and the investments to be realized from the participation in auctions of power plants and systems of transmission.

This way, it can be noticed that there are no restrictions in the applicable laws and regulations to the implantation of the alternative scenarios to the project activity. It is further noticeable that the Brazilian Institutional New Model of the Electric Sector provides autonomy to the economic agents about the investments to be realized in the Brazilian electric sector, not existing, therefore, restrictions nor impositions to the project activity.

- **TEST RESULT**: THE PROJECT ACTIVITY IS NOT MANDATORY BY ANY BRAZILIAN LEGISLATION AND, THEREFORE, THE CRITERION IS SATISFIED.

C2. COMMON PRACTICE TEST

Common practice analysis was carried out according to the following documents:

- ACR Standard v.3.0;
- CDM approved "Tool for the demonstration and assessment of additionality, v.7.0.0".

According to the latest version of ACR Standard (v.3.0), "*the common practice test requires the Project Proponent to evaluate the predominant technologies or practices in use in a particular industry, sector, and/or geographic region, as determined by the degree to which those technologies or practices have penetrated the market, and demonstrate that the proposed project activity is not common practice and will reduce GHG emissions below levels produced by common technologies or practices within a comparable environment (e.g. Geographic area, regulatory framework, investment climate, access to technology financing, etc.).*

The common practice test was carried out considering the CDM approved "Tool for the demonstration and assessment of additionality, v.7.0.0". The following definitions were determined:

- **Applicable geographical area:** Brazil has an extension of 8,514,876.599 square kilometers[14] (with over 4,000 km distance in the North-South as well as in the east-west axis) and 06 distinct climate regions: sub-tropical, semi-arid, equatorial, tropical, highland-tropical and Atlantic-tropical (humid tropical). These climatic variations obviously have a strong influence in the technical aspects related to the implementation of wind farms.
- **Measure:** Use of renewable energies – in this case, wind power.
- **Output:** service produced by the project activity: electricity.

[14] Available at: http://www.ibge.gov.br/home/geociencias/areaterritorial/principal.shtm.

The analysis was carried out according to STEP 4(b) of the mentioned CDM tool.

- *Provide an analysis to which extent similar activities to the proposed CDM project activity have been implemented previously or are currently underway. Similar activities are defined as activities (i.e. technologies or practices) that are of similar scale, take place in a comparable environment, inter alia, with respect to the regulatory framework and are undertaken in the applicable geographical area, as defined above. Other CDM project activities (registered project activities and project activities that have been published on the UNFCCC website for global stakeholder consultation as part of the validation process) are not to be included in this analysis. Provide documented evidence and, where relevant, quantitative information.* ***Based on that analysis, describe whether and to which extent similar activities have already diffused in the applicable geographical area.***

According to ANEEL[15], there are currently 238 wind power farms in operation, 122 under construction and 290 predicted (with licenses), but with construction not initiated. The 238 projects already in operation have an installed capacity of 5,139,489 MW, which represents 3.61% of the Brazilian electricity supply.

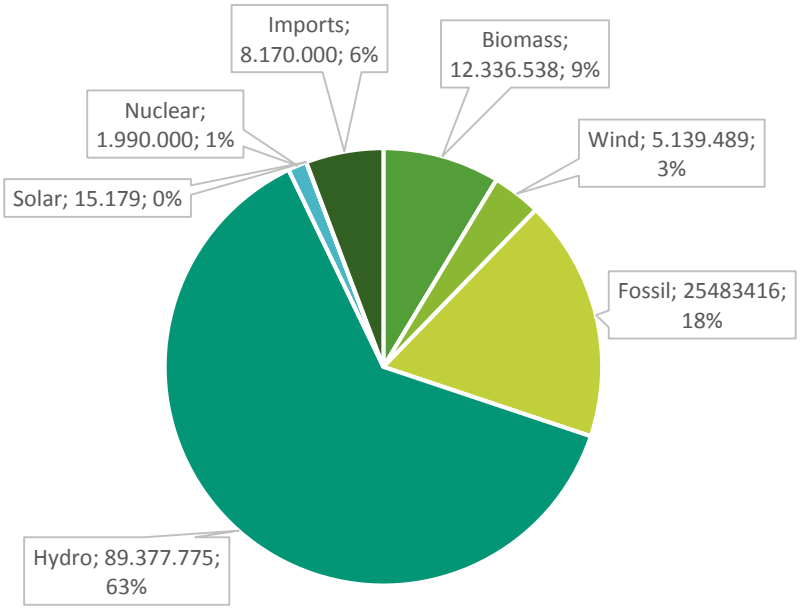


Figure C.1: *Brazilian sources of electricity supply – ANEEL[16]*

Since this database shows all projects in current days (2015), a first screening was carried out to consider only the projects which starting date was before November 11, 2014. Table C.1 presents all wind power plants that were implemented before the Project start date (205 projects, totaling 4,361.05 MW).

[15] Available at: http://www.aneel.gov.br/aplicacoes/capacidadebrasil/capacidadebrasil.cfm
[16] Available at: http://www.aneel.gov.br/aplicacoes/capacidadebrasil/OperacaoCapacidadeBrasil.cfm

PLANT	INSTALLED CAPACITY (MW)	SCALE	BRAZILIAN STATE	PROINFA	CDM	CDM METHODOLOGY	CDM STATUS	START DATE
EÓLICA DE PRAINHA	10.00	SMALL	CE					1999
EÓLICA DE TAÍBA	5.00	SMALL	CE					1999
EÓLIO - ELÉTRICA DE PALMAS	2.50	SMALL	PR					2000
PARQUE EÓLICO DE BEBERIBE	25.60	LARGE	CE	YES				2008
MUCURIPE	2.40	SMALL	CE	YES				2000
RN 15 - RIO DO FOGO	49.30	LARGE	RN	YES				2006
PRAIA DO MORGADO	28.80	LARGE	CE	YES				2010
VOLTA DO RIO	42.00	LARGE	CE	YES				2010
ALEGRIA II	100.65	LARGE	RN	YES				2011
ALEGRIA I	51.00	LARGE	RN	YES				2010
PIRAUÁ	4.95	SMALL	PE	YES				2010
EÓLICA DE BOM JARDIM	0.60	SMALL	SC					2002
FOZ DO RIO CHORÓ	25.20	LARGE	CE	YES				2009
PRAIA FORMOSA	105.00	LARGE	CE	YES				2009
EÓLICA CANOA QUEBRADA	10.50	SMALL	CE	YES				2008
LAGOA DO MATO	3.23	SMALL	CE	YES				2009
PARQUE EÓLICO DO HORIZONTE	4.80	SMALL	SC		YES	AMS.I.D	ISSUED	2004
EÓLICA ICARAIZINHO	54.60	LARGE	CE	YES				2009
PARQUE EÓLICO ELEBRÁS CIDREIRA 1	70.00	LARGE	RS	YES				2011
EÓLICA PRAIAS DE PARAJURU	28.80	LARGE	CE	YES				2009
GARGAÚ	28.05	LARGE	RJ	YES				2010
PEDRA DO SAL	18.00	LARGE	PI	YES				2008
PARQUE EÓLICO ENACEL	31.50	LARGE	CE	YES				2010
MACAU	1.80	SMALL	RN		YES	AMS.I.A	REGISTERED	2003
CANOA QUEBRADA	57.00	LARGE	CE	YES	YES	AMS.I.D	ISSUED	2010
EÓLICA ÁGUA DOCE	9.00	SMALL	SC	YES				2011
PARQUE EÓLICO DE OSÓRIO	50.00	LARGE	RS	YES	YES	ACM0002	ISSUED	2014
PARQUE EÓLICO SANGRADOURO	50.00	LARGE	RS	YES		ACM0002	ISSUED	2012

PLANT	INSTALLED CAPACITY (MW)	SCALE	BRAZILIAN STATE	PROINFA	CDM	CDM METHODOLOGY	CDM STATUS	START DATE
PARQUE EÓLICO DE PALMARES	9.20	SMALL	RS	YES				2014
TAÍBA ÁGUIA	23.10	LARGE	CE					2014
TAÍBA ALBATROZ	16.50	LARGE	CE	YES				2008
PARQUE EÓLICO DOS ÍNDIOS	50.00	LARGE	RS	YES	YES	ACM0002	ISSUED	2014
BONS VENTOS	50.00	LARGE	CE	YES				2010
XAVANTE	4.95	SMALL	PE	YES				2010
MANDACARU	4.95	SMALL	PE	YES				2010
SANTA MARIA	4.95	SMALL	PE	YES				2010
GRAVATÁ FRUITRADE	4.95	SMALL	PE	YES				2010
MILLENNIUM	10.20	SMALL	PB	YES				2007
PÚLPITO	30.00	LARGE	SC	YES				2011
AQUIBATÃ	30.00	LARGE	SC	YES				2011
SANTO ANTÔNIO	3.00	SMALL	SC	YES				2011
CASCATA	6.00	SMALL	SC	YES				2011
RIO DO OURO	30.00	LARGE	SC	YES				2011
SALTO	30.00	LARGE	SC	YES				2011
BOM JARDIM	30.00	LARGE	SC	YES				2011
CAMPO BELO	10.50	SMALL	SC	YES				2011
AMPARO	22.50	LARGE	SC	YES				2011
CRUZ ALTA	30.00	LARGE	SC	YES				2011
VITÓRIA	4.50	SMALL	PB	YES				2010
PRESIDENTE	4.80	SMALL	PB	YES				2009
CAMURIM	4.80	SMALL	PB	YES				2009
ALBATROZ	4.80	SMALL	PB	YES				2009
COELHOS I	4.80	SMALL	PB	YES				2009
COELHOS III	4.80	SMALL	PB	YES				2009
ATLÂNTICA	4.80	SMALL	PB	YES				2009
CARAVELA	4.80	SMALL	PB	YES				2009

PLANT	INSTALLED CAPACITY (MW)	SCALE	BRAZILIAN STATE	PROINFA	CDM	CDM METHODOLOGY	CDM STATUS	START DATE
COELHOS II	4.80	SMALL	PB	YES				2009
COELHOS IV	4.80	SMALL	PB	YES				2009
MATARACA	4.80	SMALL	PB	YES				2009
ALHANDRA	6.30	SMALL	PB	YES				2011
ARATUÁ I	14.40	SMALL	RN					2012
BURITI	30.00	LARGE	CE		YES	ACM0002	REGISTERED	2014
MANGUE SECO 3	26.00	LARGE	RN					2011
MACAÚBAS	35.07	LARGE	BA		YES	ACM0002	REGISTERED	2012
MANGUE SECO 2	26.00	LARGE	RN					2011
MANGUE SECO 1	26.00	LARGE	RN					2011
OSÓRIO 2	24.00	LARGE	RS		YES	ACM0002	REGISTERED	2012
PEDRA DO REINO	30.00	LARGE	BA		YES	ACM0002	REGISTERED	2013
ICARAÍ	16.80	LARGE	CE					2013
MANGUE SECO 5	26.00	LARGE	RN					2011
SANTA CLARA I	30.00	LARGE	RN					2014
SANTA CLARA III	30.00	LARGE	RN					2014
CAJUCOCO	30.00	LARGE	CE		YES	ACM0002	REGISTERED	2014
COLÔNIA	18.90	LARGE	CE					2014
BARRA DOS COQUEIROS	34.50	LARGE	CE					2012
DUNAS DE PARACURU	42.00	LARGE	CE		YES	ACM0002	REGISTERED	2012
MORRO DOS VENTOS VI	28.80	LARGE	RN		YES	ACM0002	REGISTERED	2014
MORRO DOS VENTOS I	28.80	LARGE	RN		YES	ACM0002	REGISTERED	2014
MORRO DOS VENTOS IX	30.00	LARGE	RN		YES	ACM0002	REGISTERED	2014
SANTA CLARA VI	30.00	LARGE	RN					2014
NOVO HORIZONTE	30.06	LARGE	BA		YES	ACM0002	REGISTERED	2012
SEABRA	30.06	LARGE	BA		YES	ACM0002	REGISTERED	2012
SANTA CLARA IV	30.00	LARGE	RN					2014
SANTA CLARA II	30.00	LARGE	RN					2014

PLANT	INSTALLED CAPACITY (MW)	SCALE	BRAZILIAN STATE	PROINFA	CDM	CDM METHODOLOGY	CDM STATUS	START DATE
FAÍSA V	29.40	LARGE	CE		YES	ACM0002	REGISTERED	2014
MORRO DOS VENTOS III	28.80	LARGE	RN		YES	ACM0002	REGISTERED	2014
MORRO DOS VENTOS IV	28.80	LARGE	RN		YES	ACM0002	REGISTERED	2014
SERRA DO SALTO	19.20	LARGE	BA					2014
ILHÉUS	11.20	SMALL	BA		YES	ACM0002	REGISTERED	2014
CANDIBA	9.60	SMALL	BA					2014
LICÍNIO DE ALMEIDA	24.00	LARGE	BA					2014
NOSSA SENHORA DA CONCEIÇÃO	28.80	LARGE	BA		YES	ACM0002	REGISTERED	2014
PAJEÚ DO VENTO	25.60	LARGE	BA		YES	ACM0002	REGISTERED	2014
ALVORADA	8.00	SMALL	BA					2014
IGAPORÃ	30.40	LARGE	BA		YES	ACM0002	REGISTERED	2014
PLANALTINA	27.20	LARGE	BA		YES	ACM0002	REGISTERED	2014
PORTO SEGURO	6.40	SMALL	BA		YES	ACM0002	REGISTERED	2014
PINDAÍ	24.00	LARGE	BA					2014
GUANAMBI	20.80	LARGE	BA					2014
FAÍSA IV	25.20	LARGE	CE		YES	ACM0002	REGISTERED	2014
SANGRADOURO 3	24.00	LARGE	RS		YES	ACM0002	REGISTERED	2012
FAÍSA II	27.30	LARGE	CE		YES	ACM0002	REGISTERED	2014
FAÍSA III	25.20	LARGE	CE		YES	ACM0002	REGISTERED	2014
PARQUE EÓLICO CABEÇO PRETO	19.80	LARGE	RN		YES	ACM0002	REGISTERED	2012
FAZENDA ROSÁRIO 3	14.00	SMALL	RS		YES	ACM0002	REGISTERED	2011
EMBUACA	25.20	LARGE	CE					2014
MIASSABA 3	68.47	LARGE	RN					2014
AREIA BRANCA	27.30	LARGE	RN					2014
RIO VERDE	30.40	LARGE	BA					2014
GUIRAPÁ	28.80	LARGE	BA					2014
FAZENDA ROSÁRIO	8.00	SMALL	RS		YES	ACM0002	REGISTERED	2011
CERRO CHATO I (ANTIGA COXILHA NEGRA V)	30.00	LARGE	RS					2012

