




Validation report form for CDM component project activities

(version 01.0)

Complete this form in accordance with the attachment: "Instructions for filling out the validation report form for CDM component project activities" at the end of this form.

VALIDATION REPORT

Reference number and title(s) of the specific-case CPA(s)	Ref. no.	Title
	01	Santa Mônica Wind Complex
Version number of the validation report	2.2 (*) TN P-No.: 12491 – 15/176	
Completion date of the validation report	01/11/2016	
Title and UNFCCC ref. no. of the PoA (where applicable) into which the specific-case CPA(s) is/are included	Brazilian PoA for NAMA incentivized NCRE Projects	
Version number of the PoA-DD into which the specific-case CPA(s) is/are included	04.1	
Coordinating/managing entity (CME)	Tractebel Energia S.A.	
Host Party(ies)	Brazil	
Estimated annual average emission reductions or net GHG removals in the crediting period (tCO ₂ e) for each specific-case CPA	CPA Ref. no.	Estimated annual average emission reductions or net GHG removals in the crediting period (tCO ₂ e)
	01	211,875
Sectoral scope(s) for each specific-case CPA	CPA Ref. no.	Sectoral scope(s)
	01	Scope: 1 / Technical Area: 1.2
Selected methodology(ies) for each specific-case CPA	CPA Ref. no.	Selected methodology(ies)
	01	CDM Methodology: ACM0002 "Grid-connected electricity generation from renewable sources" – version 16.0
Selected standardized baseline(s) for each specific-case CPA	CPA Ref. no.	Selected standardized baseline(s)
	01	-
Name of DOE	TÜV NORD CERT GmbH	
Name, position and signature of the approver of the validation report	 Stefan Winter Final Approver	

(*) Changes of version 2.1 from version 2.0 dated 2016-07-14 are only made to applicable UNFCCC requirements to refer to the Final Report of PoA - version 2.1 that has the LoA assessment. Changes of this version 2.2 from version 2.1 dated 2016-08-12 are only made to revise the LoA information and to refer to the Final Report of PoA - version 2.2.. The changes do not impact the project activity content.

SECTION I. Executive summary

Tractebel Energia S.A. has commissioned the TÜV NORD JI/CDM Certification Program (CP) to validate the inclusion of the specific-case CPA:

“Santa Mônica Wind Complex”

to the PoA “Brazilian PoA for NAMA incentivized NCRE Projects”

with regard to the relevant requirements of the UNFCCC for CDM project activities, as well as criteria for consistent project operations, monitoring and reporting. UNFCCC criteria include article 12 of the Kyoto Protocol, the modalities and procedures for CDM (Marrakech Accords) and the relevant decisions by COP/MOP and CDM Executive Board.

The project activity consists in the implementation of a greenfield wind complex at the city of Trairi, Ceará State, Brazil and connected to the National Interconnected System. The complex is composed by four wind farms: Ouro Verde (29.7 MW); Estrela (29.7 MW), Cacimbas 1 (18.9 MW); and Santa Mônica I (18.9 MW). The total energy generation of the complex is estimated in 413,981 MWh/y.

The following parties to the Kyoto Protocol, CME and CPA implementers are involved in this project activity (Table A-1):

Table A-1: Project Parties and CPA implementer

Characteristic	Party	CPA Implementer	CME
Non-Annex 1 Country	Brazil	Tractebel Energia S. A.	X

Details of the project location are given in table A-2 below:

Table A-2: Project Location

No.	Project Location			
Host Country	Brazil			
Region:	State of Ceará – northeast region			
Project location address:	City of Trairi			
Plant:	Cacimbas 1	Estrela	Santa Mônica I	Ouro Verde
Latitude:	3º 15' 12.50" S	3º 15' 11.8713" S	3º 15' 33.68" S	3º 17' 26.65" S
Longitude:	39º 16' 52.18" W	39º 17' 43.62" W	39º 16' 52.53" W	39º 18' 2.22" W

Basic technical details of the project are summarized in tables A-3.

Table A-3: Technical data of the project activity – Santa Mônica Wind Complex

Parameter	Unit	Value
Installed capacity	MW	97.2
Type of wind turbine	-	Alstom ECO122
Quantity of wind turbines	-	36
Nominal power per wind turbine	MW	2.7
Rotor diameter	m	122
Height of the tower	m	119

Parameter	Unit	Value
Total net electricity generation per year	MWh	413,981
Plant Load Factor	%	49.1

Table - A-3.1: Technical data of the project activity – Cacimbas 1

Parameter	Unit	Value
Installed capacity	MW	18.9
Quantity of wind turbines	-	7
Plant Load Factor	%	54.6

Table - A-3.2: Technical data of the project activity – Estrela

Parameter	Unit	Value
Installed capacity	MW	29.7
Quantity of wind turbines	-	11
Plant Load Factor	%	47.5

Table - A-3.3: Technical data of the project activity – Santa Mônica I

Parameter	Unit	Value
Installed capacity	MW	18.9
Quantity of wind turbines	-	7
Plant Load Factor	%	53.7

Table - A-3.4: Technical data of the project activity – Ouro Verde

Parameter	Unit	Value
Installed capacity	MW	29.7
Quantity of wind turbines	-	11
Plant Load Factor	%	44.3

SECTION II. Validation team, technical reviewer and approver

II.1. Validation team member

No.	Role	Type of resource	Last name	First name	Affiliation (e.g. name of central or other office of DOE or outsourced entity)	Involvement in			
						Desk review	On-site inspection	Interview(s)	Validation findings
1.	Team Leader	EI	Cruz	Sergio	BRTUV – Brazil	x	x	x	x
2.	Validator	EI	Lopes	Ricardo	BRTUV – Brazil	x	x	x	x

II.2. Technical reviewer and approver of the validation report

No.	Role	Type of resource	Last name	First name	Affiliation (e.g. name of central or other office of DOE or outsourced entity)
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1.	Technical reviewer	EI	Sebben	Marcelo	BRTUV – Brazil
2.	Approver	IR	Winter	Stefan	TÜV NORD CERT

SECTION III. Means of validation

III.1. Desk review

During the desk review all documents initially provided by the client and publicly available documents relevant for the validation were reviewed. The main documents are listed below:

- draft CPA-DD^{/CPADD/};
- registered (or draft) PoA-DD^{/POADD/};
- documents of CDM prior consideration and starting date^{/PSD/};
- regulations and approval of project activity^{/EIA/LIC/};
- technical details of the project^{/TD/LIFE/};
- host government approval^{/LoA/} (if available);
- financial analysis^{/IRR/BENCH/};
- plant load factor studies^{/PLF/};
- supporting documents demonstrating the additionality^{/FD/};
- expected emission reductions^{/XLS/};
- local stakeholders' consultations^{/SHCP/};
- national legislation^{/LEGIS/}.

Other supporting documents, such as publicly available information on the UNFCCC website and background information were also reviewed.

III.2. On-site inspection

Duration of on-site inspection: 08/12/2015 to 16/12/2015				
No.	Activity performed on-site	Site location	Date	Team member
1.	Opening meeting	Tractebel office (Florianópolis/SC)	08/12/2015	SC / RL
2.	Interviews with company personnel	Tractebel office	08/12/2015	SC / RL
3.	Assessment of prior consideration documents and stakeholder consultation process / Assessment of financial analysis	Tractebel office	08/12/2015	SC / RL
4.	Assessment of financial investment analysis and evidences	Tractebel office	09/12/2015	RL
5.	Assessment of evidences (additional documentation)	Tractebel office	09/12/2015	SC
6.	Assessment of evidences (additional documentation)	Tractebel office	10/12/2015	SC / RL
7.	Presentation of findings (office round)	Tractebel office	10/12/2015	SC / RL
8.	Closing meeting	Tractebel office	10/12/2015	SC / RL
9.	Visit on site (construction)	Santa Mônica Complex (Trairi/CE)	16/12/2015	SC
10.	Closing meeting	Santa Mônica Complex	16/12/2015	SC

¹⁾ Team Member:

- SC = Sergio Cruz
- RL = Ricardo Lopes

III.3. Interviews

No.	Interviewee			Date	Subject	Team member ¹⁾
	Last name	First name	Affiliation			

1.	Zimmermann	Marcio	Tractebel	08/12/2015	General aspects of the PoA and CPA	SC / RL
2.	Costa	David	ENGIE	08/12/2015	General aspects of the PoA and CPA	SC / RL
3.	Bezerra	Rodrigo	Climate Link	08/12/2015	General aspects of the PoA and CPA	SC / RL
4.	Takamori	Eduardo	ENGIE	09/12/2015	Financial Analysis	SC / RL
5.	Poyer	Felipe	Tractebel	10/12/2015	Monitoring Procedures	SC / RL
6.	Boselli	Murilo	Tractebel	16/12/2015	Site Inspection	SC

¹⁾ Team Member:

- SC = Sergio Cruz
- RL = Ricardo Lopes

III.4. Sampling approach

III.4.1. Sampling approaches during validation

<input checked="" type="checkbox"/>	No sampling approach has been used by the VT to validate any parameter			
<input type="checkbox"/>	A sampling approach has been applied by the VT for the following parameter(s):			
Parameter	Sampling approach ¹⁾	Sampling Type ²⁾	Population	Sample Size
-	-	-	-	-

¹⁾ Sampling Approaches:

- SiRS: Simple Random Sampling
- StRS: Stratified Random Sampling
- SS: Systematic Sampling
- CS: Cluster Sampling
- MSS: Multi-stage Sampling

²⁾ Sampling Types:

- PS: Parameter Sampling

III.4.2. Sampling approaches during on-site inspection

<input checked="" type="checkbox"/>	No sampling approach has been used by the VT at on-site inspection			
<input type="checkbox"/>	A sampling approach has been applied by the VT for field check of the following parameter(s):			
Parameter	Sampling approach ¹⁾	Sampling Type ²⁾	Population	Sample Size
-	-	-	-	-

¹⁾ Sampling Approaches:

- SiRS: Simple Random Sampling
- StRS: Stratified Random Sampling
- SS: Systematic Sampling
- CS: Cluster Sampling
- MSS: Multi-stage Sampling

²⁾ Sampling Types:

- AS: Acceptance Sampling
- PS: Parameter Sampling
- COM: Full data check at higher data aggregation levels and sampling at original data levels

III.5. Clarification requests, corrective action requests and forward action requests raised

Areas of validation of compliance	No. of CL	No. of CAR	No. of FAR
General description of the CPA(s)	-	-	-
• Title of the proposed or registered PoA	-	-	-
• Title(s) of the proposed specific-case CPA(s) and the corresponding generic CPA(s)	-	-	-

• Specific-case CPA design document	1	-	-
• Purpose and general description of the specific-case CPA(s)	1	-	-
Environmental analysis	-	-	-
Local stakeholder consultation	1	-	-
Eligibility of CPA(s) and estimation of emissions reductions	-	-	-
• Applicability of selected methodology(ies) and/or standardized baseline	-	-	-
○ Deviation from methodology	-	-	-
○ Clarification on applicability of methodology, tool and/or standardized baseline	-	-	-
• Sources and GHGs	-	-	-
• Description of baseline scenario	-	-	-
• Demonstration of eligibility for the CPA(s)	12	1	-
• Estimation of emission reductions or net GHG removals by sinks	-	-	-
○ Explanation of methodological choices	-	-	-
○ Data and parameters fixed ex ante	-	-	-
○ Ex ante calculation of emission reductions or net GHG removals by sinks	-	-	-
○ Summary of ex ante estimates of emission reductions or net GHG removals by sinks	-	-	-
• Application of the monitoring methodology and description of the monitoring plan	-	-	-
○ Data and parameters to be monitored	-	-	-
○ Description of the monitoring plan	-	-	-
Total	15	1	-

SECTION IV. Internal quality control

Before the submission of the final validation report, a technical review of the whole validation procedure was carried out. The technical reviewers are competent GHG auditors where at least one is being appointed for the scope this project falls under. The technical reviewers are not considered to be part of the validation team and thus not involved in the decision making process up to the technical review.