PLANT	INSTALLED CAPACITY (MW)	SCALE	BRAZILIAN STATE	PROINFA	CDM	CDM METHODOLOGY	CDM STATUS	START DATE
CERRO CHATO II (ANTIGA COXILHA NEGRA VI)	30.00	LARGE	RS					2011
CERRO CHATO III (ANTIGA COXILHA NEGRA VII)	30.00	LARGE	RS					2011
EURUS VI	8.00	SMALL	RN					2014
FAÍSA I	29.40	LARGE	CE		YES	ACM0002	REGISTERED	2014
ICARAÍ II	37.80	LARGE	CE					2014
IMT SISTEMA HÍBRIDO PARTE 1	0.00	SMALL	SP					
QUIXABA	25.50	LARGE	CE		YES	ACM0002	REGISTERED	2012
MIASSABA II	14.40	SMALL	RN					2012
ICARAÍ I	27.30	LARGE	CE					2014
TAÍBA ANDORINHA	14.70	SMALL	CE					2014
SANTA CLARA V	30.00	LARGE	RN					2014
SANGRADOURO 2	26.00	LARGE	RS		YES	ACM0002	REGISTERED	2012
MAR E TERRA	23.10	LARGE	RN					2014
REI DOS VENTOS 1	58.45	LARGE	RN					2014
REI DOS VENTOS 3	60.12	LARGE	RN					2014
CAETITÉ 2	30.00	LARGE	BA		YES	ACM0002	REGISTERED	2014
PEDRA BRANCA	30.00	LARGE	BA					2013
CAETITÉ 3	30.00	LARGE	BA		YES	ACM0002	REGISTERED	2014
OSÓRIO 3	26.00	LARGE	RS		YES	ACM0002	REGISTERED	2013
MEL 02	20.00	LARGE	RN		YES	ACM0002	REGISTERED	2013
SETE GAMELEIRAS	30.00	LARGE	BA					2013
SÃO PEDRO DO LAGO	30.00	LARGE	BA					2013
ATLÂNTICA I	30.00	LARGE	RS					2014
ATLÂNTICA IV	30.00	LARGE	RS					2014
ATLÂNTICA II	30.00	LARGE	RS					2014
REB CASSINO III	22.00	LARGE	RS		YES	ACM0002	REGISTERED	2014
REB CASSINO I	22.00	LARGE	RS		YES	ACM0002	REGISTERED	2014

PLANT	INSTALLED CAPACITY (MW)	SCALE	BRAZILIAN STATE	PROINFA	CDM	CDM METHODOLOGY	CDM STATUS	START DATE
VENTOS DO NORDESTE	23.52	LARGE	BA		YES	ACM0002	REGISTERED	2014
REB CASSINO II	20.00	LARGE	RS		YES	ACM0002	REGISTERED	2014
FAZENDA ROSÁRIO 2	20.00	LARGE	RS		YES	ACM0002	REGISTERED	2013
ATLÂNTICA V	30.00	LARGE	RS					2014
DA PRATA	21.84	LARGE	BA		YES	ACM0002	REGISTERED	2014
DOS ARAÇÁS	31.86	LARGE	BA		YES	ACM0002	REGISTERED	2014
PARQUE EÓLICO CABEÇO PRETO IV	19.80	LARGE	RN		YES	ACM0002	REGISTERED	2012
MORRÃO	30.24	LARGE	BA		YES	ACM0002	REGISTERED	2014
TANQUE	30.00	LARGE	BA		YES	ACM0002	REGISTERED	2014
SERAÍMA	30.24	LARGE	BA		YES	ACM0002	REGISTERED	2014
VENTOS DO BREJO A-6	0.01	SMALL	RN					2011
UNIÃO DOS VENTOS 1	22.40	LARGE	RN					2014
UNIÃO DOS VENTOS 2	22.40	LARGE	RN					2014
UNIÃO DOS VENTOS 3	22.40	LARGE	RN					2014
UNIÃO DOS VENTOS 4	11.20	SMALL	RN					2014
UNIÃO DOS VENTOS 5	24.00	LARGE	RN					2014
UNIÃO DOS VENTOS 6	12.80	SMALL	RN					2014
UNIÃO DOS VENTOS 7	14.40	SMALL	RN					2014
UNIÃO DOS VENTOS 8	14.40	SMALL	RN					2014
UNIÃO DOS VENTOS 9	11.20	SMALL	RN					2014
UNIÃO DOS VENTOS 10	14.40	SMALL	RN					2014
PEDRA DO REINO III	18.00	LARGE	BA		YES	ACM0002	REGISTERED	2013
ARIZONA 1	28.00	LARGE	RN		YES	ACM0002	REGISTERED	2013
MUNDAÚ	30.00	LARGE	CE		YES	ACM0002	REGISTERED	2014
TRAIRÍ	25.39	LARGE	CE		YES	ACM0002	REGISTERED	2013
GUAJIRÚ	30.00	LARGE	CE		YES	ACM0002	REGISTERED	2013
FLEIXEIRAS I	30.00	LARGE	CE					2014
ILHA GRANDE	29.70	LARGE	CE					2014

PLANT	INSTALLED CAPACITY (MW)	SCALE	BRAZILIAN STATE	PROINFA	CDM	CDM METHODOLOGY	CDM STATUS	START DATE
RIBEIRÃO	21.60	LARGE	CE					2014
BOCA DO CÓRREGO	24.30	LARGE	CE					2014
CERRO CHATO VI	24.00	LARGE	RS					2014
CERRO DOS TRINDADE	8.00	SMALL	RS					2014
CERRO CHATO IV	10.00	SMALL	RS					2014
CERRO CHATO V	12.00	SMALL	RS					2014
MODELO I	30.55	LARGE	RN		YES	ACM0002	REGISTERED	2014
MODELO II	25.85	LARGE	RN		YES	ACM0002	REGISTERED	2014
JOANA	28.20	LARGE	BA		YES	ACM0002	REGISTERED	2014
EMILIANA	28.20	LARGE	BA		YES	ACM0002	REGISTERED	2014
PORTO DAS BARCAS	20.00	LARGE	PI		YES	ACM0002	REGISTERED	2014
PORTO SALGADO	20.00	LARGE	PI		YES	ACM0002	REGISTERED	2014
DELTA DO PARNAÍBA	30.00	LARGE	PI		YES	ACM0002	REGISTERED	2014
CAETITÉ 1	30.00	LARGE	BA		YES	ACM0002	REGISTERED	2014
CAMINHO DA PRAIA	2.00	SMALL	PE					2013
CLÓVIS FERREIRA MINARE	0.16	SMALL	MG					2013
PGM	0.00	SMALL	MA					2013
SISTEMA HÍBRIDO DE GERAÇÃO DE ENERGIA ELÉTRICA DA ILHA DOS LENÇÓIS PARTE 1	0.02	SMALL	MA					2013
ANTÔNIO AUGUSTO PIMENTEL DE SOUSA	0.00	SMALL	CE					2013
GERALDO JÚNIOR CAVALCANTE LOPES	0.00	SMALL	CE					2013
PEDRO PEDRON	0.00	SMALL	CE					2014
STELA MARIS ZAMBELLI	0.00	SMALL	CE					2013
TARLENE GUEDES BESSA	0.00	SMALL	CE					2013
SATRIX	0.01	SMALL	CE					2013
SD COMÉRCIO ALIMENTAÇÃO E SERVIÇOS	0.00	SMALL	RN					2014
VALBERTO BARBOSA PORTO FILHO	0.00	SMALL	CE					2014

PLANT	INSTALLED CAPACITY (MW)	SCALE	BRAZILIAN STATE	PROINFA	CDM	CDM METHODOLOGY	CDM STATUS	START DATE
ECO SISTEMA DE PAISAGISMO	0.00	SMALL	CE					2014
JACOB BENVINDO	0.00	SMALL	CE					2014
VANDA LÚCIA TOMAZ LIMA	0.00	SMALL	CE					2014
NOGUEIRA DE MORAIS	0.00	SMALL	CE					2014
CONFIANÇA MUDANÇAS E TRANSPORTES	0.00	SMALL	RN					2014
CAIO CÉSAR BIANCHI	0.00	SMALL	CE					2013
DULIO CÉSAR BIANCHI	0.00	SMALL	CE					2013
CONSTRUTORA NOGUEIRA DE MORAIS	0.00	SMALL	CE					2014
INSTITUTO FEDERAL DE EDUCAÇÃO, CIÊNCIA E TECNOLOGIA SUL-RIO-GRANDENSE - RS	0.00	SMALL	RS					2014
EMPRESA BRASILEIRA DE PESQUISA AGROPECUÁRIA	0.00	SMALL	RS					
AUTARQUIA MUNICIPAL DE MEIO AMBIENTE	0.00	SMALL	CE					2014
JERRI ELIANO DE QUEVEDO	0.00	SMALL	RS					2014

Three other parameters were pointed out in this first Table (C.1), in order to enable a deeper analysis:

i. CDM PROJECTS:

According to the CDM additionality tool mentioned above, projects that already participate in the CDM, with published information in the UNFCCC platform, should not be included.

THE CDM SCREENING ruled out 63 projects (802.60 MW) that were already Registered or Issued under CDM platform, resulting in 142 eligible projects, totaling 3,558.45 MW.

ii. PROJECT SCALE:

According to CDM rules, projects with an installed capacity under 15 MW are under the SMALL SCALE category. Beyond 15 MW, all projects apply to the LARGE SCALE methodology. Since the project under analysis is a large scale project, small scale projects were not included.

The SCALE SCREENING ruled out 371 projects, totaling 345.42 MW. This way, 71 projects were left for analysis, with 2,350.54 MW.

iii. PROINFA BENEFIT:

PROINFA is a former Brazilian Program, which comprised a significant number of renewable energy projects. According to the Government rules, carbon offsets obtained by project proponents with the PROINFA benefit should be reversed to them. Therefore, all projects is this situation will not be considered.

The PROINFA SCREENING ruled out other 24 projects (977.50 MW), resulting in a final number of 47 eligible projects, with 1,373.04 MW for Common Practice Analysis.

Observation: The database with all projects and every screening is available for consultation at the *SantosEnergia_CommonPractice.xls* spreadsheet.

The 47 projects left will be discussed, one by one, in order to differentiate each one of them from the proposed project (Table C.2).

Table C.2: *Applicable projects for further discussion.*

PLANT	INSTALLED CAPACITY (MW)	% OF BRAZILIAN INSTALLED CAPACITY	BRAZILIAN STATE	OWNER	START DATE
TAÍBA ÁGUIA	23.10	0.4420%	CE	Central Geradora Eólica Taíba Águia S.A – *Taiba Wind Complex* - **QUEIROZ GALVÃO ENERGIA**	June 19, 2014
MANGUE SECO 3	26.00	0.4975%	RN	Eólica Mangue Seco 3 – Geradora e Comercializadora de Energia Elétrica S.A – *Mangue Seco Wind Complex* - **PETROBRAS**	August 26, 2011

Santos Energia & Embrasca / Santo Antônio de Pádua, São Cristóvão and São Jorge Wind Power

PLANT	INSTALLED CAPACITY (MW)	% OF BRAZILIAN INSTALLED CAPACITY	BRAZILIAN STATE	OWNER	START DATE
MANGUE SECO 2	26.00	0.4975%	RN	Eólica Mangue Seco 2 – Geradora e Comercializadora de Energia Elétrica S.A - *Mangue Seco Wind Complex* - **PETROBRAS**	September 24, 2011
MANGUE SECO 1	26.00	0.4975%	RN	Eólica Mangue Seco 1 – Geradora e Comercializadora de Energia Elétrica S.A. - *Mangue Seco Wind Complex* - **PETROBRAS**	September 30, 2011
ICARAÍ	16,80	0,.3214%	CE	Eólica Icaraí Geração e Comercialização de Energia S.A – **MS RENOVÁVEIS**	June 29, 2013
MANGUE SECO 5	26.00	0.4975%	RN	Eólica Mangue Seco 4 – Geradora e Comercializadora de Energia Elétrica S.A. - *Mangue Seco Wind Complex* - **PETROBRAS**	November 1rst, 2011
SANTA CLARA I	30.00	0.5740%	RN	Santa Clara I Energias Renováveis Ltda – *Santa Clara Wind* Complex - **CPFL**	March 29, 2014
SANTA CLARA III	30.00	0.5740%	RN	Santa Clara III Energias Renováveis Ltda – *Santa Clara Wind* Complex - **CPFL**	March 29, 2014
COLÔNIA	18.90	0.3616%	CE	Central Geradora Eólica Colônia S.A. - **QUEIROZ GALVÃO ENERGIA**	June 19, 2014
BARRA DOS COQUEIROS	34.50	0.6601%	CE	Energen Energias Renováveis – S.A. - **DESENVIX**	September 29, 2012
SANTA CLARA VI	30.00	0.5740%	RN	Santa Clara VI Energias Renováveis Ltda – **CPFL**	March 29, 2014
SANTA CLARA IV	30.00	0.5740%	RN	Santa Clara IV Energias Renováveis Ltda – **CPFL**	March 29, 2014
SANTA CLARA II	30.00	0.5740%	RN	Santa Clara II Energias Renováveis Ltda – **CPFL**	March 29, 2014
SERRA DO SALTO	19,20	0,3674%	BA	Centrais Eólicas Serra do Salto S.A. – **RENOVA ENERGIA**	July 4, 2014
LICÍNIO DE ALMEIDA	24,00	0,4592%	BA	Centrais Eólicas Licínio de Almeida S.A. – **RENOVA ENERGIA**	July 4, 2014

Santos Energia & Embrasca / Santo Antônio de Pádua, São Cristóvão and São Jorge Wind Power

PLANT	INSTALLED CAPACITY (MW)	% OF BRAZILIAN INSTALLED CAPACITY	BRAZILIAN STATE	OWNER	START DATE
PINDAÍ	24,00	0,4592%	BA	Centrais Eólicas Pindaí S.A – **RENOVA ENERGIA**	July 4, 2014
GUANAMBI	20,80	0,3980%	BA	Centrais Eólicas Guananbi S.A. – **RENOVA ENERGIA**	July 4, 2014
EMBUACA	25,20	0,4821%	CE	Eólica Embuaca Geração e Comercialização de Energia S.A – **MS RENOVÁVEIS**	March 30, 2014
MIASSABA 3	68,47	1,3100%	RN	Brasventos Miassaba 3 Geradora de Energia S.A. - **BRASVENTOS**	
AREIA BRANCA	27,30	0,5223%	RN	Eólica Areia Branca Geração e Comercialização de Energia S.A **- MS RENOVÁVEIS**	Februay 18, 2014
RIO VERDE	30,40	0,5816%	BA	Centrais Eólicas Rio Verde S.A. – **RENOVA ENERGIA**	July 4, 2014
GUIRAPÁ	28,80	0,5510%	BA	Centrais Eólicas Guirapá S.A. – **RENOVA ENERGIA**	July 4, 2014
CERRO CHATO II (ANTIGA COXILHA NEGRA VI)	30.00	0.5740%	RS	Eletrosul Centrais Elétricas S/A - **ELETROBRAS**	December 30, 2011
CERRO CHATO III (ANTIGA COXILHA NEGRA VII)	30.00	0.5740%	RS	Eletrosul Centrais Elétricas S/A - **ELETROBRAS**	July 19, 2011
CERRO CHATO I (ANTIGA COXILHA NEGRA V)	30.00	0.5740%	RS	Eletrosul Centrais Elétricas S/A - **ELETROBRAS**	January 20, 2012
ICARAÍ II	37,80	0,7232%	CE	Central Geradora Eólica Icaraí I S.A. – **QUEIROZ GALVÃO ENERGIA**	March 29, 2014
ICARAÍ I	27,30	0,5223%	CE	Central Geradora Eólica Icaraí II S.A. – **QUEIROZ GALVÃO ENERGIA**	March 29, 2014
SANTA CLARA V	30,00	0,5740%	RN	Santa Clara V Energias Renováveis Ltda. – **CPFL**	April 3, 2014
MAR E TERRA	23,10	0,4420%	RN	Eólica Mar e Terra Geração e Comercialização de Energia S.A. – **MS RENOVÁVEIS**	February 18, 2014
REI DOS VENTOS 1	58,45	1,1183%	RN	Central Geradora Eólica EOL Rei dos Ventos 1 - **BRASVENTOS**	October 04, 2013