As a result of the technical review process the validation opinion and the topic specific assessments as prepared by the validation team leader may have been confirmed or revised. Furthermore reporting improvements might have been achieved. After the successful technical review, an overall (esp. procedural) assessment of the complete validation has been carried out by a senior assessor located in the accredited premises of TÜV NORD.

After this step the submission for requesting the registration of the project activity is conducted.

SECTION V. Validation opinion

Tractebel Energia S.A. has commissioned the TÜV NORD JI/CDM Certification Program (CP) to validate the inclusion of the specific-case CPA:

“Santa Mônica Wind Complex”

to the PoA “Brazilian PoA for NAMA incentivized NCRE Projects”

with regard to the relevant requirements of the UNFCCC for CDM project activities, as well as criteria for consistent project operations, monitoring and reporting. UNFCCC criteria include article 12 of the Kyoto Protocol, the modalities and procedures for CDM (Marrakech Accords) and the relevant decisions by COP/MOP and CDM Executive Board.

In detail validation opinion can be summarized as follows:

- the component activity is in line with all relevant host country criteria (Brazil) and all relevant UNFCCC requirements for CDM;
- the baseline has been appropriately identified as per the applied methodology;

- the framework for determination of project additionality is sufficiently justified in the CPA-DD and in line with the PoA-DD and generic CPA-DD;
- all eligibility criteria established for CPA inclusion in the PoA have been sufficiently fulfilled;
- the monitoring plan is transparent and adequate;
- the calculation of the emission factors and the CPA emission reductions is carried out in a transparent and conservative manner, so that the calculated emission reductions of 1,483,125 tCO₂e are most likely to be achieved within the (1st renewable) crediting period;
- information on the local stakeholders' consultation by the project participants prior to submitting the CPA for validation is sufficiently provided in the CPA-DD, which is in line with PoA-DD and generic CPA-DD;
- information on the environmental impact analysis of the CPA is sufficiently provided in the CPA-DD, which is in line with PoA-DD and generic CPA-DD.

The conclusions of this report show, that the project, as it was described in the project documentation, is in line with all criteria applicable for the validation.

The CPA "Santa Mônica Wind Complex" shall be included in the PoA "Brazilian PoA for NAMA incentivized NCRE Projects".

São Paulo, 01/11/2016



Sergio Cruz
Team Leader

SECTION VI. Validation findings

SECTION A. General description of the CPA(s)

A.1. Title of the proposed or registered PoA

Brazilian PoA for NAMA incentivized NCRE Projects

A.2. Title(s) of the proposed specific-case CPA(s) and the corresponding generic CPA(s)

Specific-case CPA title and reference number	Version number of the specific-case CPA-DD	Host Party	Generic CPA title, identification/reference number	Version number of the PoA-DD into which the CPA is included
Santa Mônica Wind Complex	04.1	Brazil	Generic component project activity (CPA) – METHOD FOR WIND, SOLAR, WAVE AND TIDAL PROJECTS	04.1

A.3. Specific-case CPA design document

Means of validation	<p>A draft CPA-DD was submitted to the validation team by CME.</p> <p>By means of the UNFCCC website it has been checked whether the latest applicable CPA-DD template (CDM-CPA-DD-FORM) has been used.</p> <p>Further it has been checked whether the latest instructions for filling out the CPA-DD template have been followed. Every section has been checked against the respective guidance.</p> <p>The following sources of information have been used in this context:</p> <ul style="list-style-type: none"> • /CPADD/ • /CPADD-T/ • /unfccc/ 	
Findings	<input checked="" type="checkbox"/>	The latest reporting template CDM-CPA-DD-FORM as listed on the UNFCCC website has been used for the Component Project Activity Design Document to be uploaded.
	<input checked="" type="checkbox"/>	The latest instructions for filling out the CPA-DD have been followed. All raised findings have been correctly solved.
	<input checked="" type="checkbox"/>	The specific-case CPA(s) is(are) submitted with the request for registration of the PoA.
	<input type="checkbox"/>	The specific-case CPA(s) is(are) to be included after the registration of the PoA .
	<input checked="" type="checkbox"/>	<p>The respective requirements have widely been complied with. However, the following issues needed to be addressed in this context:</p> <p>CL A1: According to the "Instructions for filling out the project design document form for CDM project activities", some issues are not correct:</p> <ol style="list-style-type: none"> 1. the version numbers of the following documents are outdated throughout the PoA-DD: <ol style="list-style-type: none"> a. Standard "Demonstration of additionality, development of eligibility criteria and application of multiple methodologies for programmes of activities"; b. Tool to calculate the emission factor for an electricity system; 2. at Section A.5, the description of how the technologies are transferred to the host party is missing; 3. at Section A.9, the number of months of the expected operational lifetime of the CPA is missing; 4. at Section A.12, the confirmation that the CPA is not a CPA that has been excluded from a registered CDM PoA as a result of erroneous inclusion of CPAs is missing; 5. at Section D.1, the reference to the UNFCCC CDM website for the methodology and methodological tools are missing;

		6. at Section D.3, it is missing the flow diagram physically delineating the CPA.
Conclusion	<input type="checkbox"/>	No CARs/CLs have been raised in this context. No correction was required in the context. The project is in line with the respective requirements.
	<input checked="" type="checkbox"/>	The raised CARs/CLs have been addressed appropriately. The PP has carried out the requested corrections. All respective findings could be closed out. For details please refer to Appendix 4.
		The latest applicable CPA-DD template (CDM-CPA-DD-FORM version 05.0) has been used and correctly filled out. The specific-case CPA is submitted with the request for registration of the PoA. There is only one host Party of the PoA (Brazil).

A.4. Purpose and general description of the specific-case CPA(s)

Means of validation		By means of comparison of the CPA-DD presented to the validation team by CME, site visit to project location and interviews with representatives, the validation team has assessed the description of the proposed CPA in accordance with applicable related validation requirements of VVS.
Findings	<input checked="" type="checkbox"/>	The CPA-DD contains a clear, accurate and complete project description.
	<input checked="" type="checkbox"/>	The information regarding the implementer of the CPA is listed at the CPA-DD and it is consistent with Appendix 1 that contains the contact information.
	<input checked="" type="checkbox"/>	This description is in accordance with the real situation or (in case of greenfield projects) is it most likely that the project will be implemented according to the project description.
	<input type="checkbox"/>	The CPA qualifies as a small scale CDM project activity as defined in decision 4 / CMP.1 annex II.
	<input type="checkbox"/>	The CPA qualifies as an afforestation and reforestation (A/R) CDM project activity.
	<input checked="" type="checkbox"/>	The CPA has been neither registered as a CDM project activity nor included in another registered PoA.
	<input checked="" type="checkbox"/>	The CPA is not a CPA that has been excluded from a registered CDM PoA as a result of erroneous inclusion of CPAs.
	<input checked="" type="checkbox"/>	The respective requirements have widely been complied with. However, the following issues needed to be addressed in this context: CL A2: <i>The geographical coordinates of the wind farms are not in accordance with provided evidence Technical Description^{TD/} of each wind farm.</i>
Conclusion	<input type="checkbox"/>	No CARs/CLs have been raised in this context. No correction was required in the context. The project is in line with the respective requirements.
	<input checked="" type="checkbox"/>	The raised CARs/CLs have been addressed appropriately. The PP has carried out the requested corrections. All respective findings could be closed out. For details please refer to Appendix 4.
		<p>The entity responsible for the implementation and operation of the CPA is Tractebel Energia S.A. which is also the CME.</p> <p>The CDM CPA has only one host Party (Brazil).</p> <p>The CPA was described at the CPA-DD in accordance with VVS requirements. The description of the project is complete and accurate and provides an understanding of the proposed component project activity.</p> <p>The activity is a greenfield project and consists in the implementation of a greenfield wind complex and connected to the National Interconnected System. The complex is composed by four wind farms: Ouro Verde (29.7 MW); Estrela (29.7 MW), Cacimbas 1 (18.9 MW); and Santa Mônica I (18.9 MW). The total energy generation of the complex is estimated in 413,981 MWh/y.</p> <p>The wind farms will use wind generators Alstom ECO122 with individual nominal power of 2.7 MW.</p> <p>The project is located at the city of Trairi, Ceará State, Brazil</p> <p>The CPA coordinates per wind farm are:</p> <ul style="list-style-type: none"> - Wind Farm Cacimbas 1: 3° 15' 12.50" S and 39° 16' 52.18" W; - Wind Farm Estrela: 3° 15' 11.8713" S and 39° 17' 43.62" W; - Wind Farm Santa Mônica I: 3° 15' 33.68" S and 39° 16' 52.53" W; - Wind Farm Ouro Verde: 3° 17' 26.65" S and 39° 18' 2.22" W. <p>The plant will be interconnected to the Brazilian National Interconnected Grid at Pecém II Substation.</p> <p>The employed technology is environmentally safe and sound as well as state of the</p>

	<p>art, manufactured by Alstom</p> <p>For details of technical features of the project activity, refer to Table A-2 above at Section A of this Report.</p> <p>The start date of the CPA is 2014-06-16. The chosen crediting period is renewable with duration of 7 years, from 2017-01-01 to 2023-12-31 (both days included).</p> <p>The estimated amount of emission reductions during the first crediting period is 1,483,125 tCO₂e.</p> <p>No public funding has been observed.</p> <p>In addition, the CDM CPA has been neither registered as a CDM project activity nor included in another registered PoA.</p> <p>Moreover, the CPA has not been excluded from a registered CDM PoA as a result of erroneous inclusion of CPAs.</p>
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SECTION B. Environmental analysis

Means of validation	<p>By means of provided evidences and by the assessment of host party regulations regarding the environment, the validation team has checked the compliance of the analysis of the environmental impacts with applicable validation requirements related to the environmental impacts in the VVS.</p> <p>The following sources of information have been used in this context:</p> <ul style="list-style-type: none"> • /CPADD/ • /POADD/ • /EIA/ • /unfccc/ 												
Findings	<table border="1"> <tr> <td><input checked="" type="checkbox"/></td> <td>The project complies with host Party requirements for an Environmental Impact Assessment.</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Not applicable as the environmental analysis was performed at the PoA level.</td> </tr> <tr> <td><input type="checkbox"/></td> <td>The CPA qualifies as a small scale CDM project activity as defined in decision 4 / CMP.1 annex II.</td> </tr> <tr> <td><input type="checkbox"/></td> <td>The CPA qualifies as an afforestation and reforestation (A/R) CDM project activity.</td> </tr> <tr> <td><input type="checkbox"/></td> <td>The respective requirements have widely been complied with. However, the following issues needed to be addressed in this context:</td> </tr> <tr> <td></td> <td>-</td> </tr> </table>	<input checked="" type="checkbox"/>	The project complies with host Party requirements for an Environmental Impact Assessment.	<input type="checkbox"/>	Not applicable as the environmental analysis was performed at the PoA level.	<input type="checkbox"/>	The CPA qualifies as a small scale CDM project activity as defined in decision 4 / CMP.1 annex II.	<input type="checkbox"/>	The CPA qualifies as an afforestation and reforestation (A/R) CDM project activity.	<input type="checkbox"/>	The respective requirements have widely been complied with. However, the following issues needed to be addressed in this context:		-
<input checked="" type="checkbox"/>	The project complies with host Party requirements for an Environmental Impact Assessment.												
<input type="checkbox"/>	Not applicable as the environmental analysis was performed at the PoA level.												
<input type="checkbox"/>	The CPA qualifies as a small scale CDM project activity as defined in decision 4 / CMP.1 annex II.												
<input type="checkbox"/>	The CPA qualifies as an afforestation and reforestation (A/R) CDM project activity.												
<input type="checkbox"/>	The respective requirements have widely been complied with. However, the following issues needed to be addressed in this context:												
	-												
Conclusion	<table border="1"> <tr> <td><input checked="" type="checkbox"/></td> <td>No CARs/CLs have been raised in this context. No correction was required in the context. The project is in line with the respective requirements.</td> </tr> <tr> <td><input type="checkbox"/></td> <td>The raised CARs/CLs have been addressed appropriately. The PP has carried out the requested corrections. All respective findings could be closed out. For details please refer to Appendix 4.</td> </tr> </table> <p>For this type of project, the host party requires an EIA and a RIMA^{/EIA/} which were prepared by a third party and submitted to the state environmental authority to start the licensing process. The EIA/RIMA was duly approved by state agency^{/EIA/}. In addition, preliminary licenses and installation licenses were issued by local environmental agency to each wind farm of the complex.</p> <p>There are no significant environmental impacts envisaged for this project as per the EIAs.</p> <p>There are no transboundary environmental impacts for the project activity.</p>	<input checked="" type="checkbox"/>	No CARs/CLs have been raised in this context. No correction was required in the context. The project is in line with the respective requirements.	<input type="checkbox"/>	The raised CARs/CLs have been addressed appropriately. The PP has carried out the requested corrections. All respective findings could be closed out. For details please refer to Appendix 4.								
<input checked="" type="checkbox"/>	No CARs/CLs have been raised in this context. No correction was required in the context. The project is in line with the respective requirements.												
<input type="checkbox"/>	The raised CARs/CLs have been addressed appropriately. The PP has carried out the requested corrections. All respective findings could be closed out. For details please refer to Appendix 4.												

SECTION C. Local stakeholder consultation

Means of validation	<p>By means of provided evidences and by the assessment of host party regulations, the validation team has checked the compliance of the local stakeholder consultation process with applicable validation requirements related to the local stakeholder consultation in the VVS.</p> <p>The following sources of information have been used in this context:</p> <ul style="list-style-type: none"> • /CPADD/ • /POADD/ • /SHCP/ • /dna/ • /unfccc/ 		
Findings	<table border="1"> <tr> <td><input type="checkbox"/></td> <td>The local stakeholder consultation process was completed before the start</td> </tr> </table>	<input type="checkbox"/>	The local stakeholder consultation process was completed before the start
<input type="checkbox"/>	The local stakeholder consultation process was completed before the start		

		date of the CPA.
	<input checked="" type="checkbox"/>	The local stakeholder consultation process was completed before the submission of the CPA-DD to the DOE.
	<input checked="" type="checkbox"/>	The local stakeholder consultation process can be assessed as adequate and in accordance with host Country requirements.
	<input checked="" type="checkbox"/>	The local stakeholder consultation process was carried out at the PoA level.
	<input checked="" type="checkbox"/>	The respective requirements have widely been complied with. However, the following issues needed to be addressed in this context: CL C1: <i>It is not clear in section C.1 whether the local stakeholder consultation process is done at the PoA and/or CPA level.</i>
Conclusion	<input type="checkbox"/>	No CARs/CLs have been raised in this context. No correction was required in the context. The project is in line with the respective requirements.
	<input checked="" type="checkbox"/>	The raised CARs/CLs have been addressed appropriately. The PP has carried out the requested corrections. All respective findings could be closed out. For details please refer to Appendix 4.
		The local stakeholder consultation process was carried out at the PoA level in accordance with host Country requirements.

SECTION D. Eligibility of CPA(s) and estimation of emissions reductions

D.1. Applicability of selected methodology and/or standardized baseline

Means of validation	<p>By means of comparison of the CPA-DD with</p> <ul style="list-style-type: none"> (i) the applied CDM methodology, (ii) all applicable CDM Meth tools, and (iii) if applicable, a standardized baseline <p>the validation team has checked whether the CPA is in compliance with the related requirements of the applied methodology/tools/SB.</p> <p>The following sources of information have been used in this context:</p> <ul style="list-style-type: none"> • /CPADD/ • /POADD/ • /METH/ • /MT/ • /POAS/ • /unfccc/ 	
Findings	<input checked="" type="checkbox"/>	The CPA applies a valid version of a CDM Methodology.
	<input checked="" type="checkbox"/>	All applied methodological tools are valid and approved.
	<input checked="" type="checkbox"/>	The applied methodology and methodological tools derived from UNFCCC CDM website.
	<input checked="" type="checkbox"/>	All methodology applicability conditions are met.
	<input checked="" type="checkbox"/>	The CPA is in line with all requirements and stipulations mentioned in all sections of the applied methodology.
	<input type="checkbox"/>	The CPA is expected to result in significant emissions, related both to project and leakage, other than those listed in the methodology.
	<input type="checkbox"/>	The respective requirements have widely been complied with. However, the following issues needed to be addressed in this context: -
Conclusion	<input checked="" type="checkbox"/>	No CARs/CLs have been raised in this context. No correction was required in the context. The project is in line with the respective requirements.
	<input type="checkbox"/>	The raised CARs/CLs have been addressed appropriately. The PP has carried out the requested corrections. All respective findings could be closed out. For details please refer to Appendix 4.
		<p>The component project activity applies approved methodology <i>ACM0002 – Grid-connected electricity generation from renewable sources – version 16.0</i> which is valid at the moment of the validation process.</p> <p>All applicability conditions of the applied methodology are met (refer to Appendix 6 for details).</p> <p>The component project activity also applies the methodological tools “<i>Tool for the demonstration and assessment of additionality</i>” – version 07.0.0 and “<i>Tool to calculate the emission factor for an electricity system</i>” – version 05.0.0.</p> <p>Methodology and tools are derived from UNFCCC CDM website.</p>

	Hence, the CPA is in line with all requirements and stipulations mentioned in all sections of the applied methodology.
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D.1.1. Deviation from methodology

Means of validation	<p>By means of comparison of the CPA-DD with the applied CDM methodology and methodological tools, it has been checked whether any deviation from applied methodologies, including standardized baselines have been verified.</p> <p>The following sources of information have been used in this context:</p> <ul style="list-style-type: none"> • /CPADD/ • /POADD/ • /METH/ • /MT/ • /unfccc/ 								
Findings	<table border="1"> <tr> <td><input checked="" type="checkbox"/></td> <td>No deviation from or revision of the methodology is necessary.</td> </tr> <tr> <td><input type="checkbox"/></td> <td>A deviation from or revision of the methodology is to be requested and approved.</td> </tr> <tr> <td><input type="checkbox"/></td> <td>The respective requirements have widely been complied with. However, the following issues needed to be addressed in this context:</td> </tr> <tr> <td></td> <td>-</td> </tr> </table>	<input checked="" type="checkbox"/>	No deviation from or revision of the methodology is necessary.	<input type="checkbox"/>	A deviation from or revision of the methodology is to be requested and approved.	<input type="checkbox"/>	The respective requirements have widely been complied with. However, the following issues needed to be addressed in this context:		-
<input checked="" type="checkbox"/>	No deviation from or revision of the methodology is necessary.								
<input type="checkbox"/>	A deviation from or revision of the methodology is to be requested and approved.								
<input type="checkbox"/>	The respective requirements have widely been complied with. However, the following issues needed to be addressed in this context:								
	-								
Conclusion	<table border="1"> <tr> <td><input checked="" type="checkbox"/></td> <td>No CARs/CLs have been raised in this context. No correction was required in the context. The project is in line with the respective requirements.</td> </tr> <tr> <td><input type="checkbox"/></td> <td>The raised CARs/CLs have been addressed appropriately. The PP has carried out the requested corrections. All respective findings could be closed out. For details please refer to Appendix 4.</td> </tr> </table> <p>The component project activity applies approved methodology <i>ACM0002 – Grid-connected electricity generation from renewable sources – version 16.0</i> which is valid at the moment of the validation process.</p> <p>No deviation or revision of the methodology was requested during the validation period.</p>	<input checked="" type="checkbox"/>	No CARs/CLs have been raised in this context. No correction was required in the context. The project is in line with the respective requirements.	<input type="checkbox"/>	The raised CARs/CLs have been addressed appropriately. The PP has carried out the requested corrections. All respective findings could be closed out. For details please refer to Appendix 4.				
<input checked="" type="checkbox"/>	No CARs/CLs have been raised in this context. No correction was required in the context. The project is in line with the respective requirements.								
<input type="checkbox"/>	The raised CARs/CLs have been addressed appropriately. The PP has carried out the requested corrections. All respective findings could be closed out. For details please refer to Appendix 4.								

D.1.2. Clarification on applicability of methodology, tool and/or standardized baseline

Means of validation	<p>By means of verification of the proposed CDM component project activity with</p> <ol style="list-style-type: none"> the applied CDM methodology, all applicable CDM Meth tools, and if applicable, a standardized baseline <p>the validation team has checked whether if any clarification on applicability of methodology, tool and/or standardized baseline to the proposed CDM CPA has been issued.</p> <p>The following sources of information have been used in this context:</p> <ul style="list-style-type: none"> • /CPADD/ • /POADD/ • /METH/ • /MT/ • /unfccc/ 								
Findings	<table border="1"> <tr> <td><input checked="" type="checkbox"/></td> <td>No clarification on applicability of methodology, tool and/or standardized baseline to the proposed CDM CPA has been issued.</td> </tr> <tr> <td><input type="checkbox"/></td> <td>A clarification on applicability of methodology, tool and/or standardized baseline to the proposed CDM CPA has been issued.</td> </tr> <tr> <td><input type="checkbox"/></td> <td>The respective requirements have widely been complied with. However, the following issues needed to be addressed in this context:</td> </tr> <tr> <td></td> <td>-</td> </tr> </table>	<input checked="" type="checkbox"/>	No clarification on applicability of methodology, tool and/or standardized baseline to the proposed CDM CPA has been issued.	<input type="checkbox"/>	A clarification on applicability of methodology, tool and/or standardized baseline to the proposed CDM CPA has been issued.	<input type="checkbox"/>	The respective requirements have widely been complied with. However, the following issues needed to be addressed in this context:		-
<input checked="" type="checkbox"/>	No clarification on applicability of methodology, tool and/or standardized baseline to the proposed CDM CPA has been issued.								
<input type="checkbox"/>	A clarification on applicability of methodology, tool and/or standardized baseline to the proposed CDM CPA has been issued.								
<input type="checkbox"/>	The respective requirements have widely been complied with. However, the following issues needed to be addressed in this context:								
	-								
Conclusion	<table border="1"> <tr> <td><input checked="" type="checkbox"/></td> <td>No CARs/CLs have been raised in this context. No correction was required in the context. The project is in line with the respective requirements.</td> </tr> <tr> <td><input type="checkbox"/></td> <td>The raised CARs/CLs have been addressed appropriately. The PP has carried out the requested corrections. All respective findings could be closed out. For details please refer to Appendix 4.</td> </tr> </table>	<input checked="" type="checkbox"/>	No CARs/CLs have been raised in this context. No correction was required in the context. The project is in line with the respective requirements.	<input type="checkbox"/>	The raised CARs/CLs have been addressed appropriately. The PP has carried out the requested corrections. All respective findings could be closed out. For details please refer to Appendix 4.				
<input checked="" type="checkbox"/>	No CARs/CLs have been raised in this context. No correction was required in the context. The project is in line with the respective requirements.								
<input type="checkbox"/>	The raised CARs/CLs have been addressed appropriately. The PP has carried out the requested corrections. All respective findings could be closed out. For details please refer to Appendix 4.								