Santos Energia & Embrasca / Santo Antônio de Pádua, São Cristóvão and São Jorge Wind Power

PLANT	INSTALLED CAPACITY (MW)	% OF BRAZILIAN INSTALLED CAPACITY	BRAZILIAN STATE	OWNER	START DATE
REI DOS VENTOS 3	60,12	1,1503%	RN	Central Geradora Eólica EOL Rei dos Ventos 3 - **BRASVENTOS**	February 01, 2014
PEDRA BRANCA	30.00	0.5740%	BA	Pedra Branca S/A – **BRENNAND ENERGIA & CHESF**	March 02, 2013
SETE GAMELEIRAS	30.00	0.5740%	BA	Sete Gameleiras S/A – **BRENNAND ENERGIA S.A & CHESF**	March 26, 2013
SÃO PEDRO DO LAGO	30.00	0.5740%	BA	São Pedro do Lago S/A – **BRENNAND ENERGIA & CHESF**	March 02, 2013
ATLÂNTICA I	30,00	0,5740%	RS	EOL Atlântica I – CPFL RENOVÁVEIS	February 25, 2014
ATLÂNTICA IV	30,00	0,5740%	RS	EOL Atlântica IV **CPFL**	March 22, 2014
ATLÂNTICA II	30,00	0,5740%	RS	EOL Atlântica II – **CPFL**	March, 1rst, 2014
ATLÂNTICA V	30,00	0,5740%	RS	EOL Atlântica V – **CPFL**	February 28, 2014
UNIÃO DOS VENTOS 1	22,40	0,4286%	RN	Energia Potiguar Geradora Eólica S.A. – **SERVENG ENERGIA**	April 15, 2014
UNIÃO DOS VENTOS 2	22,40	0,4286%	RN	Torres de Pedra Geradora Eólica S.A. - **SERVENG ENERGIA**	April 05, 2014
UNIÃO DOS VENTOS 3	22,40	0,4286%	RN	Ponta do Vento Leste Geradora Eólica S.A. - **SERVENG ENERGIA**	April 08, 2014
UNIÃO DOS VENTOS 5	24,00	0,4592%	RN	Morro dos Ventos Geradora Eólica S.A. - **SERVENG ENERGIA**	April 08, 2014
FLEIXEIRAS I	30,00	0,5741%	CE	Central Eólica Flexeiras I S.A.- **TRACTEBEL ENERGIA**	January 28, 2014
ILHA GRANDE	29,70	0,5682%	CE	Central Eólica Ilha Grande Ltda - **QUEIROZ GALVÃO ENERGIA**	August 20, 2014
RIBEIRÃO	21,60	0,4133%	CE	Central Eólica Ilha Ribeirão Ltda – **QUEIROZ GALVÃO ENERGIA**	September 25, 2014
BOCA DO CÓRREGO	24,30	0,4649%	CE	Central Eólica Palmas Ltda - **QUEIROZ GALVÃO ENERGIA**	August 30, 2014
CERRO CHATO VI	24,00	0,4592%	RS	Eólica Cerro Chato IV S.A - Eletrosul Centrais Elétricas S.A. - **ELETROBRAS**	November 6, 2014

Santos Energia & Embrasca / Santo Antônio de Pádua, São Cristóvão and São Jorge Wind Power

After a detailed research, it was possible to find out that the 47 projects are owned by 11 (eleven) major companies, with different compositions. Table C.3 presents the share of each company, in MW percentage, among the 47 analyzed projects. As follows, each company profile will be evaluated, to enable a comparison with Santos Energia activities.

Table C.3: *Share by owner of the 47 common practice analyzed projects.*

SHARE BY OWNER	CHARACTER	NBR	MW	SHARE (% OF MW)
CPFL	Private	10	300.00	21.85%
BRASVENTOS	Private	3	187.04	13.62%
QUEIROZ GALVÃO ENERGIA	Private	7	182.70	13.31%
RENOVA ENERGIA	Private	6	147.20	10.72%
ELETROBRAS	Public	4	114.00	8.30%
PETROBRAS	Public	4	104.00	7.57%
MS RENOVÁVEIS	Private	4	92.40	6.73%
SERVENG ENERGIA	Private	4	91.20	6.64%
BRENNAND ENERGIA & CHESF	Public	3	90.00	6.55%
DESENVIX	Private	1	34.50	2.51%
TRACTEBEL ENERGIA	Private	1	30.00	2.19%

- **CPFL:** Brazilian energy company, with over 100 years of existance. It covers all kinds of enery businesses, such as: power production, distribution and commercialization. It is considered one of the largest energy enterprises in Brazil, with over 20 million consumers and a huge energy plants portfolio (total of 70, between hydro, wind, solar and thermal plants).
- **BRASVENTOS:** Brazilian company, constituted in 2010 with the goal of wind power generation, through the operation of Miassaba 3, Rei dos Ventos 1 and Rei dos Ventos 3 plants. 49% of the company is owned by Eletrobás Eletronorte and Eletrobrás Furnas, both Government entities.
- **QUEIROZ GALVÃO ENERGIA:** QG Energia is part of Queiroz Galvão Group, which is a 60 year business originated in Brazil, that currently has international participation. This is a major group with activities is many sector, such as construction, energy, enviromental engineering, real state and management Consulting. This is a huge enterprise with a lot more than energy actions in its portfolio.
- **RENOVA ENERGIA:** Private company of the energy generation sector.
- **ELETROBRAS:** Public company of the Brazilian Energy Sector, associated with the Mining and Energy Ministry.
- **PETROBRAS:** Brazilian State-Company in the Oil&Gas sector, but with a huge variety of activities regarding renewable energy generation, research and development and sustainability.
- **MS RENOVÁVEIS:** Brazilian energy company created to develop wind projects in Brazil, currently owns four wind power plants in the Northeast of the country. It belongs to the same group as Santos Energia.
- **SERVENG ENERGIA:** Private company of the Serveng Group, operates in Brazil since 1954 in the Mining, Transportation, Energy, Concessions and Real State sectors.
- **CHESF:** Companhia Hidrelétrica do Rio São Francisco. Government company of the national electricity system.

- **DESENVIX:** Desenvix is a Brazilian company, which operates since 1995, property of other companies, including Engevix – traditional in the construction sector.
- **TRACTEBEL ENERGIA:** The largest energy generator private company in Brazil.

Considering that some of the institutions presented above consist of public-character companies (PETROBRAS | CHESF | ELETROBRAS), companies with participation in energy distribution directly to the cliente (CPFL) or companies with a portfolio composed by a variety of other activities non-associated with energy production, they should not be considered in the analysis (CPFL | SERVENG GROUP | QUEIROZ GALVÃO GROUP).

Santos Energia is a company constituted with the goal of providing renewable energy for Brazil and does not operate in other economy sectors. Therefore, this analysis considered only the projects related with the same goals. MS Renováveis belongs to the same shareholder as Santos and, therefore, shall not be considered.

For those reasons, as presented in Figure C.2, over 70% of the 47 projects analyzed don't consist of similar projects to the proposed project action, due to the corporate characteristics, financial incentives, mainly activities, etc.

We conclude that the project is not common practice in the selected region.

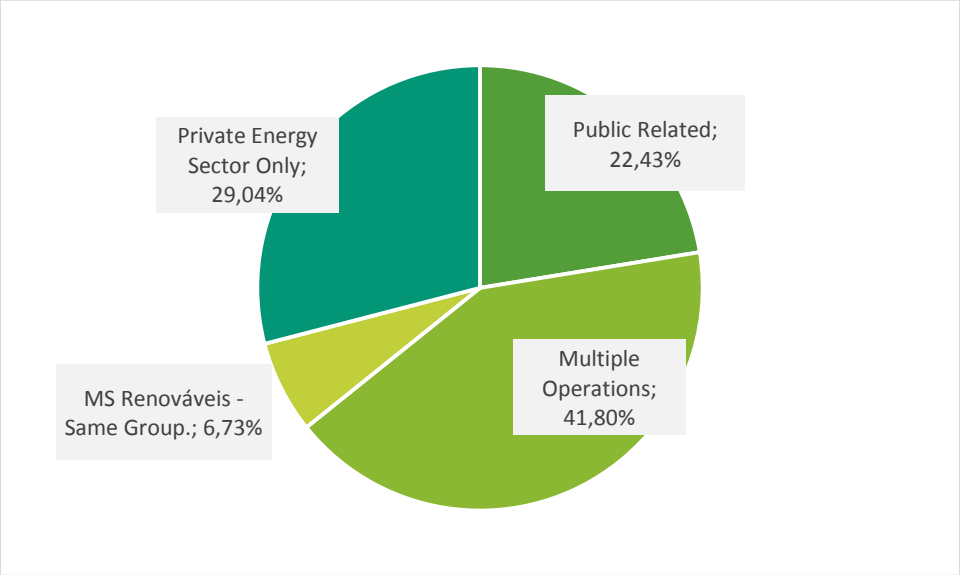


Figure C.2: *Classification of the selected 47 project owners.*

- **TEST RESULT:** PROJECT IS NOT COMMON PRACTICE IN THE SELECTED REGION.

C3. IMPLEMENTATION BARRIERS TEST

ACR requires that the project pass at least one of the barriers: financial, institutional or technological. Energy generation projects are usually additional when going under the financial barrier analysis.

The investment analysis was carried out using the following CDM guidelines and tools:

- "Tool for the demonstration and assessment of additionality, v. 7.0.0" (EB 70, Annex 08, Page 1);
- "Guidelines on the assessment of investment analysis" (EB 62, Annex 5, Page 1).

The analysis should determine whether the proposed project activity is not:

(a) The most economically attractive; or
(b) Economically or financially feasible, without the revenue from the sale of emission reductions tons (ERTs);

NOTE: This analysis will consider the Power Purchase Agreement (PPA) date of signature as the **investment decision date**, as presented in each WPP CCEAR (From Portuguese, *Contrato de Comercialização de Energia no Ambiente Regulado*). The three plants participated on the 12nd New Energy Auction, in August 17, 2011. The PPAs date from **August 13, 2013.** (For this reason, values from 2012 will be considered throughout the following analysis.

Sub-step 2a: Determine appropriate analysis method:

Additionality is demonstrated through an investment benchmark analysis (option III). Options I and II are not applicable to the proposed project activity considering the following:

Option I – both the carbon project activity and the alternatives identified in Step 1[17] generate financial and economic benefits other than carbon related income.

Option II – the implementation of other project types of renewable energy generation - i.e. cogeneration or small hydro power plant projects - are not potential alternatives in the site where the project is planned.

In addition, in accordance with paragraph 19 of "Guidelines on the assessment of investment analysis", the benchmark analysis was identified as the most appropriate method to demonstrate the additionality of the proposed Project Activity, since the alternative to the implementation of the wind power plant is the supply of electricity from the grid.

Sub-step 2b: Option III - benchmark analysis

The financial indicator identified for the project activity is the Internal Rate of Return (IRR) calculated in the project cash flow. The IRR here presented is compared to the appropriate benchmark of the electric sector, which is the Weighted Average Cost of Capital (WACC).

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

Weighted Average Cost of Capital (WACC)

The weighted-average cost of capital (WACC) is a rate used to discount business cash flows and takes into consideration the cost of debt and the cost of equity of a typical investor in the sector of the project activity. The benchmark can be applied to the cash flow of the project as a discount rate when calculating the net present value (NPV) of the same, or simply by comparing its value to the internal rate of return (IRR) of the project (in accordance with paragraph 12, Annex 5, EB 62). The WACC considers that shareholders expect compensation towards the projected risk of investing resources in a specific sector or industry in a particular country.

[17] The assessment of alternative scenarios required in CDM approved "Tool for the demonstration and assessment of additionality, v. 7.0.0" (EB 70, Annex 08, Page 1) was not used. The benchmark analysis was identified as the most appropriate method to demonstrate the additionality of the proposed Project Activity.

The WACC calculation is based on parameters that are standard in the market, considers the specific characteristics of the project type, and is not linked to the subjective profitability expectation or risk profile of this particular project developer. Once a wind power potential is discovered, any corporate entity is able to obtain the authorization from the government to build a wind power plant. In addition to that, even after the project proponent obtains such authorization, it can be negotiated afterwards. Therefore, the use a sectorial benchmark is applicable as per the guidance provided in paragraph 13 of "Guidelines on the assessment of investment analysis",

The WACC of the sector considered is the one calculated for 2012 – the complete year before Investment Decision Date (2013) - and is equal to 8.99%. This value was calculated through the formula below:

$$WACC = Wd \times Kd + We \times Ke$$

We and **Wd** are, respectively, the weights of equity and debt typically observed at the sector. **We** is of 32.32%, and **Wd** of 67.68%. These numbers derive from the typical leverage of similar projects in the sector in Brazil, based on the rules for available long-term loans from Brazilian Development Bank (BNDES – *from Portuguese Banco Nacional de Desenvolvimento Econômico e Social*)[18]. BNDES is the major provider of long-term loans in the country; it supplies the financing for small to large-scale projects. Long-term loans are scarcely provided by commercial banks, and in general, these entities do not have competitive rates compared to the BNDES.

Kd is the cost of debt, which is observed in the market related to the project activity, and which already accounts for the tax benefits of contracting debts In the **Kd** calculation. The marginal tax rate (**t**) is multiplied by the Cost of debt and then by the debt to total cost of capital ratio to ascertain the debt portion of the WACC formula. In the case of Brazil, and specifically to energy projects, this tax factor is 34%.[19]

The nominal rate achieved for debt is used to calculate nominal WACC, which is used to discount nominal cash flow projections. In order to achieve the real cash flow rate, the inflation targeting for Brazil is reduced from the nominal figure achieved. The inflation targeting is obtained from the Brazilian Central Bank[20] and has experienced very little variance in the past 5 years.