	<p>The component project activity applies approved methodology <i>ACM0002 – Grid-connected electricity generation from renewable sources – version 16.0</i> which is valid at the moment of the validation process.</p> <p>There is no clarification on applicability of methodology, tool and/or standardized baseline to the proposed CDM CPA.</p>
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D.2. Sources and GHGs

Means of validation	<p>By means of comparison of the CPA-DD with the applied CDM methodology, the validation team has assessed the baseline scenario in accordance with applicable related validation requirements in the VVS.</p> <p>The following sources of information have been used in this context:</p> <ul style="list-style-type: none"> • /CPADD/ • /POADD/ • /METH/ 										
Findings	<table border="1"> <tr> <td><input checked="" type="checkbox"/></td> <td>The CPA-DD includes a correct and complete description of the system boundary (GHG gases and GHG sources) which is in accordance with the PoA.</td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td>The CPA-DD includes sufficient proofs that the geographical location of the CPA is within the boundary definition of the PoA.</td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td>The CPA-DD includes a flow diagram physically delineating the CPA.</td> </tr> <tr> <td><input type="checkbox"/></td> <td>The respective requirements have widely been complied with. However, the following issues needed to be addressed in this context:</td> </tr> <tr> <td></td> <td>-</td> </tr> </table>	<input checked="" type="checkbox"/>	The CPA-DD includes a correct and complete description of the system boundary (GHG gases and GHG sources) which is in accordance with the PoA.	<input checked="" type="checkbox"/>	The CPA-DD includes sufficient proofs that the geographical location of the CPA is within the boundary definition of the PoA.	<input checked="" type="checkbox"/>	The CPA-DD includes a flow diagram physically delineating the CPA.	<input type="checkbox"/>	The respective requirements have widely been complied with. However, the following issues needed to be addressed in this context:		-
<input checked="" type="checkbox"/>	The CPA-DD includes a correct and complete description of the system boundary (GHG gases and GHG sources) which is in accordance with the PoA.										
<input checked="" type="checkbox"/>	The CPA-DD includes sufficient proofs that the geographical location of the CPA is within the boundary definition of the PoA.										
<input checked="" type="checkbox"/>	The CPA-DD includes a flow diagram physically delineating the CPA.										
<input type="checkbox"/>	The respective requirements have widely been complied with. However, the following issues needed to be addressed in this context:										
	-										
Conclusion	<table border="1"> <tr> <td><input checked="" type="checkbox"/></td> <td>No CARs/CLs have been raised in this context. No correction was required in the context. The project is in line with the respective requirements.</td> </tr> <tr> <td><input type="checkbox"/></td> <td>The raised CARs/CLs have been addressed appropriately. The PP has carried out the requested corrections. All respective findings could be closed out. For details please refer to Appendix 4.</td> </tr> </table> <p>It is clearly stated at the CPA-DD a correct and complete description of the system boundary. In addition, there are sufficient proofs that the geographical location of the CPA is within the boundary definition of the PoA which can be verified by its flow diagram.</p>	<input checked="" type="checkbox"/>	No CARs/CLs have been raised in this context. No correction was required in the context. The project is in line with the respective requirements.	<input type="checkbox"/>	The raised CARs/CLs have been addressed appropriately. The PP has carried out the requested corrections. All respective findings could be closed out. For details please refer to Appendix 4.						
<input checked="" type="checkbox"/>	No CARs/CLs have been raised in this context. No correction was required in the context. The project is in line with the respective requirements.										
<input type="checkbox"/>	The raised CARs/CLs have been addressed appropriately. The PP has carried out the requested corrections. All respective findings could be closed out. For details please refer to Appendix 4.										

D.3. Description of baseline scenario

Means of validation	<p>By means of comparison of the CPA-DD with the applied CDM methodology, the validation team has assessed the baseline scenario in accordance with applicable related validation requirements in the VVS.</p> <p>The following sources of information have been used in this context:</p> <ul style="list-style-type: none"> • /CPADD/ • /POADD/ • /METH/ 								
Findings	<table border="1"> <tr> <td><input checked="" type="checkbox"/></td> <td>The baseline scenario is given by the applied methodology.</td> </tr> <tr> <td><input type="checkbox"/></td> <td>All possible baseline scenarios have been considered.</td> </tr> <tr> <td><input type="checkbox"/></td> <td>The respective requirements have widely been complied with. However, the following issues needed to be addressed in this context:</td> </tr> <tr> <td></td> <td>-</td> </tr> </table>	<input checked="" type="checkbox"/>	The baseline scenario is given by the applied methodology.	<input type="checkbox"/>	All possible baseline scenarios have been considered.	<input type="checkbox"/>	The respective requirements have widely been complied with. However, the following issues needed to be addressed in this context:		-
<input checked="" type="checkbox"/>	The baseline scenario is given by the applied methodology.								
<input type="checkbox"/>	All possible baseline scenarios have been considered.								
<input type="checkbox"/>	The respective requirements have widely been complied with. However, the following issues needed to be addressed in this context:								
	-								
Conclusion	<table border="1"> <tr> <td><input checked="" type="checkbox"/></td> <td>No CARs/CLs have been raised in this context. No correction was required in the context. The project is in line with the respective requirements.</td> </tr> <tr> <td><input type="checkbox"/></td> <td>The raised CARs/CLs have been addressed appropriately. The PP has carried out the requested corrections. All respective findings could be closed out. For details please refer to Appendix 4.</td> </tr> </table> <p>The baseline scenario is the one given by the applied methodology ACM0002 – v. 16.0 for the installation of a Greenfield power plant which is: “<i>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”.</i>”</p>	<input checked="" type="checkbox"/>	No CARs/CLs have been raised in this context. No correction was required in the context. The project is in line with the respective requirements.	<input type="checkbox"/>	The raised CARs/CLs have been addressed appropriately. The PP has carried out the requested corrections. All respective findings could be closed out. For details please refer to Appendix 4.				
<input checked="" type="checkbox"/>	No CARs/CLs have been raised in this context. No correction was required in the context. The project is in line with the respective requirements.								
<input type="checkbox"/>	The raised CARs/CLs have been addressed appropriately. The PP has carried out the requested corrections. All respective findings could be closed out. For details please refer to Appendix 4.								

D.4. Demonstration of eligibility for the CPA(s)

By means of comparison of the specific-case CPA(s) with each eligibility criterion for the inclusion of CPA in the PoA, including the demonstration of additionality, as described in the PoA and the corresponding generic CPA(s), in accordance with the applicable requirements in the VVS and the PoA Standard^{/POAS/}.

Demonstration of the Eligibility Criteria:

CME Demonstration			DOE Assessment
No.	Eligibility criteria as set out in the PoA-DD	Compliance	Means of validation/Findings/Conclusion
a.	All installations in a CPA shall take place within the geographical boundaries of Brazil and shall be connected to the SIN grid.	The CPA will be located within Brazil boundaries. The CPA will be connected to the SIN.	Santa Mônica Wind Complex is a greenfield wind complex located at the city of Trairi, Ceará State, Brazil and connected to the National Interconnected System. <u>Evidences:</u> - EIA/RIMA; - Preliminary and Installation Licenses.
b.	The CME shall demonstrate that each CPA does not lead to double counting of emission reduction by confirming that each CPA is not part of any of the categories below: Standalone CDM project activity; Bundled CDM project activity; Another registered PoA.	The unique geographical coordinates of the CPA is given at Section A.7 of the CPA-DD. The CME is the project developer for this CPA and confirms that the CPA is not part of any standalone project or bundled project or PoA under any CDM process stage (i.e.: at validation, requesting registration or registered).	The interviews performed during the validation and the consultation of GHG programs websites confirm that the CPA is not part of any standalone project or bundled project or PoA. <u>Evidences:</u> - UNFCCC website; - Other GHG programs websites.
c.	The CPA shall consist of a Greenfield grid connected renewable energy power generation project of one of the following types: - Solar power plant/unit; - Wind power plant/unit; - Wave power plant/unit; - Tidal power plant/unit. All CPAs will be required to be in conformity with national requirements where available.	The CPA consists of a Greenfield grid-connected renewable energy power generation project of the type "wind power plant".	Santa Mônica Wind Complex is a greenfield wind complex. <u>Evidences:</u> - Technical specifications of technology/measure; - EIA/RIMA; - Preliminary and Installation Licenses.
d.	The CPA start date shall not be on or before the start date of PoA: 05/05/2014, date which the Prior Consideration of the CDM has been published in the UNFCCC website. The CPA start date should be	The start date of the CPA is 16/06/2014, thus after the starting date of the PoA.	Robust documentation has been presented to evidence the start date of the CPA, in accordance with the "Glossary of CDM terms". <u>Evidences:</u> - Contracts among the project

	<p>the earliest date at which either the implementation or construction or real action of a project activity begins in line with “Glossary of CDM terms”.</p> <p>Documentary evidence of the CPA start date shall be provided by the time of inclusion of each CPA in the PoA.</p>		developer and Alstom and BAC.
e.	<p>The CPA must comply with the following requirements as per the provisions established in the methodology ACM0002 (version 16.0).</p>	<p>CPA is in compliance with the methodology ACM0002 (version 16.0) and its applicable tools requirements.</p>	<p>The CPA complies with the applicability requirements of ACM0002 – v. 16.0.</p> <p>A full assessment can be viewed at Appendix 6 of this report.</p> <p><u>Evidences:</u></p> <ul style="list-style-type: none"> - EIA/RIMA; - Preliminary and Installation Licenses; - Technical descriptions.
f.	<p>The CPA shall demonstrate additionality as per the stepwise procedure contained in the “Tool for the demonstration and assessment of additionality” (version 7.0.0):</p> <p>Step 0: Demonstration whether the proposed project activity is the first-of-its-kind;</p> <p>Step 1: Identification of alternatives to the project activity;</p> <p>Step 2: Investment analysis;</p> <p>Step 3: Barriers analysis; and</p> <p>Step 4: Common practice analysis</p> <p>Alternatively, the project proponents have also the option to apply the “simplified procedure to demonstrate additionality”, as per the provisions contained in section 5.3.1 of the methodology ACM0002 (version 16.0).</p>	<p>Additionality for the present CPA is demonstrated by conducting an Investment and common practice analysis in accordance with the “Tool for the demonstration and assessment of additionality” (version 0.7.0.0).</p>	<p>The CPA-DD states a full demonstration of the CPA additionality as per the applied tools. An investment Analysis was performed which indicates an IRR below the chosen benchmark (default value as per the Methodological Tool: Investment Analysis - v. 06.0).</p> <p>A full assessment of the financial parameters used at the investment analysis is presented at Appendix 7 of this report.</p> <p><u>Evidences:</u></p> <ul style="list-style-type: none"> - Additionality demonstration as per the “Tool for the demonstration and assessment of additionality” – version 0.7.0.0 and Methodological tool: Common practice” – version 03.1
g.	<ul style="list-style-type: none"> - Environmental impact analysis shall be conducted at CPA level for all CPAs with installed capacity higher than 10 MW, according to the applicable environmental laws and regulations. - Local stakeholder consultation is conducted at the PoA level and according to the Brazilian DNA requirements to issue the 	<ul style="list-style-type: none"> - The environmental impact analysis of the CPA has been conducted by a third party and approved by the environmental agency. - Local stakeholder consultation has been undertaken at PoA level and in line with Brazilian DNA requirements. 	<p>The environmental impact analysis is conducted at the CPA level.</p> <p>For this type of project, the host party requires an EIA and a RIMA^{/EIA/} which were prepared by a third party and submitted to the state environmental authority to start the licensing process. The EIA/RIMA was dully approved by</p>

	Letter of Approval. The CME does not stipulate any specific requirement for local stakeholder consultations at CPA level.		state agency ^{/EIA/} . In addition, preliminary licenses and installation licenses were issued by local environmental agency to each wind farm of the complex. <u>Evidences:</u> - EIA/RIMA; - Preliminary and Installation Licenses. The local stakeholder consultation is conducted at the PoA level and in accordance with host Country requirements. <u>Evidences:</u> - Brazilian DNA Resolutions ^{/dna/} ; - PoA-DD.
h.	The financing for the CPA will be confirmed to be consistent with the PoA financing described in the PoA-DD. A confirmation will be required that no funding is coming from Annex I parties, or if it does, that this is not a diversion of ODA.	Tractebel Energia S.A. confirms that the project will receive no funding from an Annex I Party that could result in a diversion of official ODA.	The interviews performed during the validation with CME representatives (which is also CPA implementer) confirm that the CPA will not receive funding from an Annex I Party that could result in a diversion of official ODA.
i.	The CPA shall correspond with the target group: Greenfield grid-connected (SIN) renewable energy power projects, such as: wind, solar, geothermal, wave and tidal. The projects are not expected to have any distribution mechanisms.	The CPA is a Greenfield wind power plant connected to the SIN. Therefore, it corresponds with the target group.	Santa Mônica Wind Complex is a greenfield wind complex located at the city of Trairi, Ceará State, Brazil and connected to the National Interconnected System. <u>Evidences:</u> - EIA/RIMA; - Preliminary and Installation Licenses.