Kd is calculated through the following equation:

$$Kd = [1 + (a+b+c) \times (1-t)]/ [(1+d) -1]$$

Values use to calculate Kd are presented in Table C.3.

[18] Available for consultation as: *Target Debt.pdf*
[19] Available for consultation as: *KMPG_Tax_2012.pdf*
[20] Available for consultation at: http://www.bcb.gov.br/pec/metas/InflationTargetingTable.pdf

Table C.3: *Cost ok debt (Kd) calculation*

COST OF DEBT (KD)	
a- Financial cost[21]	6.03%
b - BNDES fee[22]	0.90%
c - Credit risk rate[23]	4.18%
(a+b+c) Pre-Cost of Debt	11.11%
t - Marginal tax rate[24]	34.00%
π - Inflation forecast[25]	4.50%
After tax Cost of Debt	**2.71 % p.a. (real)**

According to the table above, **Kd** is of 2.71% p.a., considering inflation.

Ke is the cost of equity. As per option b) provided in the paragraph 15 of Annex 15, EB 62, it was estimated using the best financial practices through the Capital Asset Pricing Model (CAPM) with the following equation:

$$Ke = [(1+ Rf) /(1+I)-1] + \beta \times (Rm-Rf) + Rc$$

Rf stands for the risk free rate. The risk-free rate used for **Ke** calculation was a long term bond rate, from the US Treasury. There is a higher risk associated to investing in Brazil, or in Brazilian bonds, compared to investing in a mature market such as the United States. This risk is reflected in higher returns expected on Brazilian government bonds compared to the mature markets government bonds. In considering the Brazilian government bond, this premium for a higher risk is captured in our calculations.

In order to adjust the risk-free rate (**Rf**) to the inflation adjusted rate, the expected inflation rate (for the United States) (**π'**) is reduced. The inflation is based on the inflation targeting available at the Federal Reserva webpage.

Beta, or **β,** stands for the average sensitivity of comparable companies in that industry to movements in the underlying market. **β** derives from the correlation between returns of US companies from the sector and the performance of the returns of the US market. **β** has been adjusted to the leverage of Brazilian companies in the sector, reflecting both structural and financial risks. **β** adjusts the market premium to the sector.

Rm represents the market premium, or higher return, expected by market participants in light of historical spreads attained from investing in equities versus risk free assets such as government bond rates, investors require a higher return when investing in private companies. The market premium is estimated based on the historical difference between the S&P 500 returns and the long term US bonds

[21] Available for consultation at: http://www.bndes.gov.br/SiteBNDES/bndes/bndes_pt/Institucional/Apoio_Financeiro/Custos_Financeiros/Taxa_de_Juros_de_Longo_Prazo_TJLP/index.html

[22] Available for consultation as: *BNDES_kd.pdf (Page 32)*

[23] Available at: http://www.bndes.gov.br/SiteBNDES/bndes/bndes_pt/Institucional/Apoio_Financeiro/Produtos/FINEM/meio_ambiente.html

[24] Available for consultation as: *KMPG_Tax_2012.pdf (Page 13)*

[25] Available for consultation at: http://www.bcb.gov.br/pec/metas/InflationTargetingTable.pdf

returns. The spread over the risk-free rate is the average of the difference between those returns.

Note that in the formula above there is the factor EMBI+ (Emerging Markets Bond Index Plus), considers as the country risk premium, **Rc**. This factor accounts for the country or sovereign risk embedded in the debt of a country. Assuming that relative to the US risk-free debt market EMBI+ is 0, then Brazil's EMBI+ would calculate for the added or reduced risk relative of Brazils debt markets to the US.

Justification for the EMBI+ addition to the risk-free rate lies in the vast differences between the United States in such factors as credit risk, inflation history, politics, debt markets, and more. Ignoring these differences would result in the incorrect application of relevant environmental factors in the decision-making process of an investor in Brazil.

Values used in the cost of equity calculation are presented in Table C.4 below:

Table C.4: *Cost of equity (Ke) calculation*

COST OF EQUITY (KE) – CAPM	
Rf - Risk-free rate[26]	4.87%
Rm - Equity risk premium[27]	5.82 %
Rc - Estimated country risk premium[28]	2. 38%
β - Adjusted industry beta[29]	2.91%
π' - US expected inflation[30]	2.00 %
Cost of Equity with Brazilian Country Risk (p.a.)	**22.15%p.a.**

According to the table above, **Ke** is of 22.15%.

Plugging these numbers into WACC formulae, we obtain:

WACC = 67.68% x 2.71% + 32.32% x 22.15% = 8.99%

Calculations are presented in specific Excel spreadsheet, nominated: *Santos Energia Benchmark.xls.*

Financial Indicator: Internal rate of return (IRR)

As mentioned above, the financial indicator identified for the Project Activity is the project Internal Rate of Return (IRR). According to the Guidance 3 of the "*Guidelines on the Assessment of Investment Analysis*" (EB 62, Annex 5), the period of assessment should not be limited to the proposed crediting period of the carbon project activity. The calculation shall as a preference reflects the period of the wind power plants expected operational lifetime determined by the aero generators, which is estimated in 20 years. Furthermore, the auction public notice states that the electric power negotiated at 12nd New Energy Auction lasts 20 years. Therefore, considering the expected operational lifetime of the aero generators and the period estimated in the PPAs, all three WPPs present cash flows considering a 20-

[26] Available for consultation as: *ANEEL_WACC.pdf (Page. 11 - Paragraph 33)*

[27] Available for consultation as: *ANEEL_WACC.pdf (Page. 12 - Paragraph 35)*

[28] Available for consultation at: www.ipeadata.gov.br

[29] Available for consultation at: http://pages.stern.nyu.edu/~adamodar/

[30] Available for consultation as: *Inflation Targeting Usa.pdf (Page 1)*

year analysis.

The IRR of the projects are 2.16% (SAP), 1.61% (SC) and 1.86% (SJ). Sources of all input values used to estimate the IRR of the project are detailed in the IRR calculation spreadsheet, which is available for consultation.

The paragraph 6 from the "Guidelines on the Assessment of Investment Analysis" (EB 62, Annex 5) states that: "*Input values used in all investment analysis should be valid and applicable at the time of the investment decision taken by the project participant*". The investment analysis was carried on based on available data.

In Brazil, there are two income taxes: (a) the corporate income tax (IRPJ) and (b) the social contribution tax on profits (CSLL) (see KPMG report "Investment in Brazil"[31]). There are also three methods provided by legislation to calculate corporate income tax and social contribution tax due on profits: Actual Profit, Presumed Profit and Arbitrated Profit.

For the Presumed Profit eligibility, corporate entities revenues must be under R$ 48 million per year (Article #13, Law #9.718/1998)[32], which is the case of the three plants assessed in this analysis. For the Presumed Profit system, 8% of gross sales in addition to financial revenues/earnings are used as basis for the income tax calculation. To this figure, a 25% rate is applied resulting in the final income tax value. For the social contribution calculation, 12% of gross sales in addition to financial revenues/earnings are used as a basis for the calculation. To this figure, a 9% rate is applied resulting in the final social contribution value as per Article #518 of the Federal Decree #3000, dated 26 March 1999. Table C.5 presents an example.

Table C.5: *Income tax and Social Contribution (illustrative calculation)*

INCOME TAX	$
Gross Sales	1.000
Presumed Profit for income tax (8%)	80
Financial revenue	500
Total Presumed for income tax	580
Income tax due (app. 25%)	145
SOCIAL CONTRIBUTION	**$**
Gross Sales	1.000
Presumed Profit for income tax (8%)	120
Financial revenue	500
Total Presumed for income tax	620
Social contribution due (9%)	55.80

Source: KPMG. "Investment in Brazil: tax." (2008).

Therefore, a corporate entity that opts for the presumed profit scheme pays the same rate of income tax and social contribution regardless of its costs, expenses, other cash items such as payable interest and non- cash items such as depreciation, because these elements are not deductible under this system.

[31] Available for consultation as: Federal Income Taxes (page 40).
[32] Publicly available in Portuguese at: <http://www.receita.fazenda.gov.br/legislacao/leis/Ant2001/lei971898.htm>.

The relevant assumptions made are in accordance with paragraph 6 of the *Guidelines on the Assessment of Investment Analysis* (Version 05). Table C.6 provides a summary of the main input values as well as a brief justification for their use, considering the time of the investment decision. Documents evidencing all input values mentioned below which were used to estimate the IRR are available for consultation at validation. Besides, the IRR calculation spreadsheet presenting all values and assumptions considered is also attached to this document, under the name of *Santos Energia Investment Analysis.xls.*

Table C.6: *Data and justification of the data used in the investment analysis.*

PARAMETER	SAP	SC	SJ	JUSTIFICATION/SOURCE OF INFORMATION USED
Assured Energy (MW)	8.2	14.2	13.2	For income calculations, assured energy will always be the one presented at the moment of the Power Purchase Agreement (PPA) signature. For Santos Complex, there are 23 PPAs for each plant, as a result of the Energy Auction occurred in August 17th 2011. Assured energy data is the same for all of them and can be confirmed in page 21 of each PPA.
Auction Price (R$/MWh)	104.23	103.79	103.98	This value represents the price obtained by the project owner in the 12nd New Energy Auction (from the Portuguese 12º *Leilão de Energia Nova*), which occurred on August 17, 2011. For each plant, there are 23 Contracts for Tradigin Electricity in the Regulated Environment (from Portuguese, *CCEAR – Contrato de Comercialização de Energia Elétrica no Ambiente Regulado*). An Excel file with all values were developed by Embrasca Team, under the name *Santos PPAs List.xls.* Each contract is also available for consultation.
TUST (BRL/kW.month)	6.90%	6.36%	6.26%	TUST, from Portuguese – *Tarifa de Uso do Sistema de Transmissão*, refers to the fee charged for the use of the national transmission system, according to ANEEL Resolution nbr 281/1999. The calculations presented by Santos Energia financial experts consist of reports that compare income and the TUST charged values, by the form of an AVD (*Aviso de Débito*) – Debit Warning. The value is presented as percentage of income. Further explanations available as: *TUST Explanations Santos Energia.xls.*
Insurance (BRL/year)	50,576.03	87,582.89	81,415.08	Contracts and receipts provided by insurance company. The contract presents a total value for all three plants. The distribution was made based on assured energy. Evidence available for consultation under the name: *Insurance Santos Complex.pdf.*
Property lease (% of gross revenue)	1.5%	1.5%	1.5%	The land rent was determined by a contract signed between the landowner and the energy producer company (from the Portuguese *Contrato de Concessão de Uso*). Separate evidences are available for consultation.
CEEE fee (BRL/month)	201.69	201.69	201.69	The *CCEE* fee is based on paragraph 4 of article 4 of Law nr. 10,848 dated March 15, 2004 and regulated by the Decree nr. 5,177 dated August 12, 2004. The fee varies year to year and is estimated dividing the *CCEE* costs (operational and investment) by the electricity produced and dispatched in the Interconnected Electricity System (from the Portuguese *Sistema Interligado Nacional – SIN*) [MWh] dividing proportionally by each energy producer. The value presented is the one from actual fees applied up to this date.
ANEEL fee – TFSEE (BRL/month)	3,338.79	5,575.53	5,146.64	It corresponds to the value fixed by ANEEL regarding the Supervision Tax on Electricity Power Services (from the Portuguese *Taxa de Ficalização de Serviços de Energia Elétrica – TFSEE)* implemented by the Law nr. 9,427 dated December 12, 1996, regulated by the Decree nr. 2,410 issued on November 28, 1997 and reviewed by Law nr. 12.783 issued on November 1, 2013. Values for all three of Santos Complex plants are presented

PARAMETER	SAP	SC	SJ	JUSTIFICATION/SOURCE OF INFORMATION USED
				at ANEEL Ordinance #76 from January 15 2015 available for consultation under the name *TFSEE Santos Complex.pdf.*
Taxes (PIS/COFINS) (BRL/year)	3.65%	3.65%	3.65%	The revenue deductions concerns to the Integration Social Program (from Portuguese *Programa de Integração Social – PIS*) given by Law nr. 10,637[33], dated December 30, 2002 and the Contribution to the Social Security Financing (from the Portuguese *Contribuição para o Financiamento da Seguridade Social - COFINS*) given by Law nr. 10,833[34], dated, December 29, 2003.
O&M Costs(BRL/year)	279,313.20	506,571.83	462,114.97	The signed O&M contract presents a 10-year range, where the highest costs begin from de sixth year and the first two year are not charged. The annual estimates considered the total amount divided by ten years. A percentage was applied to each plant, considering the total investment.
Investment (1,000BRLBRL)	69,739.00	126,481.00	115,381.00	The total investment consists of the Uses and Sources calculations provided by Santos Energia financial experts, presented in three separate spreadsheets, available for consultation.
IRR (%)	2.16	1.61	1.86	*Santos Energia Investment Analysis.xls*
Benchmark (%)	8.99			*Santos Energia Investment Analysis.xls*

[33] Available at: http://www.planalto.gov.br/ccivil_03/leis/2002/L10637.htm

[34] Available at: http://www.planalto.gov.br/ccivil_03/leis/2003/L10.833.htm

The project IRR, as presented to the DOE, ranges from 1.61 to 2.16%, i.e., lowers than the benchmark. Therefore, this number shows that the project activity is not financially attractive to the investor. The results are summarized in the Table C.7.

Table C.7: *Comparison between Project IRR and the Weighted Average Cost of Capital.*

Wind Power Plant	IRR (%)	WACC (%)
SAP	2.16	8.99
SC	1.61	
SJ	1.86	

Sub-step 2d: Sensitivity analysis

A sensitivity analysis was conducted by altering the following parameters:

- Increase in electricity generation, which may increase the project revenues;
- Increase in electricity tariff, which may also influence project revenues;
- Reduction in expected investments;
- Reduction in O&M costs.

Those parameters were selected as being the most likely to fluctuate over time. In addition, these variables constitute more than 20% of either total project costs or total project revenues (paragraph 20 of Annex 5, EB62). As verified at the wind power plant cash flows the revenue is obtained exclusively from the energy generation. Therefore the sensitivity analysis carried out considering the variation in the electricity generation and the electricity tariff corresponds to more than 20% of the total revenues.

The investment, also considered in the sensitivity analysis corresponds to the total investment of the wind power plants including the EPC Contract costs and project developments costs as explained at Table C.6 above.

Financial analyses were performed altering each of these parameters by 10%, and assessing what was the impact on project's IRR (paragraph 21 of Annex 5, EB62). The results of the sensitivity analysis, considering a variation of the selected parameters by 10%, are presented below in Table C.8.

Table C.8: *Sensitivity analysis.*

SCENARIO	IRR (%)		
	SAP	**SC**	**SJ**
Original	2.16%	1.61%	1.86%
Increase in electricity generation	3.49%	2.93%	3.19%
Increase in the tariff	3.49%	2.93%	3.19%
Reduction in project investment	3.57%	3.00%	3.26%
Reduction in O&M Costs	2.21%	1.66%	1.91%

As it can be seen from the results presented above, the IRR of the projects do not surpass the benchmark considering the variation of the selected parameters by 10%. Yet, a simulation was conducted in order to verify possible scenarios where the IRR of each plant would equal the benchmark. The results for each plant are presented and discussed from Tables C.9 up to C.11.

Table C.9: Scenarios when IRR of the project equals the benchmark (8.99%) – Santo Antônio de Pádua.

	IRR %	PRICE (BRL/MWh)	COST (1,000BRL)	ELECTRICITY (MWh/yr)	Variation (%)
Original	2.16	104.23	69,739.00	71,832	N/A
Price	8.99	165.30	69,739.00	71,832	58.59%
Investment	8.99	104.23	43,260.79	71,832	61.21%
Electricity	8.99	104.23	69,739.00	113,890	58.55%

Table C.10: Scenarios when IRR of the project equals the benchmark (8.99%) – São Cristóvão

	IRR %	PRICE (BRL/MWh)	COST (1,000BRL)	ELECTRICITY (MWh/yr)	Variation (%)
Original	1.61	103.79	126,481.00	124,392	N/A
Price	8.99	171.60	126,481.00	124,392	65.33%
Investment	8.99	103.79	75,980.00	124,392	66.47%
Electricity	8.99	103.79	126,481.00	205,610	65.29%

Table C.11: Scenarios when IRR of the project equals the benchmark (8.99%) – São Jorge.

	IRR %	PRICE (BRL/MWh)	COST (1,000BRL)	ELECTRICITY (MWh/yr)	Variation (%)
Original	1.86	103.98	115,381.00	115,632	N/A
Price	8.99	168.50	115,381.00	115,632	62.05%
Investment	8.99	103.98	70,640.00	115,632	63.34%
Electricity	8.99	103.98	115,381.00	187,400	62.07%

The analysis performed confirm that a 10% variation of all the main parameters that could influence the project financial outcome does not approximate, significantly, the results to the calculated benchmark. In order to prove that, separated calculations, as presented in Tables C.9 C.10, and C.11, confirm that it would take a significant increase in the parameters in order to reach the benchmark. The following discussions are in order:

- **Increase in electricity generation:** the Power Purchase Agreement (PPA) states that, if the generated electricity by the wind power plants is higher than the electricity negotiated at the auction, the project sponsor is not able to sell the electricity surplus. The *CCEE* shall count all the generated electricity and acts according to the established in the PPA. An increase in the electricity generation is unlikely.
- **Increase in the price:** the PPAs will have a duration of 20 years, will remain fixed throughout the years, and will be adjusted accordingly to the Amplified Consumers Price Index (from the Portuguese *Índice de Preços ao Consumidor Ampliado*), which is the official index that measures the inflation in Brazil. The electricity tariff of the wind power plants were adjusted by the *IPCA* index according to the investment analysis conducted and kept fixed through the years of the investment analysis. A significant increase in the price is unlikely.
- **Reduction in project investment/Reduction in O&M costs:** the total investment necessary to build the plants as it is presented in the cash flows is based on the SUDENE letter. It corresponds

to the total costs related to the implementation of the wind power plants as stated at Table 10 above, including the EPC Contract (which also regards O&M). A reduction in the project investment in unlikely, as well as in O&M.

Test result: Considering the data and information exposed above, it can be concluded that the project financial indicator, for all the four plants, are not likely to reach the benchmark. This evidences that the project activity is not financially attractive, therefore, the project passes the INVESTMENT BARRIER TEST.

The project passes all the three tests proposed by ACR Standard v.3.0. Therefore:

THE PROJECT IS ADDITIONAL

D.
MONITORING PLAN

D1. MONITORED DATA AND PARAMETERS

Monitored parameters, as per approved CDM methodology ACM0002, v.15.0, are presented as follows.

Data or Parameter Monitored	$EG_{m,y}$ *and* $EG_{k,}$
Unit of Measurement	MWh
Description	Net electricity generated by power plant/unit *m* or *k* in year *y*
Data Source	Energy Official Generation Reports.
Measurement Methodology	Meters installed substations.
Data Uncertainty	<5%
Monitoring Frequency	At least monthly.
Reporting Procedure	Official reports.
QA/QC Procedure	Crosscheck reports results with meters information.
Notes	-

Data or Parameter Monitored	$EF_{grid,OM-adj,y}$
Unit of Measurement	tCO2/MWh
Description	Simple adjusted operating margin CO_2 emission factor in year *y*
Data Source	Official country values, calculated and published by the Science and Technology Ministry (from Portuguese, *MCT – Ministério de Ciência e Tecnologia*). Available at: http://www.mct.gov.br/index.php/content/view/74689.html
Measurement Methodology	Official data calculated by Brazilian Government.
Data Uncertainty	< 5%
Monitoring Frequency	Annual.
Reporting Procedure	Official data calculated by Brazilian Government.
QA/QC Procedure	-
Notes	-

Data or Parameter Monitored	$EF_{grid,BM,y}$
Unit of Measurement	tCO2/MWh
Description	Build Margin CO_2 emission factor in year *y*
Data Source	Official country values, calculated and published by the Science and Technology Ministry (from Portuguese, *MCT – Ministério de Ciência e Tecnologia*). Available at: http://www.mct.gov.br/index.php/content/view/74689.html
Measurement Methodology	Official data calculated by Brazilian Government.
Data Uncertainty	< 5%
Monitoring Frequency	Annual.
Reporting Procedure	Official data calculated by Brazilian Government.
QA/QC Procedure	Crosscheck daily, monthly and annual data.
Notes	-

Data or Parameter Monitored	$EF_{grid,CM,y}$
Unit of Measurement	tCO2/MWh
Description	Combined Margin CO_2 emission factor in year *y*
Data Source	Calculated according to CDM Methodology ACM0002 v.15.0, using the building and operating margin emission factors.
Measurement Methodology	Calculations.
Data Uncertainty	< 5%
Monitoring Frequency	Annual.
Reporting Procedure	Verification report.
QA/QC Procedure	Crosscheck daily, monthly and annual data.
Notes	-

E.
QUANTIFICATION

E1. BASELINE

ACM0002 v.15.0 establishes that baseline emissions include only CO_2 emissions from electricity generation in fossil fuel fired power plants that are displaced due to the project activity.

The methodology assumes that existing grid-connected power plants and the addition of new grid-connected power plants would have generated all project electricity generation above baseline levels.

The baseline emissions are calculated as follows:

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

(Equation 3)

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 CO2 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 $EG_{PJ,y}$:

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

$$EG_{PJ,y} = EG_{facility}$$

(Equation 4)

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

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

To calculation $EF_{grid,CM,y}$, the Brazilian DNA makes available data of the Dispatch Data analysis operating and build margin emission factors, following the steps from the CDM latest version of "Tool to calculate the emission factor for an electricity system" Version 04.0.0.

The Dispatch Analysis was chosen because, according to the Brazilian DNA[35], it is the most accurate and recommended method if information available. For this reason, the emission factor ex-post must be updated annually during monitoring and verification processes.

[35] Designated National Authority.

The CO_2 emission factors resulting from the power generation in the Brazilian National Interconnected System are calculated based on the generation records of plants centrally dispatched by ONS. The procedures for calculation were elaborated in cooperation between ONS, the Ministry of Mines and Energy and the Ministry of Science and Technology. When calculating the operating margin and build margin emission factors, only grid power plants were considered.

To guarantee an accurate analysis, CDM Guidelines recommend that a three-year database should be used, The Brazilian Government has published the national grid emission factor since the year of 2006. As the project start date is November 11, 2014, the emissions factors from the complete years of 2011, 2012 and 2013 were adopted.

All data used to calculate the ex-ante building and operating margin emissions factor in the Brazilian Designated National Authority website[36].

Regarding the cohort of the power units to be included in the building margin, in terms of vintage of data, project participants can choose between one of the following options:

Option 1: For the first crediting period, calculate the build margin emission factor ex-ante based on the most recent information available on units already built for sample group at the time of GHG Project Plan submission to the DOE[37] for validation. For the second crediting period, the build margin emission factor should be updated on the most recent information available on units already built at the time of the submission of the request for renewal of the crediting period to the DOE. For the third crediting period and beyond, the build margin emission factor calculated for the second crediting period should be used. This option does not require monitoring the emission factor during the crediting period.

Option 2: For the first crediting period, the build margin emission factor shall 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. For the second crediting period, the build margin emission factor shall be calculated ex-ante, as described in option 1 above. For the third crediting period and beyond, the built margin emission factor calculated for the second crediting period should be used.

Option 2 was selected.

The combined margin emission factor is calculated as follows:

$$EF_{Grid,CM,y} = EF_{Grid,OM,y} x W_{OM} + EF_{Grid,BM,y} x W_{BM}$$

(Equation 5)

Where:

$EF_{Grid,OM,y}$	=	Operating 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)
W_{OM}	=	Weighting of operating margin emissions	%
W_{BM}	=	Weighting of build margin emissions	%

[36] http://www.mct.gov.br/index.php/content/view/72764/Fatores_de_Emissao_de_CO_sub_2_sub__pela_geracao_de_energia_eletrica_no_Sistema_Interligado_Nacional_do_Brasil.html

[37] Designated Operational Entity

The tool to calculate the emission factor for an electricity system recommends that the following default values should be used for W_{OM} and W_{BM}:

(a) Wind and solar power generation project activities: W_{OM} = 0.75 and W_{BM} = 0.25 for the first crediting period and for subsequent crediting periods.

(b) All other projects: W_{OM} = 0.5 and W_{BM} = 0.5 for the first crediting period and W_{OM} = 0.75 and W_{BM} = 0.25 for subsequent crediting periods, unless otherwise specified in the approved methodology which refers to this tool.

The following emisions factors were applied:

- EF_{GRID, CM_2011}= 0.2454 tCO_2e/MWh
- EF_{GRID, CM_2012} = 0.4385tCO_2e/MWh
- EF_{GRID, CM_2013} = 0.5127 tCO_2e/MWh
- $EF_{GRID, CM\_2014 - 2016}$ = 0.3989 tCO_2e/MWh

The quantity of net electricity generation that is produced and fed into the grid as a result of the implementation of the project activity in year *y* was calculated considering the assured energy and the number of hours of **project operation, of a complete year. The results are presented in Table E.1.**

Table E.1: *Net electricity generation by the wind plants of the Project Activity.*

WIND POWER PLANT	ASSURED ENERGY (MWAVE)	NET ELECTRICITY GENERATION (MWH)
Santo Antônio de Pádua	6.5	71,832
São Cristóvão	13.4	124,392
São Jorge	12.6	115,632
Total	**32.5**	**311,856**

$EG_{PJ,y}$ = 311,856 MWh

Finally, baseline emissions for the whole 7-years crediting period result in:

BE_y = 870,686 tCO_2e

Calculation are provided in Microsoft Excel spreadsheet *Santos Energia ERTs Calculations.xls* attached.

E2. PROJECT SCENARIO

According to the approved methodology ACM0002, v.15.0, the project emissions by the proposed project activity are **zero.**

PE_Y = 0 tCO_2e

E3. LEAKAGE

For wind power projects, leakage is not considered.

LE_y = 0 tCO_2e

E4. UNCERTAINTY

Uncertainty was accounted for using the instructions of "IPCC Good Practice Guidance and Uncertainty Management in National Greenhouse Gases Inventories", Decisions trees presented in Figures 2.1 and 2.2 of the publication were followed to select best methods to calculate CO_2 emissions from stationary combustion and net calorific values,

According to the publication consulted [38], uncertainty arises from : the adequacy of the statistical coverage of all sources categories and the adequacy of the coverage of all fuels.

As per IPCC Good Practice Guideline, overall uncertainty in activity data is a combination of both systematic and random errors. According to experts, uncertainty resulting from the two errors is probably in the range of ± 5%. For places with less-developed energy data systems, this could be considerably larger, probably 10%.

Fortunately, the energy data system applied in this project is the one regularly monitored and provided by the major entity responsible for the plants included in the National Interconnected System and, for this reason, the data can be considered in the ± 5% range.

Uncertainty should also be addressed regarding energy generation data. For this matter, the equipment precision was analyzed guarantee the confidence level required. The information is presented in Table E.2.

Table E.2: *Equipment uncertainty demonstration.*

EQUIPMENT	MANUFACTURER	MODEL/TYPE	ACCURACY (%)	NOTE
MAIN METERS	SCHNEIDER ION	7650C PT-	0.2	-
BACK UP METERS	SCHNEIDER ION	76500C PT-	0.2	-

We conclude that the calculations uncertainty meets ACR 10% requirement.

Both data necessary for ERT calculations carry a great level of confidence, since the Emission Factors are supplied by the Government and Energy Generation data is also controlled by Government bodies (in case of Brazil – National Operator of the System – ONS). For this reason, it is certain to assure that uncertainty is addressed.

At the time of project verification, in order to calculate Ex-post emissions reductions, all data will be required in order to carry out a more specific statistical analysis.

Evidence presenting equipment information is available at validation.

E5. REDUCTIONS AND REMOVAL ENHANCEMENTS

Table E.3 presents the reductions calculations according to ACM0002 v.15.0.

[38] IPCC Good Practice Guidance and Uncertainty Management in National Greenhouse Gases Inventories – Vol. 2 Energy – page 2,15.

Table E.3: *Project Activity emissions reductions calculations.*

ERy = BEy - PEy - LEy				
PEy = 0 and LEy =0				
	Santo Antônio	**São Cristóvão**	**São Jorge**	**Total**
2014 (From Nov, 1rst)	4003	6932	6444	17380
2015	28650	49614	46120	124384
2016	28650	49614	46120	124384
2017	28650	49614	46120	124384
2018	28650	49614	46120	124384
2019	28650	49614	46120	124384
2020	28650	49614	46120	124384
2021 (Until October, 31)	24647	42681	39676	107004
TOTAL (tCO2e)	200551	347296	322839	870686
TOTAL FOUR PROJECTS (tCO2e)			**870,686**	
ANNUAL FOUR PROJECTS (tCO2e)			**124,384**	

All detailed calculations are provided Excel Spreadsheet attached to this document (*Santos Energia ERTs Calculations.xls*).

E6. EX-ANTE ESTIMATION METHODS

The project consists of the implementation of four wind power plants of 64.0 MW total installed capacity. The ex-ante emission reduction estimates were calculated based on the Brazilian National Interconnected System emission factors data provided by the Brazilian DNA, annually updated.

The calculation of total energy generated was based on the project proponent documentation, such as executive project data, and equipment specifications.

F.
COMMUNITY & ENVIRONMENTAL IMPACTS

F1. NET POSITIVE IMPACTS

Social and Environmental Aspects of Wind Power Generation

The proposed Project Activity consists of the implementation of wind power to integrate the Brazilian Grid. Wind energy - produced from wind power - is abundant, renewable, clean and available in many places. This energy is generated by wind turbines, in which propellers capture the wind connected to a turbine that drives an electric generator. The amount of energy transferred is a function of air density, the area covered by the rotation of the blades (vanes) and the wind speed.