The respective requirements have widely been complied with. However, the following issues needed to be addressed in this context:

CL D1: *The criterion (b) about the conditions to avoid double counting does not include checking participation of the CPA in other GHG programs other than CDM projects.*

In addition, the compliance of criterion (g) environmental impact analysis is not described in an objective way.

The raised CL has been addressed appropriately. The PP has carried out the requested corrections. All respective findings could be closed out. For details please refer to Appendix 4.

All eligibility criteria established for the CPA inclusion in the PoA have been sufficiently accomplished.

Demonstration of the CPA Additionality (in accordance with the step-wise approach described in the "Tool for the demonstration and assessment of additionality" – version 07.0.0):

Identification if the project activity is the first-of-its-kind Step 0	
<input type="checkbox"/>	The project activity is the first-of-its-kind.
<input checked="" type="checkbox"/>	Not applicable to the project activity.

<input type="checkbox"/>	The respective requirements have widely been complied with. However, the following issues needed to be addressed in this context:
	-
Identification of alternatives Step 1	
<input type="checkbox"/>	The project activity is a SSC project.
<input checked="" type="checkbox"/>	The baseline scenario is given by the applied methodology and alternatives to the project activity are not necessary.
<input type="checkbox"/>	The list of alternatives contains the current situation, the project not undertaken as a CDM project as well as all other viable means of supplying the outputs or services that are to be supplied by the proposed CDM project activity
<input type="checkbox"/>	The respective requirements have widely been complied with. However, the following issues needed to be addressed in this context:
	-
Investment analysis Step 2	
<input checked="" type="checkbox"/>	The PDD provides evidences that the project is not be the most economically or financially attractive alternative or economically / financially feasible without the revenues from the sale of CERs.
<input checked="" type="checkbox"/>	An appropriate analysis method was chosen for the project activity.
<input checked="" type="checkbox"/>	The input values used in the investment analysis were valid and applicable at the time of the investment decision.
<input checked="" type="checkbox"/>	The plant load factor was chosen in a conservative manner.
<input checked="" type="checkbox"/>	The benchmark value is suitable for the project activity and it is reasonable to assume that no investment would be made at a rate of a lower return than the benchmark.
<input checked="" type="checkbox"/>	A correct Sensitivity Analysis has been performed which contains variation of parameters which may vary throughout the project lifetime.
<input checked="" type="checkbox"/>	The respective requirements have widely been complied with. However, the following issues needed to be addressed in this context:
	CL D2: On section D.5 – Step 2, the first bullet of first paragraph is not found in article 6 of the Law 12187/2009.
	CL D3: At Section D.5, of CPA-DD, it is not clearly documented the outcome of each step of the additionality tool.
	CL D4: At Section D.5 of CPA-DD, Sub-step 2b, it is not clearly identified the financial indicator chosen. Further it is mentioned options for benchmark when it is used the default value.
	CL D5: At Section D.5 of CPA-DD, it is not justified in CPA-DD why financial analysis was carried out for the entire Santa Mônica Complex and not for each wind farm separately.
	CL D6: At Section D.5 of CPA-DD, the value applied for TUST is not correct.
	CL D7: At Section D.5 of CPA-DD:
	a. It is not sufficiently evidenced the calculation of value applied for CCEE fee;
	b. It is not evidenced the calculation of value applied for ONS fee.
	CL D8: The reference given for <u>Accounts Payable</u> is Santa Mônica Complex contracts. However no information was found in OPEX Contract with Alstom on which to base the assumption of 30 days.
	CL D9: The 10-year bond (Treasury Notes B) was used as reference for the interest rate of 6.45% indicated in section D.5 of CPA-DD. However, it is not justified the appropriateness of considering a government bond as the lending rate.
	CL D10: In Excel spread sheet in tab “FA Input data & references”:
	a. Input data (sales, general and administrative expenses) are inside formula in cell H61, therefore not precisely referenced. Moreover, the values taken correspond to the concept “Control” not “Consolidated”.
	b. Reference to applicable Brazilian law for taxes is not given (cells F36 to F38). Moreover, the calculation for Additional Income Tax (10%) is not correct according to legislation as it is due only for turnover above 240kBRL.
	CL D11: In Excel spread sheet in tab “FA Santa Monica”, the total amount of distribution tariff is different in the first and last year due to date of commissioning. However the distribution tariff per kw/month is constant during the entire period.
	CL D12: In Excel spread sheet in tab “FA Santa Monica”, the calculation of sensitivity analysis and breakeven point is not traceable.
	CAR D1: According to Guidelines/tool for financial analysis, input parameters of financial analysis shall be valid and applicable at the time of investment decision. As the start date of CPA was on 2014-06-16, this is the case for:
	a. Electricity Tariff average for 2014 (2014-11-28);
	b. O&M contracts Substation & Transmission Line (date);
	c. PLF of wind farm Ouro Verde de (July 2014);
	d. ANEEL Dispatch 76 (2015-01-15).

<i>Barrier analysis Step 3 or SSC additionality assessment</i>	
<input checked="" type="checkbox"/>	Not applicable
<input type="checkbox"/>	There are barriers which have a clear and direct impact on the financial returns of the project.
<input type="checkbox"/>	The respective requirements have widely been complied with. However, the following issues needed to be addressed in this context:
	-
<i>Common practice analysis Step 4</i>	
<input checked="" type="checkbox"/>	The defined region for the common practice analysis is appropriate for the technology/industry type.
<input checked="" type="checkbox"/>	Similar projects have been undertaken in the relevant region.
<input checked="" type="checkbox"/>	The analysis has been performed in accordance with applied tool.
<input type="checkbox"/>	The respective requirements have widely been complied with. However, the following issues needed to be addressed in this context:
	-

CPA additionality is sufficiently justified in the CPA-DD and in line with the PoA-DD and generic CPA-DD. The additionality is demonstrated in accordance with the step-wise approach described in the "Tool for the demonstration and assessment of additionality" – version 07.0.0.

Identification if the project activity is the first-of-its-kind Step 0:

Not applicable to the project activity.

Identification of alternatives Step 1:

The list of alternatives contains the status-quo and the project activity not undertaken as a CDM. As the baseline is directly given by the methodology ACM0002, the selection of alternatives is not required.

Investment analysis Step 2:

The chosen approach for demonstrating the additionality of the project is the Benchmark Analysis (Option III). The project activity generates economic benefits with the sale of energy, therefore the simple cost analysis (Option I) cannot be used. As there is no evidence that the proposed baseline scenario does not leave any other option to the PPs than to make an investment to supply the same product or service, the investment comparison analysis (Option II) cannot be used. So, Benchmark analysis (Option III) is appropriate and the best method to demonstrate additionally for a project implemented with the sole purpose of energy generation for commercialization. Equity IRR is the financial indicator chosen.

A viewable and unprotected excel spread sheet document was made available to validation team and was reviewed about clarity and access of calculation and data. Further, the values of IRR in the CPA-DD are consistent with the financial spread sheet. All input values used in the investment analysis were valid and applicable at the time of the investment decision.

The investment analysis was done for all four plants together as the decision was taken for all plants together. The division in four plants just occurred because of Brazilian regulations that give benefits to renewable energy projects with nominal capacities up to 30 MW.

The period of investment analysis considers 20 years, which is consistent with the expected technical lifetime of the wind generators and it is conservative (20 years) and in line with the Methodological Tool of Investment Analysis. All assets will be fully depreciated by the end of the 20 year period, so book value will be zero according to local accounting regulations and, considering the land is leased and that is not reasonable to expect profit in the alienation of 20-year-used aero generators, at the end of technical lifetime, no fair value was considered.

The PLF has been determined by a third party anemometric study^{/PLF/} in a conservative manner. The PLF of the wind farms is the same at the financial analysis and ER calculations.

The project uses *assumed profit* for calculation of income tax, additional income tax and social contribution, hence actual interest payable does not affect tax calculation. In addition, cash in and outflows have been considered correctly.

The chosen benchmark is the *Expected return on equity* given by the default value of the Appendix of the Tool for the host country – Brazil – and Group 1 – Energy Industries, which is suitable for the CPA.

The benchmark is 10.65% and the calculated Equity IRR is 4.41%. Thus, the IRR is below the benchmark, and hence the project is not financially attractive. Both values are expressed in real terms and are post-tax.

The benchmark does not include the subjective profitability expectations or risk profile of the project developer. So, it is deemed reasonable to assume that no investment would be made at a rate of return lower than the benchmark.

In addition, the sensitivity analysis is performed. All parameters above the 20% threshold were included and subject to a reasonable variation of -10% to +10% and continue to give a lower IRR than the benchmark rate. Further a breakeven analysis was carried out and presented the following results:

- a. the breakeven point of Capex is achieved at -26.23% which is very unlikely to happen as it was based in proposals and presents the value of 2,118 kUSD/MW. So a reduction of 26.23%, it would reach 1,562 kUSD/MW, which is extremely unlikely as the average CAPEX in Brazil for wind projects is 1,670 kUSD/MW without grid connection charges, according to the World Energy Council. Further the proposals became signed contracts which were verified by the VT and confirm the effective contracted CAPEX;
- b. the breakeven point of Electricity tariff is achieved at +23.76% (R\$165.00) which is very unlikely to happen as the price of the electricity auction of 2014 presented a highest value of R\$ 149.47, which clearly demonstrates the unlikelihood of the scenario;
- c. the breakeven point of Net electricity generation is achieved at +23.76% (PLF of 60.78%) which is very unlikely to happen as per specialized literature, i.e. World Energy Council, load factors of wind power projects in Brazil range between 23% and 45%, and the actual PLF of the Santa Mônica Complex (49.1%) has already been calculated above the maximum estimated values for wind farms in Brazil;
- d. there is no breakeven point of Opex. So even with zero Opex costs the equity IRR is below the benchmark.

For the detailed assessment of financial parameters, refer to Appendix 7.

Barrier analysis Step 3 or SSC additionality assessment:

Not chosen by PPs.

Common practice analysis Step 4:

The geographical region that was considered for the analysis is the national (Brazil) scenario which is reasonable as the energy sector rules are the same for the whole country.

The “Methodological Tool Common Practice” – version 03.1 was applied to assess the common practice.

As the financial analysis has been done with the installed capacity of the complex (97.2 MW), the same value has been used for the Common Practice Analysis.

From all electricity plants in operation in Brazil, there are 437 plants with the installed capacity between 48.6 MW and 145.8 MW (+/- 50% of the installed capacity of the project activity) and that have started operations before the starting date of the proposed project and not under CDM validation or already registered.

Therefore, there are 437 plants in operation in Brazil similar to the project activity. So, $N_{all} = 437$.

From those 437 plants, 14 are also wind power plants. So, $N_{diff} = 423$.

Finally, as $F = 0.03$ (i.e. lower than 0.2), the proposed project activity is not a common practice within the sector in the applicable geographical area.

This demonstrates that component project activity is not the common or prevailing practice.

Thus, it was demonstrated and evidenced that the **CPA is additional**.