The most favorable applications of this energy source in Brazil are in the integration of large blocks of generation at sites of greatest potential to the interconnected system. In certain regions, such as the Northeast, in the São Francisco River Valley, a convenient situation of complementarity of wind generation with the water regime can be observed: both in the generation seasonal period or in the end system – i.e. the wind profile observed in the dry period of the Brazilian electrical system shows greater capacity to generate electricity at the very moment that the hydrological affluence in hydroelectric reservoirs is reduced. On the other hand, the wet season the Brazilian electrical system, characterized by greater filling these reservoirs, the potential for wind electricity generation shows less.

Figure F.1 shows that the Brazilian energy matrix is mostly composed by hydro and thermoelectric power. The wind power installed capacity represents only 2.89% of the total, only behind Photovoltaic, Micro Hydropower and Thermonuclear power plants.

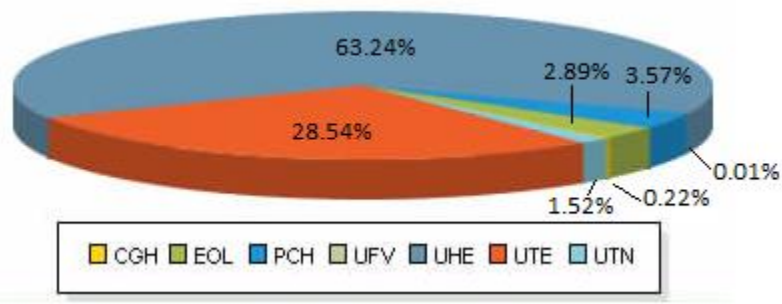


Figure F.1: *Brazilian installed capacity distribution, by type of plant.*

Legends:
CGH: From Portuguese, *Central Geradora Hidrelétrica*, which are hydropower plants with up to 1 MW of installed capacity.
EOL: From Portuguese, *Eólica*, it means Wind Power plant.
PCH: From Portuguese, *Pequena Central Hidrelétrica*, it means Small Hydropower plant, which can have from 1 to 30 MW of installed capacity.
UFV: From Portuguese, *Usina Fotovoltáica*, it means Photovoltaic Plant.
UHE: From Portuguese, *Usina Hidrelétrica*, it means Hydropower Plant, with more than 30 MW of installed capacity.
UTE: From Portuguese, *Usina Termelétrica*, it means Thermoelectric Power Plant.
UTN: From Portuguese, *Usina Termonuclear*, it means Thermonuclear Power Plant.

There are innumerous advantages to the implementation of wind power plants, such as: improvement in the energy offer (which contributes to the region social and economic development and population welfare); costs reductions of the Federal Government with oil supply to thermoelectric plants; reducing

Brazilian dependency on the large-scale hydro potential and fossil generation, allowing a more distributed and low-impact generation.

Although it is inserted within the global context of incentive for electricity generation less harmful to the environment technologies, like any other technology for power generation, the use of wind to produce electricity also results in some negative impacts - such as electromagnetic interference, visual impact, noise or damage to the fauna, for example. **Currently, these occurrences can now be minimized and even eliminated through proper planning, training and technical training, and use of technological innovations.**

The environmental aspects associated to the operation of a wind power plant are[39]:

EMISSION OF POLLUTANT GASES:

Brazil, for possessing an array of power generation predominantly composed of renewable sources - mainly from hydroelectric power - has major advantages in terms of avoided emissions of CO_2.

Of the available technologies with CO_2 emissions below the level of wind energy, only large hydro are commercially competitive today. However, the use of large dams has been discussed in countries like Canada and Brazil (two countries that have large hydroelectric plants located farther away from consumers), where the decomposition of submerged vegetation in large reservoirs produces a substantial amount of methane, which records a global warming potential 50 times greater than CO_2.

Although CO_2 emissions resulting from large dams do not reach the level of CO_2 emissions originated from fossil fuels combustion, gases such as CH_4 and N_2O - derived from the decomposition of organic material - have respectively a global warming potential 56 and 280 times higher than CO_2, for a time horizon of 20 years.

LAND USE AND SUITABILITY OF THE TOPOGRAPHY

Visual Pollution

The visual response to wind structures varies from person to person. This is an effect that should be taken into account to the extent that the increased efficiency of wind turbines is accompanied by increase in its size and height of the towers. Consequently, the required space between the turbines become larger, thus decreasing the density in the wind farm - which enables the use of land for alternative uses near the project.

Among the differences in perception of these enterprises, the wind turbine can be seen as a symbol of clean energy and welcome, or negatively, as a change of scenery. The form of perception of communities visually affected by wind farms also depends on the relationship of the population and the environment. In addition, the economic benefits generated by the implementation of the wind farm are often crucial to mitigate potential negative perceptions or attitudes towards technology. The landscape modified by wind farms brings another possibility: to attract tourists, which is a factor of generation of employment and income.

IMPACT ON WILDLIFE

One of the environmental aspects to be emphasized concerns the location of wind farms in birds' migration routes. The behavior of birds and mortality rates tend to be specific for each species and for each place.

[39] Information from the Brazilian Ministry of Environment, available at: http://www.mma.gov.br/clima/energia/energias-renovaveis/energia-eolica.

When analyzing the impact studies in winged fauna, it is observed that wind farms can have negative impacts for some species. However, these impacts can be reduced to a tolerable level by planning the future of wind generation, considering aspects of nature conservation as "preventing the installation of wind farms in important habitat areas, avoiding areas of corridor migration; adopt proper arrangement of the turbines in the wind farm, use appropriate types of towers (tubular), and use of underground transmission systems."

Noise is another factor that deserves to be mentioned, not only due to the perturbation caused to the inhabitants of the areas where wind farms are located, but also in the local wildlife projects – e.g., the interference in the turtle's reproductive process.

OTHER ENVIRONMENTAL ASPECTS

The ground impact occurs in a timely manner to the installation area of the concrete base where the turbine is installed. Several tests of soil compaction are made to assess the conditions of installation of each turbine. Because there is no use of fossil fuels, the risk of soil contamination by liquid waste due to the operation and maintenance of wind farms is low or almost null. This feature also minimizes the risk of groundwater contamination.

It is important to remember that the occupancy rate in the soil of a wind turbine is restricted to the small area for the construction of the concrete base for support of the whole machine: the area around the concrete base is fully available for agricultural or livestock use; and vegetation around the wind turbine can be kept intact.

Assessment of the Project Activity Impacts

The implementation of the three WPP will bring a series of benefits to the affected region. Besides the clean energy generation itself, the Project Activity will be important to:

- Attract possible investments to the region, aiming at the wind power potential of Ceará State;
- Explore the natural potential of the property in order to make it more productive;
- Contribute to the sustainable development of Trairí City;
- Increase the power generation, supporting economic development in Ceará State;
- Avoid future energy crises that might happen in the country, reducing the risk of economic and social losses;
- Contribute to Ceará State to become power-independent;
- Minimize the socioeconomic impacts resultant from energy rationing.

In what refers to environmental impacts or to the Project Activity interference to the environment, it is important to highlight that the wind power generation is one of the most environmental-friendly alternatives. This favorable environmental aspect is explained because the equipment does not emit gases, wastewater or solid waste, hence, there are no significant environmental impacts regarding air, water and soil pollution during the operation.

In addition, studies carried out by the environmental consultancy responsible for the Social and Environmental Monitoring of the Project (Geoconsult) show that the measured noise is lower than 45 dB, from a 100 meters distance from the tower, which measures about 80 meters height.

In what concerns land use and occupation, an occupation of less than 10% of the total area is estimated, including the preparation and maintenance sites and the access roads. The wind power generation activity is also compatible with simultaneously occupation of the land for the development of other activities.

Considering that the project has not yet reached its start date, so far, only environmental documentation regarding the previous phases from operation are available. The three WPP are properly licensed by the

Ceará State Environmental Entity – SEMACE (from Portuguese, *Secretaria de Meio Ambiente do Ceará* – Ceará State Environmental Secretary), as well as their transmission lines and the substation.

All licensing documentation, from preliminary licenses to operation licenses are available for consultation. The operating licenses are all issued, as per Table F.1.

Table F.1: *Date of issuance and validity of the plans operating licenses.*

LICENSE	OPERATING LICENSE DATE OF ISSUANCE	VALIDITY
Santo Antônio de Pádua (WPP)	June 5, 2014	June 4, 2018
São Cristóvão (WPP)	June 5, 2014	June 4, 2018
São Jorge (WPP)	June 5, 2014	June 4, 2018
Santo Antônio de Pádua (Transmission Line)	June 30, 2014	August 29, 2018
São Cristóvão (Transmission Line)	June 30, 2014	August 29, 2018
São Jorge (Transmission Line)	June 30, 2014	August 29, 2018
Substation	May 27, 2014	May 26, 2017

All the projects went through an initial Environmental Impact Assessment- EIA (one for Santo Antônio de Pádua and the other for both São Cristóvão and São Jorge). All the information presented from now on is available in the mentioned EIAs.

The environment studies consist of a large amount of information. In both EIAs, the impacts were analyzed by project phase. For this reason, the same impact is often repeated, some time with different classifications.

In SAP EIA, 230 impacts were identified, **from which 127 (55.22%) are positive** and 103 (44.78%) are negative. From those, 159 (69.13%) represent a low magnitude, 68 (29.57%) medium magnitude and 03 (1.30%) high magnitude. The majority of the impacts come from the implementation phase (60%).

In SC and SJ EIA, 232 impacts were identified, **from which 129 (55.60%) are positive** and 103 (44.40%) are negative. From those, 166 (71.55%) represent a low magnitude, 62 (26.72%) medium magnitude and 04 (1.72%) high magnitude. The majority of the impacts come from the implementation phase (59%).

For all the plants, a transmission line (TL) was needed, in order to make the energy produced available. The impacts of the implementation and operation of those TLs was also assessed, but throughout a Simplified Environmental Report (from Portuguese – *RAS: Relatório Ambiental Simplificado*). According to this report, 103 impacts were foreseen, from which 63 are positive and 40 are negative, all of them with low or medium magnitudes.

For this reason, we concluded that the majority of the impacts, for TLs implementation, is also positive.

During the environmental licensing process, plans and programs were created to help preventing, controlling, minimizing, restoring and compensating the possible impacts, which were previously identified in the mentioned studies.

- **ENVIRONMENTAL MANAGEMENT PLAN:** it aims at providing the entrepreneurship with efficient mechanisms that ensure the execution and control of the planned actions and their correct environmental conduction. It was created to maintain a high quality standard in the project implementation and operation.
- **ENVIRONMENTAL PLAN FOR CONSTRUCTION:** it presents the criteria and techniques to be employed at the plants construction, aiming at environmental quality preservation of the areas that suffer intervention, as well as neighborhood communities and the employees.
- **PLAN OF HEALTH AND SAFETY IN THE WORK ENVIRONMENT:** this plan is divided in two distinct stages. The first one is related to the installation of the wind turbines. The second refers to the operation phase of the plants. In both stages, the plan was created to ensure the health and safety of the work environment.
- **RECOVERY OF DEGRADED LAND PLAN:** this is a separated plan to recover degraded lands.
- **PRESERVATION OF WATER RESOURCES AND LANDSCAPES PLAN:** this plan is based on the environmental legislation associated with the guidance on the land use and occupation of Trairí City. Its objectives are to avoid changes in the environmental aspects of the area, as well as ensure the quality of the ground water.
- **DEFORESTATION CONTROL PLAN:** this plan was created to ensure that the impacts resultant from deforestation would be mitigated to the maximum.
- **WILDLIFE MONITORING PLAN:** it consists of a control activity that is carried out through frequent data collection and analysis, which can indicate scenarios in the project and possible interventions. The monitoring is realized separately for each kind of fauna (birds, reptiles, etc.) and indicators are created in order to evaluate situations.
- **MONITORING OF NOISES AND VIBRATION PLAN:** this plan supports the control of the noise level generated during implementation and operation phases, as well as vibration. Monitoring should indicate mitigation measures to be applied, by identified sources.
- **WATER QUALITY MONITORING PLAN:** this plan contemplates the superficial water quality monitoring and evaluation, as well as ground water, of the affected area. Specific parameters are monitored, in accordance of Federal and State Legislation.
- **SOIL QUALITY MONITORING PLAN:** this plan aims to identify changes in the physical and chemical soil characteristics arising from implantation and operation of the three WPP.
- **RISK MANAGEMENT PLAN and EMERGENCY ACTIONS PLAN:** this plan includes all operations and equipment and creates a system to establish general management orientations aiming at accident prevention. The following procedures are involved: consequence analysis; vulnerability analysis; processes safety information; processes risk revision; changes management; maintenance and integrity guarantee of critical systems; operating procedures; human resource qualification; incidents investigation; emergency actions plan; auditions.
- **PROGRAM OF HEALTH TO THE SURROUNDING NEIGHBORHOODS:** this plan was elaborated to diagnose and monitor the surrounding neighborhoods health effects, especially those effects related to the actions during the implantation phase.

- **ENVIRONMENTAL EDUCATION PLAN:** it was created to provide basic instructions to the project stakeholders, regarding environmental preservation and control. The plan includes workshops and activities with the employees and neighborhoods.
- **SOCIAL COMMUNICATION PLAN:** it aims at disclosuring information about the undertaking stages and actions to the affected communities, establishing a permanent link with the entrepreneur. Its main goal is the conflict resolution.
- **IDENTIFICATION OF ARCHAEOLOGICAL SITES PLAN:** this plan meets the need to safeguard historic and archaeological sites exposed during the archaeological prospection phase, coincident with implantation phase.
- **ENVIRONMENTAL AUDITING PLAN:** this plan seeks to detect and organize all environmental technical problems, through the analysis of each WPP performance, combined with of policies and guidelines of the project and each one involved in the management process.
- **PLAN OF DEACTIVATION OF THE PLANT:** this plan aims to describe all stages at the project final phase, in order to deactivate each WPP at the end of the concession period. In addition, the Plan contemplates the final disposal of the wind turbines components.

As mentioned before, most of the predicted impacts are associated with the implementation and construction phase of the plants. So far, an annual report regarding environmental monitoring is available, for each WPP and the substation, covering the period from November 02, 2012 to November 09, 2013. Updated reports will be available by the beginning of 2015.

The reports demonstrate that, so far, no significant negative impact has been observed in the environmental or social aspects.

For this reason, it can be concluded that the Project Activity does not generate significant negative impacts to the community and the environment, since the monitoring reports have not showed any important change in the parameters observed.

It is important to state that the locations where the projects are implemented already have other wind power entrepreneurships. For this reason, it is safe to say that the population is used to having the wind turbines and they see an advantage in the touristic growth.

In addition, the implementation of this type of project brings very positive impacts, regarding the economic growth of the region.

There was no population relocation and any negative impact over the communities or the environment have or is being addressed. Please see attached a signed letter from a Santos Energia representative confirming that it has disclosed and mitigated any and all negative community and environmental impacts (ANNEX II).

We concluded that the Project Activity impacts are, overall, net positive.

All the reports and monitoring are being developed by the environmental consultancy Bioconsultants. All the reports are available for consultation in separate folders by plant and will be disclosed at validation. ACR is free to request all data needed in order to confirm the information presented.

F2. STAKEHOLDER COMMENTS

Stakeholders of the project activity were invited for comments through invitation letters. Since the proposed activity comprises the municipality of Trairí, within geographical boundaries of one federal entity (Ceará State), invitation letters were sent to the following stakeholders in November 2011:

- City Hall of the municipality involved (*Prefeitura Municipal de Trairí);*
- Chamber of Councilors of each municipality involved (*Câmara Municipal de Trairí);*
- State Environmental Secretary (*SEMACE – Superintendência Estadual do Meio Ambiente do Ceará*);
- Municipal Environmental Agency (*Secretaria Municipal de Administração de Trairí*);
- NGO's (Non-Governmental Organizations (*Fórum Brasileiro de ONG's e Movimentos Sociais para Meio Ambiente e Desenvolvimento – FBOMS; Instituto de Desenvolvimento Sustentável e Energias Renováveis – IDER; and Núcleo de Ensino e Pesquisa Aplicada – NEPA*);
- Public Ministry of Ceará State;
- Federal Public Ministry.

The letters were send with confirmation notice request, which were received and are available for consultation at validation. No comments were received.

In addition, a social study was carried out within the affected communities, which was concluded with two separate public hearings – a demand of Ceará State environmental legislation for wind power plants.

Table F.2 presents further information regarding all the meetings held.

TYPE OF MEETING	LOCATION	DATE	NBR OF PARTICIPANTS
Preliminary	Barrinha do Norte	June 12, 2012	45
Preliminary	Curimã	June 13, 2012	60
Preliminary	Cana Brava	June 14, 2012	45
Preliminary	Manguinho	June 19, 2012	50
Preliminary	Guajiru	June 26, 2012	58
Preliminary	Flecheiras	July 02, 2012	10
Public Hearing - SAP	Trairi	July 03, 2012	140
Public Hearing – SC and SJ	Trairi	July 03, 2012	143

Further information regarding those can be found at the provided evidence.

Compliance with ACR Standard:

To attend an ACR Standard demand, the National Designated Authority of Brazil was notified of the development of a voluntary carbon project within ACR. A letter was sent to the Interministerial Committee on Global Climate Change (a division of the Science and Technology Ministry). Please see evidence attached on Annex I.

G.
OWNERSHIP AND TITLE

G1. PROOF OF TITLE

Land Title

All the lands were the three WPP are located are owned by each SPE, which are all property of SANTOS ENERGIA PARTICIPAÇÕES S.A. Proof of title is presented in the following documents, available for consultation at validation:

- *Contrato Concessão de Uso SAP.pdf*
- *Contrato Concessão de Uso SC.pdf*
- *Contrato Concessão de Uso SJ.pdf*

Offsets Title

As per ACR Standard v.3.0:

Definition:

"Offset title is a legal term representing rights and interests in an offset, a future stream of offsets, or a project delivering offsets."

Requirement:

"Project Proponent shall provide documentation and attestation of undisputed title to all offsets prior to registration, including chain of custody documentation if offsets have ever been sold in the past. Title to offsets shall be clear, unique, and uncontested."

To determine Offset Title, it is necessary to understand properly how the BRAZILIAN ELECTRICITY MARKET.

- **How it works:**

The companies responsible for energy generation and transmission compose the National Interconnected System (SIN[40])**.** In this system the negotiations of purchase and sales of energy occur. That means that, once a market agent (distributor, producer, retailer, and consumer) becomes a SIN member, it may negotiate energy with any other agent, regardless of any generation and transmission physical restrictions.

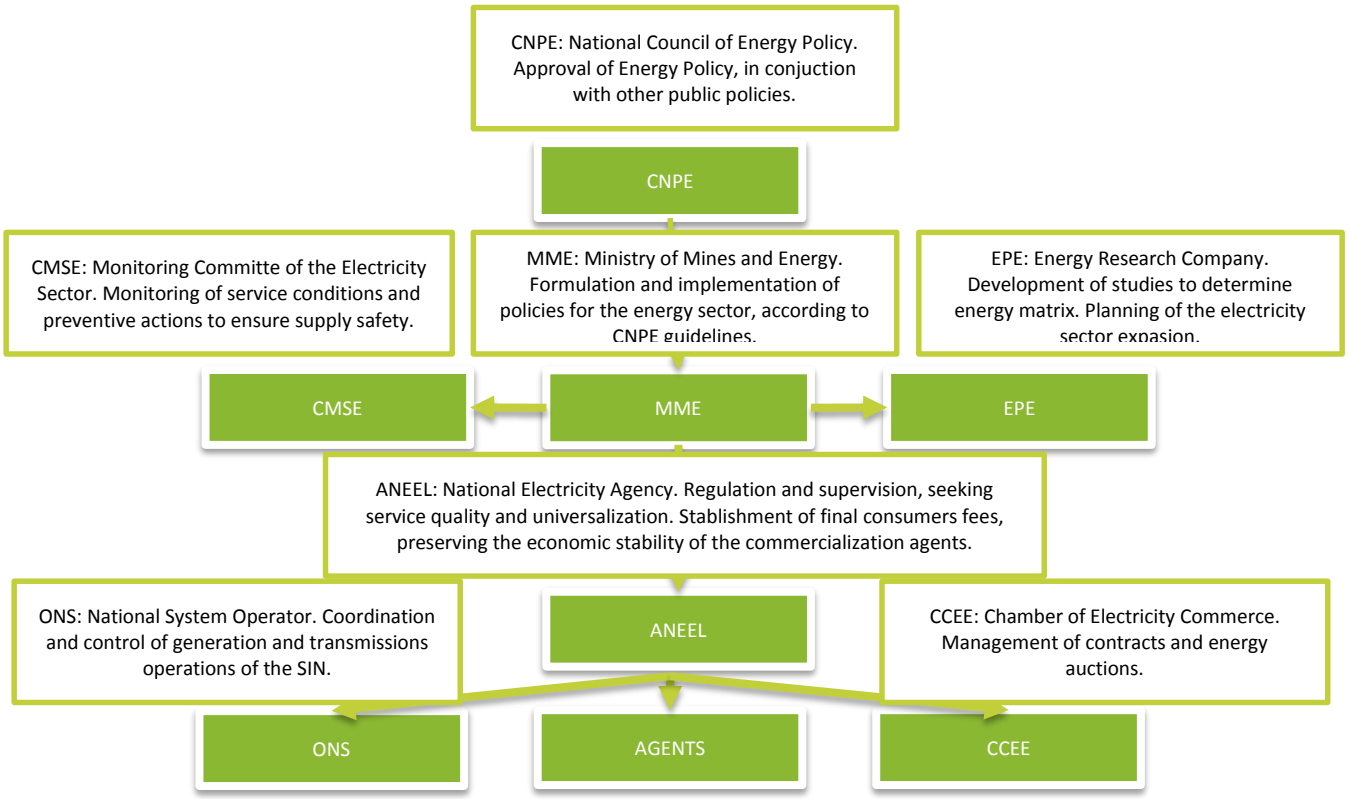
Trade relations in the current model are established in two spheres: the Regulated Market (ACR[41]) and the Free Market (ACL[42]). For purposes of this project, the Regulated Market will be described.

The purchase and sale of energy in the regulated environment is formalized through contracts between generators and distributors who participate in the purchase and sale of energy auctions. Contracts of this environment have specific regulation on issues such as energy prices, submarket contract registration and duration of supply, not subject to bilateral changes by agents. Those contracts consists of the Power Purchase Agreements.

[40] From Portuguese – *Sistema Interligado Nacional.*
[41] From Portuguese – *Ambiente de Contratação Regulada*.
[42] From Portuguese – *Ambiente de Contratação Livre.*

Santos Energia & Embrasca / Santo Antônio de Pádua, São Cristóvão and São Jorge Wind Power

The Brazilian Electricity System is supported by different agencies, as presented in Figure G.1.



The agents, such as Santos Energia, are mainly associated with ANEEL, ONS and CCEE. Those three entities will be responsible for legislating, coordinating operations and measuring energy production to determine monthly income. For this reason, it is safe to say that a company that decides do become a member of the SIN will be fully regulated by the Brazilian Government.

- **Discussion about title:**

After the evolution of carbon markets in the world, some countries have regulated offset title. The Brazilian Government have not yet done that, however, specifically for the energy sector, as closed and controlled as it is, there has been clear understanding that the energy producer is entitled to the generated offsets.

That seems obvious to conclude if we think about additionality requirements. The implementation barriers test represents any factor that would prevent the adoption of the project activity proposed by the Project Proponent (PP), which can be: financial, technological or institutional. To prove additionality, the PP must be capable to demonstrate at least one of those barriers.

The project implementation faces at least one barrier, whose risk is responsibility of the PP – who will expend human, technological and financial resources to surpass it (or them) and, for that reason, is worthy of the carbon offsets. According to that logic, it is unreasonable to think that the offset title should be of anyone else that not the PP.

Of course, we are talking about a situation where all investments and decisions are made by the PP. Financial benefits, such as PROINFA, a former incentive program of Brazil for renewable energy; make room for argument, once the investment risk is shared with the Brazilian Government.

The worry about double counting of carbon is not justified. Once the energy is sold in the Brazilian Electricity Market, it will be always controlled by the Brazilian Government, even though is not owned by it. Electricity distributor are registered within the system and in case they carry out their GHG Inventories, the renewable energy acquired cannot be accounted for as Scope 1 Emissions, because they are controlled by them, but by the Energy Producer, which is also registered within the national GRID.

If an offsetting program should be conceived, it would also be validated by a third party, which would have to check all sources of offsets.

Up to this date, all energy projects developed in Brazil, in regulated and voluntary markets – without any incentives or benefits for the project implementation – have been entitled to the offsets generated.

For this reason, we believe that a formal Offset Title Attestation Letter, signed by Santos Energia representatives, is enough of proof of offset title of this particular project activity.

The letter is available for consultation under the name *Santos Energia Offset Title Attestation.pdf.*

G2. CHAIN OF CUSTODY

At the time of this project registration, no forward option contract was established.

G3. PRIOR APPLICATION

This project has not been applied to any carbon registry before. A Project Design Document was started on November 2011, but the project was not submitted to CDM or other registries.

H.
PROJECT TIMELINE

H1. START DATE

Project Start Date is November 11, 2014, according to the National Agency Authorization. Please see Annex III attached.

H2. PROJECT TIMELINE

***Table H.1**: Project timeline.*

ACTIONS	SANTO ANTÔNIO DE PÁDUA	SÃO CRISTÓVÃO	SÃO JORGE
Energy Auction	August 17, 2011	August 17, 2011	August 17, 2011
Construction Contract	May 15, 2013	May 15, 2013	May 15, 2013
Beginning of Operations Authorization	November 11[43], 2014	November 11, 2014	November 11, 2014

[43] ANEEL authorized begining of comercial operations for SAP, considering six turbines (UG 1, UG 2, UG3, UG4, UG5 and UG 7). UG 6 was authorized to start operations on January 6, 2015, according to ANEEL Ordinance Nr # 9, from January 6, 2015.

ANNEX I

Embrasca

Ministério da Ciência, Tecnologia e Inovação
Comissão Interministerial de Mudança Global do Clima
A/C Gustavo Luedemann
Coordenador Geral de Mudanças Globais de Clima
Esplanada dos Ministérios, Bloco E
CEP: 70067-900, Brasília, DF

Objeto: Notificação de desenvolvimento de projeto de carbono no mercado voluntário.

A EMBRASCA – Empresa Brasileira de Serviços e Consultoria Ambiental, situada no município de Goiânia-GO vem, através desta, notificar à Comissão Interministerial de Mudança Global do Clima a realização de um projeto de créditos de carbono referente à implementação de um complexo eólico na cidade de Trairi, no Estado do Ceará.

O complexo, de capacidade instalada total de 64 MW, é composto pelos três parques eólicos apresentados a seguir:

Nome	Empresa	Localização	Potência instalada (MW)
Eólica Santo Antônio de Pádua	*Central Eólica Santo Antônio de Pádua Ltda.*	Trairi	14,0
Eólica São Cristóvão	*Central Eólica São Cristovão Ltda.*	Trairi	26,0
Eólica São Jorge	*Central Eólica São Jorge Ltda.*	Trairi	24,0

Os quatros parques são de propriedade da Santos Energia Participações S.A., sob forma de Sociedades de Propósito Específico (SPEs). A Santos Energia é a proponente principal do projeto.

O início da operação comercial está previsto para o dia 1º de Novembro de 2014, adotado como data de início do projeto.

O registro será efetuado no mercado voluntário junto à entidade norte-americana de registro *American Carbon Registry*, sob o nome "**SANTOS ENERGIA WIND POWER PROJECT: SANTO ANTÔNIO DE PÁDUA, SÃO CRISTÓVÃO AND SÃO JORGE**" *e* a estimativa de reduções de emissões para o primeiro período de crédito de 7 anos é de 591.465 tCO_2e, de Novembro de 2014 a Outubro de 2021.

A EMBRASCA é a responsável pelo desenvolvimento do plano de projeto e acompanhamento das etapas no mercado voluntário e, portanto, quaisquer esclarecimentos, dúvidas ou comentários deverão ser requeridos à mesma.