D.5. Estimation of emission reductions or net GHG removals by sinks

D.5.1. Explanation of methodological choices

Means of validation	<p>By means of comparison of the CPA-DD with the PoA-DD and applied CDM methodology, the validation team has assessed the steps taken and the equation and parameters applied to calculate the emission reductions or net GHG removals for the specific-case CPA were assessed in accordance with the applicable requirements in the VVS and the PoA standard.</p> <p>The following sources of information have been used in this context:</p> <ul style="list-style-type: none"> • /CPADD/ • /POADD/ • /METH/ 										
Findings	<table border="1"> <tr> <td><input checked="" type="checkbox"/></td> <td>All formulae to calculate baseline emissions have been applied in line with the underlying methodology and the PoA.</td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td>All formulae to calculate project emissions have been applied in line with the underlying methodology and the PoA.</td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td>All formulae to calculate leakage emissions have been applied in line with the underlying methodology and the PoA.</td> </tr> <tr> <td><input type="checkbox"/></td> <td>The respective requirements have widely been complied with. However, the following issues needed to be addressed in this context:</td> </tr> <tr> <td></td> <td>-</td> </tr> </table>	<input checked="" type="checkbox"/>	All formulae to calculate baseline emissions have been applied in line with the underlying methodology and the PoA.	<input checked="" type="checkbox"/>	All formulae to calculate project emissions have been applied in line with the underlying methodology and the PoA.	<input checked="" type="checkbox"/>	All formulae to calculate leakage emissions have been applied in line with the underlying methodology and the PoA.	<input type="checkbox"/>	The respective requirements have widely been complied with. However, the following issues needed to be addressed in this context:		-
<input checked="" type="checkbox"/>	All formulae to calculate baseline emissions have been applied in line with the underlying methodology and the PoA.										
<input checked="" type="checkbox"/>	All formulae to calculate project emissions have been applied in line with the underlying methodology and the PoA.										
<input checked="" type="checkbox"/>	All formulae to calculate leakage emissions have been applied in line with the underlying methodology and the PoA.										
<input type="checkbox"/>	The respective requirements have widely been complied with. However, the following issues needed to be addressed in this context:										
	-										
Conclusion	<table border="1"> <tr> <td><input checked="" type="checkbox"/></td> <td>No CARs/CLs have been raised in this context. No correction was required in the context. The project is in line with the respective requirements.</td> </tr> <tr> <td><input type="checkbox"/></td> <td>The raised CARs/CLs have been addressed appropriately. The PP has carried out the requested corrections. All respective findings could be closed out. For details please refer to Appendix 4.</td> </tr> </table> <p>The CPA-DD includes a correct and complete description of the methods or methodological steps as described in the applied methodology to calculate baseline, project and leakage emissions.</p> <p>All the equations to calculate the ERs are in accordance with the applied methodology and PoA.</p> <p>The <u>Baseline Emissions</u> are calculated by the following formula:</p> $BE_y = EG_{PJ,y} \times EF_{grid,CM,y}$ <p>Where:</p> <ul style="list-style-type: none"> - BE_y: Baseline emissions in year y; - $EG_{PJ,y}$: 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; - $EF_{grid,CM,y}$: 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". <p>As the project activity is the installation of a greenfield power plant: $EG_{PJ,y} = EG_{facility,y}$ (quantity of net electricity generation supplied by the project plant/unit to the grid in year y).</p> <p>The <u>Project Emissions</u> for wind, solar, wave or tidal projects that do not use fossil fuels for electricity generation are zero as per the applied methodology (ACM0002 – v. 16.0). So: $PE_y = 0$.</p> <p>In addition, for the applied methodology, no leakage emissions are to be considered. So: $L_y = 0$.</p>	<input checked="" type="checkbox"/>	No CARs/CLs have been raised in this context. No correction was required in the context. The project is in line with the respective requirements.	<input type="checkbox"/>	The raised CARs/CLs have been addressed appropriately. The PP has carried out the requested corrections. All respective findings could be closed out. For details please refer to Appendix 4.						
<input checked="" type="checkbox"/>	No CARs/CLs have been raised in this context. No correction was required in the context. The project is in line with the respective requirements.										
<input type="checkbox"/>	The raised CARs/CLs have been addressed appropriately. The PP has carried out the requested corrections. All respective findings could be closed out. For details please refer to Appendix 4.										

D.5.2. Data and parameters fixed ex ante

Means of validation	<p>During the validation all parameters that are not monitored during the crediting period (as listed in chapter D.6.2 of the CPA-DD) have been checked in accordance with the requirements of the methodology, tools, underlying PoA, VVS, PoA Standard, and where applicable, the Sampling Standard.</p> <p>The following sources of information have been used in this context:</p> <ul style="list-style-type: none"> • /CPADD/ • /POADD/
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	<ul style="list-style-type: none"> • /METH/ • /MT/ • /POAS/ • /unfccc/
Findings	<input checked="" type="checkbox"/> The list of parameters which are determined ex-ante is complete.
	<input checked="" type="checkbox"/> The provided values are correct for all parameters.
	<input type="checkbox"/> The respective requirements have widely been complied with. However, the following issues needed to be addressed in this context: -
Conclusion	<input checked="" type="checkbox"/> No CARs/CLs have been raised in this context. No correction was required in the context. The project is in line with the respective requirements.
	<input type="checkbox"/> The raised CARs/CLs have been addressed appropriately. The PP has carried out the requested corrections. All respective findings could be closed out. For details please refer to Appendix 4.
	<p>The list of the ex-ante parameters is complete in accordance with applied methodology, tools and PoA.</p> <p>The only fixed parameter is: $EF_{grid,BM,2014}$: <i>Build margin CO₂ emission factor for the project electricity system in year y.</i></p> <p>For the identified parameter, a separate table has been included in line with the given instructions with value, choice of data, measurement methods and procedures and purpose of data.</p> <p>The applied value is correct and in accordance to the selected data source which is clear and valid from public and official source. The value applied for the parameter is 0.2963 tCO₂/MWh which is correct as per the Brazilian DNA's website and it will lead to a conservative calculation of emission reductions.</p>

D.5.3. Ex ante calculation of emission reductions or net GHG removals by sinks

Means of validation	<p>By means of comparison of the CPA-DD with the applied CDM methodology, methodological tools and presented calculations, the validation team has assessed the estimated emissions reductions of the component project activity in accordance with applicable related validation requirements in the VVS.</p> <p>The following sources of information have been used in this context:</p> <ul style="list-style-type: none"> • /CPADD/ • /POADD/ • /METH/ • /XLS/
Findings	<input checked="" type="checkbox"/> The equations applied for calculation are correctly applied according to the approved methodology.
	<input checked="" type="checkbox"/> All values of data to be applied are considered to be reasonable, applicable and conservative.
	<input checked="" type="checkbox"/> The ER calculation as described in D.6.3 is correct.
	<input type="checkbox"/> The respective requirements have widely been complied with. However, the following issues needed to be addressed in this context: -
Conclusion	<input checked="" type="checkbox"/> No CARs/CLs have been raised in this context. No correction was required in the context. The project is in line with the respective requirements.
	<input type="checkbox"/> The raised CARs/CLs have been addressed appropriately. The PP has carried out the requested corrections. All respective findings could be closed out. For details please refer to Appendix 4.
	<p>All equations, formulas and conservative assumptions have been applied correctly as per the applied methodology (ACM0002 – 16.0).</p> <p>The methodology does not allow different methodological choices.</p> <p>The baseline emissions are calculated based on net energy generated multiplied by the combined margin emission factor (EF) calculated according to the <i>Tool to Calculate the emission factor for an electric system</i> and published by Brazilian DNA.</p> <p>The ERs are deemed real, measurable and give long-term benefits related to the mitigation of climate change.</p> <p>A sample calculation has been included for the equation.</p> <p>The calculation at the Excel spread sheet is correct and traceable.</p>

D.5.4. Summary of ex ante estimates of emission reductions or net GHG removals by sinks

Means of validation	The validation team has checked the ex-ante calculation of the CPA-DD as well as the calculation sheet in detail, in accordance with the applicable validation requirements in the VVS and the PoA standard.	
Findings	<input checked="" type="checkbox"/>	The annual, total and average values for baseline, project and leakage emissions as well as emission reductions have been listed correctly.
	<input checked="" type="checkbox"/>	The template table has been used.
	<input type="checkbox"/>	The respective requirements have widely been complied with. However, the following issues needed to be addressed in this context: -
Conclusion	<input checked="" type="checkbox"/>	No CARs/CLs have been raised in this context. No correction was required in the context. The project is in line with the respective requirements.
	<input type="checkbox"/>	The raised CARs/CLs have been addressed appropriately. The PP has carried out the requested corrections. All respective findings could be closed out. For details please refer to Appendix 4.
	The ex-ante calculations of baseline, project and leakage emissions have been correctly listed for each year of the crediting period.	

D.6. Application of the monitoring methodology and description of the monitoring plan**D.6.1. Data and parameters to be monitored**

Means of validation	<p>During the validation all monitoring parameters (as listed in chapter D.7.1 of the CPA-DD) have been checked with regard to the</p> <ul style="list-style-type: none"> (i) description, (ii) source of data, (iii) appropriateness of the applied measurement / determination method, (iv) monitoring frequency, (v) applied QA/QC measures, (vi) purpose of data, (vii) formats. <p>The following sources of information have been used in this context:</p> <ul style="list-style-type: none"> • /CPADD/ • /POADD/ • /METH/ • /MT/ 	
Findings	<input checked="" type="checkbox"/>	The list of parameters which are to be monitored is complete.
	<input type="checkbox"/>	The respective requirements have widely been complied with. However, the following issues needed to be addressed in this context: -
Conclusion	<input checked="" type="checkbox"/>	No CARs/CLs have been raised in this context. No correction was required in the context. The project is in line with the respective requirements.
	<input type="checkbox"/>	The raised CARs/CLs have been addressed appropriately. The PP has carried out the requested corrections. All respective findings could be closed out. For details please refer to Appendix 4.

	<p>The list of the parameters is complete and the monitoring is in accordance with applied methodology, tools and PoA.</p> <p>For each identified parameter a separate table has been included in line with the given instructions with value, description, source of data, appropriateness of the applied measurement / determination method and responsible persons, monitoring frequency, applied QA/QC measures, purpose of data and formats.</p> <p>All monitoring parameters required for a wind farm by ACM0002 are contained in the monitoring plan:</p> <ul style="list-style-type: none"> - $EF_{grid,OM,y}$: Operation margin emission factor in year y; - $EF_{grid,CM,y}$: Combined margin CO_2 emission factor for grid connected power generation in year y calculated using the latest version of the "Tool to calculate the emission factor for an electricity system"; - $EG_{facility,y}$ (or $EG_{PJ,y}$): Quantity of net electricity generation supplied by the project plant/unit to the grid in year y. <p>Parameter $EG_{facility,y}$ is monitored by plant meters.</p> <p>$EF_{grid,OM,y}$ given by the Brazilian DNA and parameter $EF_{grid,CM,y}$ is calculated with the value $EF_{grid,OM,y}$ and the value of the ex-ante value of $EF_{grid,BM,y}$. The weightings of $EF_{grid,OM,y}$ and $EF_{grid,BM,y}$ are given by the Tool to calculate the emission factor for an electricity system, which are $w_{OM} = 0.75$ and $w_{BM} = 0.25$ – for all crediting periods.</p> <p>The validation procedure is described parameter-wise in the project specific validation checklist (Appendix 5).</p>
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D.6.2. Description of the monitoring plan