Atenciosamente,

Ricardo César Fernandes
Diretor Sócio
Goiânia, 15 de Setembro de 2014

PREENCHER COM LETRA DE FORMA

AR

DESTINATÁRIO DO OBJETO / *DESTINATAIRE*

NOME OU RAZÃO SOCIAL DO DESTINATÁRIO DO OBJETO / *NOM OU RAISON SOCIALE DU DESTINATAIRE*
MINISTÉRIO DA CIÊNCIA E TECNOLOGIA

ENDEREÇO / *ADRESSE*
ESPLANADA DOS MINISTÉRIOS, BLOCO "E"

CEP / *CODE POSTAL*: 70067-900 | CIDADE / *LOCALITÉ*: BRASÍLIA | UF: DF | PAÍS / *PAYS*: BRASIL

DECLARAÇÃO DE CONTEÚDO (SUJEITO À VERIFICAÇÃO) / *DISCRIMINACION*

NATUREZA DO ENVIO / *NATURE DE L'ENVOI*
☐ PRIORITÁRIA / *PRIORITAIRE*
☐ EMS
☐ SEGURADO / *VALEUR DÉCLARÉ*

ASSINATURA DO RECEBEDOR / *SIGNATURE DU RÉCEPTEUR*

DATA DE RECEBIMENTO / *DATE DE LIVRATION*: __/__/__

CARIMBO DE ENTREGA / UNIDADE DE DESTINO / *BUREAU DE DESTINATION*

NOME LEGÍVEL DO RECEBEDOR / *NOM LISIBLE DU RÉCEPTEUR*

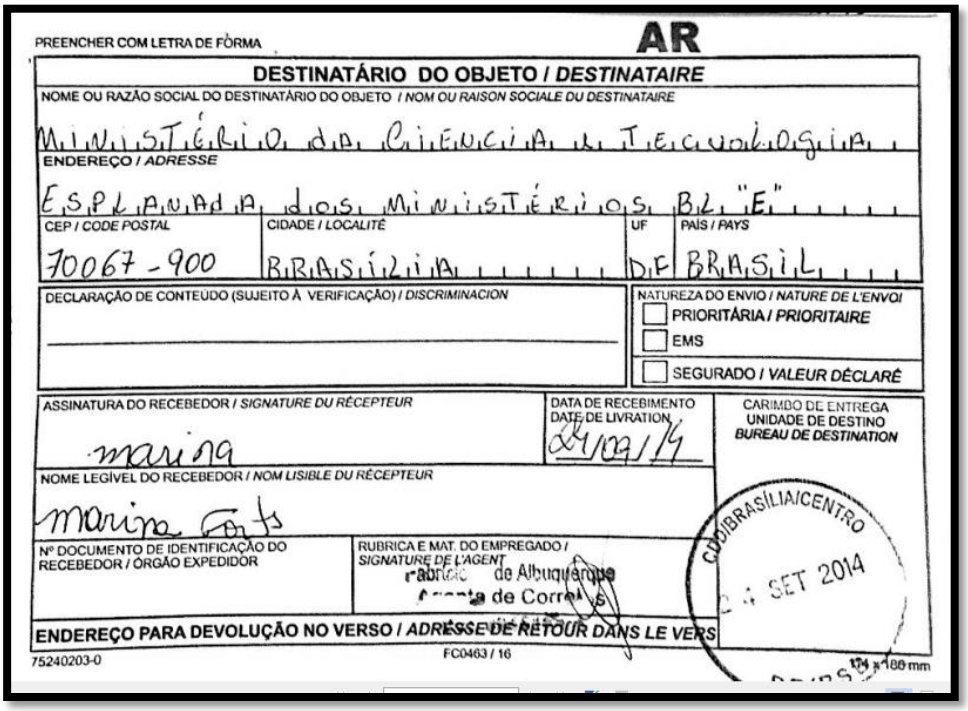
Nº DOCUMENTO DE IDENTIFICAÇÃO DO RECEBEDOR / ÓRGÃO EXPEDIDOR

RUBRICA E MAT. DO EMPREGADO / *SIGNATURE DE L'AGENT*

ENDEREÇO PARA DEVOLUÇÃO NO VERSO / *ADRESSE DE RETOUR DANS LE VERS*

75240203-0 FC0463 / 16

Figure I.A: *Letter sent to the Brazilian DNA and confirmation notice form sent on September 15, 2014.*



PREENCHER COM LETRA DE FÔRMA

AR

DESTINATÁRIO DO OBJETO / *DESTINATAIRE*

NOME OU RAZÃO SOCIAL DO DESTINATÁRIO DO OBJETO / *NOM OU RAISON SOCIALE DU DESTINATAIRE*

MINISTÉRIO DA CIÊNCIA E TECNOLOGIA

ENDEREÇO / *ADRESSE*

ESPLANADA DOS MINISTÉRIOS BL. "E"

CEP / *CODE POSTAL*	CIDADE / *LOCALITÉ*	UF	PAÍS / *PAYS*
70067-900	BRASÍLIA	DF	BRASIL

DECLARAÇÃO DE CONTEÚDO (SUJEITO À VERIFICAÇÃO) / *DISCRIMINACION*

NATUREZA DO ENVIO / *NATURE DE L'ENVOI*

- ☐ PRIORITÁRIA / *PRIORITAIRE*
- ☐ EMS
- ☐ SEGURADO / *VALEUR DÉCLARÉ*

ASSINATURA DO RECEBEDOR / *SIGNATURE DU RÉCEPTEUR*: marina

DATA DE RECEBIMENTO / *DATE DE LIVRATION*: 24/09/14

CARIMBO DE ENTREGA / UNIDADE DE DESTINO / *BUREAU DE DESTINATION*

CDD BRASÍLIA I CENTRO 24 SET 2014

NOME LEGÍVEL DO RECEBEDOR / *NOM LISIBLE DU RÉCEPTEUR*: Marina Fonts

Nº DOCUMENTO DE IDENTIFICAÇÃO DO RECEBEDOR / ÓRGÃO EXPEDIDOR

RUBRICA E MAT. DO EMPREGADO / *SIGNATURE DE L'AGENT*: [illegible] de Albuquerque

Agente de Correios

ENDEREÇO PARA DEVOLUÇÃO NO VERSO / *ADRESSE DE RETOUR DANS LE VERS*

75240203-0 FC0463 / 16 148 x 100 mm

Figure I.B: *Confirmation notice received on September 24, 2014.*

ANNEX II

SANTOS ENERGIA

SÃO JORGE ENERGIA | SÃO CRISTÓVÃO ENERGIA | SANTO ANTÔNIO DE PÁDUA ENERGIA

TO THE AMERICAN CARBON REGISTRY

Fortaleza, October 22, 2014

Subject: **Attestation letter regarding disclosure and mitigation of negative and community environmental impacts.**

In name of Santos Energia Participações S.A.., I, Marcelo Dal'Ava Mariano, director in charge of the Voluntary Carbon Project regarding the three wind power plants *Santo Antônio de Pádua, São Cristóvão and São Jorge,* under the project name ***"Santos Energia Wind Power Complex: Santo Antônio de Pádua, São Cristóvão and São Jorge"***, confirm that all plants, transmission lines and substation are in accordance with environmental laws of Brazil and Ceará State.

Although the project operation will start only in November 1rst, 2014, all impacts foreseen in the preliminary studies have been or are still being addressed, through the implementation of specific programs, regarding the environment and the communities. Frequent monitoring will continue to be carried out, including the social communication program, where the population participates in discussions and environmental education programs, contributing with suggestions or any observations regarding the entrepreneurship. So far, no complaints were registered.

The project did not result in population relocation and the population was not affected negatively by any activity in the construction phase whatsoever. Continuously monitoring will be carried out to ensure that there will be no negative impacts on the population or the environment.

Regards,

Marcelo Dal'Ava Mariano
Santos Energia
Technical Director

TABELIONATO PERGENTINO MAIA
3o. Ofício de Notas
Av. Pe. Antonio Tomas, 920 - Aldeota
Fortaleza-CE - Tel: (85) 3304-9444

Reconheco por SEMELHANCA a(s)firma(s)de:
CHzi7aFVOJ-MARCELO DAL AVA MARIANO.....
Dou fe. Us: 077
Fortaleza-CE, 22 de Outubro de 2014.

Em testemunho _____ da verdade.

EMANUELL MAGALHAES PINHEIRO-E.Autor.
MARIA MARLY MOTA RIBEIRO - E. Autor.
ANT. ALEXANDRE P. DE OLIVEIRA - E.Aut.
THIAGO FERNANDES ARAUJO - E.Aut.
PATRICIO LOULART DE ARAUJO - E.Aut.
VALIDO SOMENTE COM SELO DE AUTENTICIDADE.

Santos Energia Participações S.A.
Av. Senador Virgílio Tavora, 1701 Sala 1104, CEP: 60170-251, Fortaleza-CE, Brasil

Figure II.A: *Signed letter confirming that Santos Energia has disclosed and mitigated any negative community and environmental impacts.*

ANNEX III

AGÊNCIA NACIONAL DE ENERGIA ELÉTRICA - ANEEL

DESPACHO Nº 4.374, DE 10 DE NOVEMBRO DE 2014

Texto Original

O SUPERINTENDENTE DE FISCALIZAÇÃO DOS SERVIÇOS DE GERAÇÃO DA AGÊNCIA NACIONAL DE ENERGIA ELÉTRICA – ANEEL, no uso das atribuições conferidas pela Resolução Normativa ANEEL nº 583, de 22 de outubro de 2013, e considerando o que consta do Processo nº 48500.004888/2012-97, resolve liberar as unidades geradoras UG1 a UG5 e UG7, totalizando 12.000 kW de capacidade instalada, da EOL Santo Antônio de Pádua, Código Único de Empreendimentos de Geração - CEG EOL.CV.CE.030916-8.01, localizada no município de Trairi, estado do Ceará, de titularidade da empresa Central Eólica Santo Antônio de Pádua S.A., para início da operação comercial a partir do dia 11 de novembro de 2014, quando a energia produzida pelas unidades geradoras deverá estar disponível ao sistema.

AGÊNCIA NACIONAL DE ENERGIA ELÉTRICA - ANEEL

DESPACHO Nº 4.375, DE 10 DE NOVEMBRO DE 2014

Texto Original

O SUPERINTENDENTE DE FISCALIZAÇÃO DOS SERVIÇOS DE GERAÇÃO DA AGÊNCIA NACIONAL DE ENERGIA ELÉTRICA – ANEEL, no uso das atribuições conferidas pela Resolução Normativa ANEEL nº 583, de 22 de outubro de 2013, e considerando o que consta do Processo nº 48500.004884/2012-17, resolve liberar as unidades geradoras UG1 a UG13, totalizando 26.000 kW de capacidade instalada, da EOL São Cristóvão, Código Único de Empreendimentos de Geração - CEG EOL.CV.CE.030912-5.01, localizada no município de Trairi, estado do Ceará, de titularidade da empresa Central Eólica São Cristóvão S.A., para início da operação comercial a partir do dia 11 de novembro de 2014, quando a energia produzida pelas unidades geradoras deverá estar disponível ao sistema.

AGÊNCIA NACIONAL DE ENERGIA ELÉTRICA - ANEEL

DESPACHO Nº 4.376, DE 10 DE NOVEMBRO DE 2014

Texto Original

O SUPERINTENDENTE DE FISCALIZAÇÃO DOS SERVIÇOS DE GERAÇÃO DA AGÊNCIA NACIONAL DE ENERGIA ELÉTRICA – ANEEL, no uso das atribuições conferidas pela Resolução Normativa ANEEL nº 583, de 22 de outubro de 2013, e considerando o que consta do Processo nº 48500.004885/2012-53, resolve liberar as unidades geradoras UG1 a UG12, totalizando 24.000 kW de capacidade instalada, da EOL São Jorge, Código Único de Empreendimentos de Geração - CEG EOL.CV.CE.030911-7.01, localizada no município de Trairi, estado do Ceará, de titularidade da empresa Central Eólica São Jorge S.A., para início da operação comercial a partir do dia 11 de novembro de 2014, quando a energia produzida pelas unidades geradoras deverá estar disponível ao sistema.

Figure III.A: *ANEEL Ordinances of Start Date of SAP, SC and SJ WPPs.*

ANNEX IV

Anotação de Responsabilidade Técnica - ART
Lei nº 6.496, de 7 de dezembro de 1977

CREA-GO

ART Obra ou serviço
1020150021779

Conselho Regional de Engenharia e Agronomia de Goiás

1. Responsável Técnico

ELISA DA COSTA GUIDA — RNP: **1410435490**
Título profissional: **Engenheira Ambiental** — Registro: **147902/D-MG**
Empresa contratada: **10464 - EMBRASCA EMPRESA BRASILEIRA DE SERV.E CONSULT.AMBIENTAL LTDA**

2. Dados do Contrato

Contratante: **SANTOS ENERGIA PARTICIPAÇÕES S.A** — CPF/CNPJ: **08.685.391/0001-37**
Avenida Senador Virgilio Távora, Nº 1701 — Bairro: Aldeota — CEP: 60170-251
Cidade: Fortaleza-CE — Complemento: Sala 1104
E-Mail: marcelo.mariano@santosenergia.com.br — Fone: (85)30553652
Contrato: 0 — Celebrado em: 10/02/2014 — Valor Obra/Serviço R$: 7.000,00
Tipo de contratante: Pessoa Jurídica de Direito Privado
Ação institucional: Nenhuma/Não Aplicável

3. Dados da Obra/Serviço

SANTOS ENERGIA PARTICIPAÇÕES S.A, Nº 1701 — Bairro: Aldeota — CEP: 60170-251
Cidade: Fortaleza-CE — Complemento: Sala 1104
Data de Início: 11/11/2014 — Previsão término: 11/12/2021
Finalidade: **Infra-estrutura**
Proprietário: **SANTOS ENERGIA PARTICIPAÇÕES S.A** — CPF/CNPJ: **08.685.391/0001-37**
E-Mail: marcelo.mariano@santosenergia.com.br — Fone: (85) 30553652

4. Atividade Técnica

	Quantidade	Unidade
ASSESSORIA, CONSULTORIA OU ASSISTENCIA		
PROJETO MEIO AMBIENTE	1.680,00	HORAS-AULA

As informações constantes desta ART são de responsabilidade do(a) profissional e estão sujeitas a análise futura
Após a conclusão das atividades técnicas o profissional deverá proceder a baixa desta ART

5. Observações

Concepção, monitoramento e acompanhamento do projeto voluntário de créditos de carbono do Complexo Eólico Santos Energia, compostos pelos parques eólicos SANTO ANTÔNIO DE PÁDUA, SÃO CRISTÓVÃO E SÃO JORGE. Registro junto ao mercado American Carbon Registry e acompanhamento nas demais fases do projeto. Demais profissionais da equipe técnica: Ricardo Cesar Fernandes - Administrador - CRA 2.234/GO; Ana Carolina de Godoy Silva - Eng. Ambiental – CREA 5069185269/D-SP; Pedro Paulo Fernandes da Silva - Estagiário em Eng. Ambiental. Estagiário em Eng. Ambiental

6. Declarações

Acessibilidade: Sim: Declaro atendimento às regras de acessibilidade previstas nas normas técnicas da ABNT, na legislação específica e no Decreto nº 5.296, de 2 de dezembro de 2004.

7. Entidade de Classe

NENHUMA

8. Assinaturas

Declaro serem verdadeiras as informações acima

_____, ____ de _____ de _____
Local — Data

_____
ELISA DA COSTA GUIDA - CPF: 934.271.742-04

_____
SANTOS ENERGIA PARTICIPAÇÕES S.A - CPF/CNPJ: 08.685.391/0001-37

9. Informações

- A ART é válida somente após a conferência e o CREA receber a informação do PAGAMENTO PELO BANCO.
- A autenticidade deste documento pode ser verificada no site www.crea-go.org.br.
- A guarda da via assinada da ART será de responsabilidade do profissional e do contratante com o objetivo de documentar o vínculo contratual.
- Não é mais necessário enviar o documento original para o CREA-GO. O CREA-GO não mais afixará carimbo na nova ART.

www.crea-go.org.br atendimento@crea-go.org.br CREA-GO
Tel: (62) 3221-6200 Fax: (62) 3221-6277

Registrada em	Valor Pago	Boleto	Situação		Não Possui CAT
06/02/2015	R$ 67,68	0115021649	Registrada/OK		

Figure IV.A: *Technical Annotation of Responsibility emitted by the Engineering National Council.*