Means of validation	<p>During the validation all monitoring parameters (as listed in chapter D.7.1) of the CPA-DD) have been checked with regard to the applied methodology and tools and PoA.</p> <p>The monitoring arrangements for the parameters can be implemented, the QA/QC procedures are appropriate and sufficient to ensure that the emission reductions achieved from the component project activity can be reported ex-post and further verified. In addition, procedures, type of data and responsibilities are identified and provisions for data archiving are made.</p> <p>The following sources of information have been used in this context:</p> <ul style="list-style-type: none"> • /CPADD/ • /POADD/ • /METH/ • /MT/ 										
Findings	<table border="1"> <tr> <td><input checked="" type="checkbox"/></td><td>The monitoring plan of the CPA is in accordance with the underlying methodology/ies.</td></tr> <tr> <td><input checked="" type="checkbox"/></td><td>The means of monitoring of all parameters contained in the monitoring plan are feasible.</td></tr> <tr> <td><input type="checkbox"/></td><td>A sampling plan has been provided in line with the standard for sampling and surveys.</td></tr> <tr> <td><input type="checkbox"/></td><td>The respective requirements have widely been complied with. However, the following issues needed to be addressed in this context:</td></tr> <tr> <td></td><td>-</td></tr> </table>	<input checked="" type="checkbox"/>	The monitoring plan of the CPA is in accordance with the underlying methodology/ies.	<input checked="" type="checkbox"/>	The means of monitoring of all parameters contained in the monitoring plan are feasible.	<input type="checkbox"/>	A sampling plan has been provided in line with the standard for sampling and surveys.	<input type="checkbox"/>	The respective requirements have widely been complied with. However, the following issues needed to be addressed in this context:		-
<input checked="" type="checkbox"/>	The monitoring plan of the CPA is in accordance with the underlying methodology/ies.										
<input checked="" type="checkbox"/>	The means of monitoring of all parameters contained in the monitoring plan are feasible.										
<input type="checkbox"/>	A sampling plan has been provided in line with the standard for sampling and surveys.										
<input type="checkbox"/>	The respective requirements have widely been complied with. However, the following issues needed to be addressed in this context:										
	-										
Conclusion	<table border="1"> <tr> <td><input checked="" type="checkbox"/></td><td>No CARs/CLs have been raised in this context. No correction was required in the context. The project is in line with the respective requirements.</td></tr> <tr> <td><input type="checkbox"/></td><td>The raised CARs/CLs have been addressed appropriately. The PP has carried out the requested corrections. All respective findings could be closed out. For details please refer to Appendix 4.</td></tr> </table> <p>It can be confirmed that the monitoring plan and the means of the monitoring of its parameters is feasible. In addition, the monitoring plan for the CPA is in accordance with the approved monitoring methodology.</p> <p>The quantity of net electricity generation supplied to the grid by the Santa Mônica Wind Complex will be determined as follows: the proportional share of the Santa Mônica Wind Complex in the total electricity measured at the Tractebel collector substation will be calculated based on the readings of each of the 8 pairs of meters (main and backup) from the four plants of the Santa Mônica Complex and four plants of Trairi Wind Complex which are already in operation, also property of</p>	<input checked="" type="checkbox"/>	No CARs/CLs have been raised in this context. No correction was required in the context. The project is in line with the respective requirements.	<input type="checkbox"/>	The raised CARs/CLs have been addressed appropriately. The PP has carried out the requested corrections. All respective findings could be closed out. For details please refer to Appendix 4.						
<input checked="" type="checkbox"/>	No CARs/CLs have been raised in this context. No correction was required in the context. The project is in line with the respective requirements.										
<input type="checkbox"/>	The raised CARs/CLs have been addressed appropriately. The PP has carried out the requested corrections. All respective findings could be closed out. For details please refer to Appendix 4.										

	<p>Tractebel Energia S.A. and CDM registered project activities (Mundaú Wind Power Plant CDM Project – Ref. number: 7026; Fleixeiras I Wind Power Plant CDM Project – Ref. Number: 7017; Trairi Wind Power Plant CDM Project – Ref. number: 7023; Guajiru Wind Power Plant CDM Project – Ref. Number: 7021). This percentage will be multiplied by the total net electricity dispatched to the grid, measured at the concessionaire substation.</p> <p>No sampling plan has been provided.</p>
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Appendix 1. Abbreviations

Abbreviations	Full Texts
ANEEL	Brazilian Electricity Regulatory Agency
BACEN	Brazilian Central Bank
BAU	Business as usual
BM	Build Margin
BNDES	National Bank for Social Economic Development
CA	Corrective Action / Clarification Action
CAR	Corrective Action Request
CCEE	Chamber of Commerce of Electric Energy
CDM	Clean Development Mechanism
CER	Certified Emission Reduction
CL	Clarification Request
CM	Combined Margin
CME	Coordinating / Managing Entity
CO ₂	Carbon dioxide
CO ₂ e	Carbon dioxide equivalent
COEMA	Environmental Council of State of Ceará
CONAMA	National Environmental Council
COP/MOP	Conference of Parties / Meeting of Parties
CP	Certification Program
DNA	Designated National Authority
CPA	Component Project Activity
CPA-DD	Component Project Activity Design Document
EIA	Environmental Impact Assessment
ELETRONBRÁS	National Electric Utility Company (State Owned)
EPE	Energetic Research Enterprise
FAR	Forward Action Request
GE	General Electric
GHG	Greenhouse gas(es)
GT	Glossary of Terms
IPCC	Intergovernmental Panel on Climate Change
LoA	Letter of Approval
MoC	Modalities of Communication
MME	Ministry of Mines and Energy
MP	Monitoring Plan
OM	Operating Margin
ONS	National Operator of the Electric System
OSV	On-site visit
PA	Project Activity
PLF	Plant Load factor
PoA	Programme of Activities
PoA-DD	CDM Programme of Activities Design Document
PP	Project Participant(s)
PPA	Power Purchase Agreement
QA/QC	Quality assurance/Quality control
RIMA	Report of Environmental Impacts

SEMACE	Department of Environment of the State of Ceará
SIN	National Interconnected System
TFSEE	Tariff of Electric Energy Services Inspection
TJLP	Long Term Interest Rate (from the Portuguese: <i>Taxa de Juros de Longo Prazo</i>)
TUST	Tariff of the Use and Distribution of the Transmission System
UNFCCC	United Nations Framework Convention on Climate Change

Appendix 2. Competence of team member and technical reviewer



Statement of Competence
Appointment and authorization according to the procedures of the TÜV NORD JI/CDM Certification Program

Mr. Sergio Cruz

SCHEME	STATUS	VALID UNTIL
CDM	Senior Assessor (Validation, Verification)	2017-12-16
VCS / ISO 14064-2	Senior Assessor	2017-12-16

Authorization status for technical areas within sectoral scopes:

CODE	TECHNICAL AREA
1.2	Renewables
13.1	Solid waste and wastewater

185 - Rev. 6, Date: 2015-01-07

185_2011-04-08-F20-w3-2013-10-25



Statement of Competence
Appointment and authorization according to the procedures of the TÜV NORD JI/CDM Certification Program

Mr. Ricardo Lopes

SCHEME	STATUS	VALID UNTIL
CDM	Senior Assessor (Validation, Verification)	2018-03-03
VCS / ISO 14064-2	Senior Assessor	2018-03-03

Authorization status for technical areas within sectoral scopes:

CODE	TECHNICAL AREA
1.2	Renewables
13.1	Solid waste and wastewater

77 - Rev. 6, Date: 2015-03-04

185_2011-04-08-F20-w3-2013-10-25



Statement of Competence
Appointment and authorization according to the procedures of the TÜV NORD JI/CDM Certification Program

Mr. Marcelo Sebben

SCHEME	STATUS	VALID UNTIL
CDM	Lead Assessor (Validation, Verification)	2017-08-31
VCS / ISO 14064-2	Lead Assessor	2017-08-31

Authorization status for technical areas within sectoral scopes:

CODE	TECHNICAL AREA
1.2	Renewables
13.1	Solid waste and wastewater

297 - Rev. 6, Date: 2015-01-07

297_2011-04-08-F20-w3-2013-10-25

Appendix 3. Documents reviewed or referenced

No.	Reference	Author	Title	References to the document	Provider
1	/CPADD-T/	UNFCCC	Component project activity design document form for CDM component project activities (CDM-CPA-DD-FORM) – version 05.0	https://cdm.unfccc.int/Reference/PDs_Ds_Forms/index.html	Other
2	/CPM/	DOE	TÜV NORD JI / CDM CP Manual (incl. CP procedures and forms)	-	Other
3	/GOT/	UNFCCC	Glossary “CDM terms” – version 08.0	https://cdm.unfccc.int/filestorage/e/x/t/extfile-20150226124447549-glos_CDM.pdf/glos_CDM.pdf?t=UmZ8bnFjODI3fDCW9A3vJwR03kQQh4sbLiYu	Other
4	/IPCC/	IPCC	1. 1996 IPCC Guidelines for National Greenhouse Gas Inventories: work book	www.ipcc-nggip.iges.or.jp	Other

			2. 2006 IPCC Guidelines for National Greenhouse Gas Inventories: work book		
5	/KP/	UNFCCC	Kyoto Protocol (1997)	http://unfccc.int/kyoto_protocol/items/2830.php	Other
6	/MA/	UNFCCC	Decision 3/CMP. 1 (Marrakesh – Accords)	http://cdm.unfccc.int/Reference/COPMOP/index.html	Other
7	/METH/	UNFCCC	ACM0002 – version. 16.0 – Grid-connected electricity generation from renewable sources	http://cdm.unfccc.int/methodologies/DB/EY2CL7RTEHRC9V6YQHLAR6MJ6VEU83	Other
8	/MT/	UNFCCC	Methodological Tools: - Tool to calculate the emission factor for an electricity system – version 05.0 - Tool for the demonstration and assessment of additionality - version 07.0.0 - Methodological tool: Common practice - version 03.1 - Guidelines “Investment Analysis” version 05.0 - Methodological tool: Investment analysis – version 06.0	http://cdm.unfccc.int/Reference/tools/index.html	Other
9	/POAS/	UNFCCC	Standard for demonstration of additionality, development of eligibility criteria and Application of Multiple Methodologies for Programme of Activities – version 04.0	http://cdm.unfccc.int/Reference/Standards/index.html	Other
10	/PS/	UNFCCC	CDM Project Standard – version 9.0	http://cdm.unfccc.int/Reference/Standards/index.html	Other
11	/SAMPLE/	UNFCCC	- Guidelines for Sampling and Surveys for CDM Project Activities and Programme Activities – version 04.0 - Standard for Sampling and Surveys for CDM Project Activities and Programme Activities – version 5.0	https://cdm.unfccc.int/Reference/Guidclarif/index.html http://cdm.unfccc.int/Reference/Standards/index.html	Other
12	/VVS/	UNFCCC	CDM Validation and Verification Standard – version 09.0	http://cdm.unfccc.int/Reference/Standards/index.html	Other
13	/COMMON /	CME	Common Practice Analysis: Excel spread sheet – Santa Monica complex_Common practice analysis_20150810	-	CME
14	/CON/	DOE	Signed Proposal for Carrying out the validation of the CDM project “Brazilian PoA for NAMA incentivized NCRE Projects” among TÜV Nord and Tractebel Energia S.A. – 15PoABR080121	2015-08-13	Other
15	/CPADD/	CME	Component project activity design document – “Santa Mônica Wind Complex” - version 01 - version 02 - version 03 - version 04 - version 04.1	2015-11-20 2015-12-14 2016-03-02 2016-03-28 2016-07-13	CME
16	/EIA/		Environment Impact Assessment:		

		MRS MRS MRS MRS MRS MRS MRS COEMA	- EIA of Wind Farm Cacimbas - EIA of Wind Farm Estrela - EIA of Wind Farm Santa Mônica - EIA of Wind Farm Ouro Verde - RIMA of Wind Farm Cacimbas - RIMA of Wind Farm Estrela - RIMA of Wind Farm Santa Mônica - RIMA of Wind Farm Ouro Verde - Resolution #02 – Approval of the EIA/RIMA of Wind Farm Complex (Wind Farm Ouro Verde, Wind Farm Santa Mônica, Wind Farm Estrela and Wind Farm Cacimbas)	Nov/2013 Nov/2013 Oct/2013 Nov/2013 Nov/2013 Nov/2013 Nov/2013 Nov/2013 2014-02-13	CME
17	/EL/	CONAMA CONAMA	<u>Environmental Legislation:</u> - Resolution # 1/1986 - Resolution # 279/2001	-	Other
18	/FD/	ANEEL CME CME CCEE CCEE CCEE BNDES/ CME World Energy Council	<u>Financial Data:</u> <u>Depreciation:</u> Power Sector Asset Control Manual <u>Capex Contracts (for cross-check only):</u> <u>Civil:</u> - Cacimbas - Estrela - Santa Monica - Ouro Verde <u>Electromechanical:</u> - Cacimbas; - Estrela - Santa Monica - Ouro Verde <u>Land lease Contracts:</u> - Jaime Marques - Gigante Agropecuária - Elizeu Pereira; - Aparecida Souto - Terezinha de Oliveira - José Barbosa de Sousa Accounts Receivable – Commercialization Procedures Module 5 – Short term Market/Sub-Module 5.2 - CCEE Fee 2014 - BNDES Contract for Trairi Complex – evidence of <u>Amortization</u> and <u>Grace Period</u> - World Energy Perspective / Cost of Energy Technologies 2013	2009-06-02 2014-10-09 2014-10-09 2014-10-09 2014-10-09 2014-11-24 2014-11-24 2014-11-24 2014-11-24 2011-02-15 2012-08-02 2012-09-17 2012-09-17 2012-10-01 2013-10-13 January 2013 http://www.ccee.org.br/relatoriodeadministracao/70-financas-20.html 2012-07-09 http://www.worldenergy.org/wp-content/uploads/2013/09/WEC_J1143_CostofTECHNOLOGIES_021013_WEB_Final.pdf	CME / Other

		Alstom	- Alstom Proposal Aero generators and O&M	2014-02-13	
		B&Q Energia Ltda	- O&M Substation and Transmission Line contracts for Trairi Complex (Mundaú, Fleixeiras, Guajiru and Trairi wind farms)	2013-09-17	
		CME	- SG&A: Tractebel Administration Report & Financial Statements 2013 – externally audited by KPMG	2014-02-20	
		CME	- Minutes of 131 st Board Meeting Tractebel Energia & Santa Mônica CAPEX budget spread sheets	2014-04-11	
		CME	- Santa Monica CAPEX budget spread sheet	2014-06-16	
		BACEN	- Exchange Rate BRL/USD	2014-06-16	
		CME	- Tentative Chronograms (Cacimbas 1, Estrela, Ouro Verde and Santa Mônica I)	2014-10-14	
		EPE/CCEE	- Result of 19 th Energy Auction (A-3_2014)	2014-06-06 http://www.epe.gov.br/leiloes/Paginas/Leil%C3%A3o%20de%20Energia%20A-3%202014/Leil%C3%A3odeenergiaA-32014contrata968,6MW.aspx?CategorialD=6905 http://www.ccee.org.br/ccee/documentos/CCEE_251089	
		CME	- Detailed Result Auction A-3 2014 (Excel calculation of weighted average price of wind farms)	2014-06-06	
19	/IRR/	CME	<u>IRR Calculation:</u> Santa Monica wind complex CPA_calculator_20151120 Santa Monica wind complex CPA_calculator_20160204 Santa Monica wind complex CPA_calculator_20160302 Santa Monica wind complex CPA_calculator_v04.1_20160713	- version 1 - version 2 - version 3 - version 04.1	CME
20	/LEGIS/	-	<u>Legislation:</u> - Law # 7689 – Rules of CSLL - Law # 9249 – Rules of CSLL and Additional Income Tax - Law # 9427 art. 12 – Rules of Tariff of Electric Energy Services Inspection - Law # 9430 – Rules of CSLL	1988-12-15 1995-12-26 1996-12-26 1996-12-27	Other

		- Federal Revenue Bureau - - ANEEL ANEEL ANEEL ANEEL ANEEL ANEEL ANEEL	- Decree # 2410 – Rules of Tariff of Electric Energy Services Inspection - Normative Instruction SRF # 247 Article 52 - Law # 10637 – Rules of PIS and PASEP - Law # 10833 – Rules of COFINS - Normative Resolution # 77 - Dispatch # 2268 – Rules of Tariff of Electric Energy Services Inspection - Technical Note # 68/2007-SRE/ANEEL - Dispatch # 141 – Rules of Tariff of Electric Energy Services Inspection - Resolution # 1651 – Rules of TUST - Dispatch # 71 – TFSEE Base Tariff	1997-11-28 2002-11-21 2002-12-30 2003-12-29 2004-08-18 2005-12-29 2007 2007-01-24 2013-11-12 2014-01-14	
21	/LIC/	SEMACE SEMACE SEMACE SEMACE SEMACE SEMACE SEMACE SEMACE	<u>Licenses:</u> o <u>Wind Farm Cacimbas 1</u> - Preliminary License 80/2013 – valid until 2015-06-11 - Installation License 286/2014 – valid until 2017-10-13 o <u>Wind Farm Estrela</u> - Preliminary License 81/2013 – valid until 2015-06-11 - Installation License 287/2014 – valid until 2017-10-13 o <u>Wind Farm Santa Mônica I</u> - Preliminary License 82/2013 – valid until 2015-06-11 - Installation License 282/2014 – valid until 2017-10-13 o <u>Wind Farm Ouro Verde</u> - Preliminary License 79/2013 – valid until 2015-06-11 - Installation License 236/2014 – valid until 2017-10-13	2014-07-25 2014-10-14 2013-06-11 2014-10-14 2013-06-11 2014-10-14 2013-06-11 2014-10-14	CME
22	/LIFE/	Alstom	<u>Project Lifetime:</u> - General Description ECO122 – DST-0484 – Rev. 09	2014-01-20	CME
23	/LOA/	DNA	Letter of Approval of the PoA	2016-10-13	Other
24	/POA/	CME	Programme of Activities design document: “Brazilian PoA for NAMA incentivized NCRE Projects” - version 01 - version 02 - version 03 - version 04 - version 04.1	2015-11-20 2015-12-10 2016-03-02 2016-03-28 2016-07-13	CME
25	/PLF/	Megajoule	<u>Plant Load Factor:</u> - Anemometric Monitoring Certificate – Wind Farm Cacimbas 1 – D113MJBR13 – Rev. 00 - Anemometric Monitoring Certificate – Wind Farm Estrela – D114MJBR13 – Rev. 00 - Anemometric Monitoring Certificate – Wind Farm Santa Mônica I – D116MJBR13 – Rev. 00 - Anemometric Monitoring Certificate – Wind Farm Ouro Verde – D115MJBR13 – Rev. 00	2013-09-25 2013-09-25 2013-09-25 2013-09-25	CME

26	/PSD/	CME	<u>Project starting date:</u> - Contract of the wind turbines among Alstom, BAC and Wind Farm Cacimbas 1 - Contract of the wind turbines among Alstom, BAC and Wind Farm Estrela - Contract of the wind turbines among Alstom, BAC and Wind Farm Santa Mônica I - Contract of the wind turbines among Alstom, BAC and Wind Farm Ouro Verde	2014-06-16 2014-06-16 2014-06-16 2014-06-16	CME
27	/TD/	Alstom CME CME CME CME EPE EPE EPE EPE	<u>Project technical description:</u> - General Description ECO122 – DST-0484 – Rev. 09 - Technical Description – Wind Farm Cacimbas 1 - Technical Description – Wind Farm Estrela - Technical Description – Wind Farm Santa Mônica I - Technical Description – Wind Farm Ouro Verde - Technical qualification – Wind Farm Cacimbas 1# 1655-29-2 - Technical qualification – Wind Farm Estrela # 2590-32-2 - Technical qualification – Wind Farm Santa Mônica I # 1576-20-1 - Technical qualification – Wind Farm Ouro Verde # 2578-14-1	2014-01-20 2013-12-16 2013-12-16 2013-12-16 2014-07-17 2014-02-24 2014-02-24 2014-02-24 2014-02-24	CME
28	/XLS/	CME	<u>Emission reduction calculation spread sheet:</u> - Santa Monica wind complex CPA_calculator_20151120 - Santa Monica wind complex CPA_calculator_v02_20160204 - Santa Monica wind complex CPA_calculator_v03_20160302 - Santa Monica wind complex CPA_calculator_v04.1_20160713	- version 1 - version 2 - version 3 - version 04.1	CME
29	/aneel/	-	National Electric Energy Agency	http://www.aneel.gov.br/	Other
30	/bcb/	-	Central Bank of Brazil	http://www.bcb.gov.br	Other
31	/bndes/	-	BNDES – National Bank for Social Economic Development	http://www.bndes.gov.br/	Other
32	/ccee/	-	Chamber of Electric Energy Commerce	http://www.ccee.org.br/	Other
33	/conama/	-	National Environmental Council	http://www.mma.gov.br/port/conama/	Other
34	/dna/	-	DNA of Brazil	http://www.mct.gov.br	Other
35	/eletrobras/	-	Brazilian Generation, Transmission and Distribution Company	www.eletrobras.com	Other
36	/fazenda/	-	Federal Revenue Bureau of Brazil	www.receita.fazenda.gov.br	Other
37	/ipcc/	-	IPCC publications	www.ipcc-nggip.iges.or.jp	Other
38	/ipea/	-	Ipeadata	www.ipeadata.gov.br/	Other

39	/ons/	-	National Operator of the Electric System Historic Generation Data	http://www.ons.org.br/home/ http://www.ons.org.br/historico/geracao_energia.aspx	Other
40	/unfccc/	-	UNFCCC	http://cdm.unfccc.int	Other

Appendix 4. Clarification requests, corrective action requests and forward action requests

Table 1. CL from this validation

CL ID	A1	Section no.	all; A.5; A.9; A.12; D.1; D.3	Date: 11/12/2015
Description of CL				
<p>According to the "Instructions for filling out the project design document form for CDM project activities", some issues are not correct:</p> <ol style="list-style-type: none"> the version numbers of the following documents are outdated throughout the PoA-DD: <ol style="list-style-type: none"> Standard "Demonstration of additionality, development of eligibility criteria and application of multiple methodologies for programmes of activities"; Tool to calculate the emission factor for an electricity system; at Section A.5, the description of how the technologies are transferred to the host party is missing; at Section A.9, the number of months of the expected operational lifetime of the CPA is missing; at Section A.12, the confirmation that the CPA is not a CPA that has been excluded from a registered CDM PoA as a result of erroneous inclusion of CPAs is missing; at Section D.1, the reference to the UNFCCC CDM website for the methodology and methodological tools are missing; at Section D.3, it is missing the flow diagram physically delineating the CPA. 				
Project participant response (1st round)				Date: 14/12/2015
The CPA-DD has been updated according to the above mentioned requirements.				
Documentation provided by project participant (1st round)				
<input checked="" type="checkbox"/>	Changes in the PDD	Section(s): all; A.5; A.9; A.12; D.1; D.3		New version No.: 02
<input type="checkbox"/>	Changes in MR	Section(s):		New version No.:
<input type="checkbox"/>	Changes in XLS	Worksheet(s):		New version No.:
<input type="checkbox"/>	Other:			
DOE assessment (1st round)				Date: 15/01/2016
<ol style="list-style-type: none"> The version of the following documents has been revised throughout the CPA-DD and now the most updated documents are referred and used in the CPA: <ol style="list-style-type: none"> Standard "Demonstration of additionality, development of eligibility criteria and application of multiple methodologies for programmes of activities" – version 04.0; Tool to calculate the emission factor for an electricity system – version 05.0. At Section A.5 it is stated that the technology is already available at the host country and the equipment will be produced by a company located in Brazil. The expected operational lifetime of the CPA is correctly given in years and months at Section A.9. The information that the CPA is not a CPA that has been excluded from a registered CDM PoA as a result of erroneous inclusion of CPAs is correctly given at Section A.12. The references to the UNFCCC CDM website for the methodology and methodological tools have been correctly included at Section D.1. The flow diagram physically delineating the CPA has been included at Section D.3. 				
CL is closed				
Conclusion Tick the appropriate checkbox		<input type="checkbox"/> Additional action should be taken (finding remains open)		

		<input checked="" type="checkbox"/> The finding is closed	
CL ID	A2	Section no.	A.7
Date: 11/12/2015			
Description of CL			
<i>The geographical coordinates of the wind farms are not in accordance with provided evidence Technical Description^{TD/} of each wind farm.</i>			
Project participant response (1st round)			Date: 14/12/2015
<i>The geographic coordinates have been corrected.</i>			
Documentation provided by project participant (1st round)			
<input checked="" type="checkbox"/>	Changes in the PDD	Section(s): A.7	New version No.: 02
<input type="checkbox"/>	Changes in MR	Section(s):	New version No.:
<input type="checkbox"/>	Changes in XLS	Worksheet(s):	New version No.:
<input type="checkbox"/>	Other:		
DOE assessment (1st round)			Date: 15/01/2016
At Section A.7, the geographical coordinates of all wind farms are now totally in accordance with provided evidence Technical Description ^{TD/} of each wind farm.			
CL is closed			
Conclusion Tick the appropriate checkbox		<input type="checkbox"/> Additional action should be taken (finding remains open) <input checked="" type="checkbox"/> The finding is closed	

CL ID	C1	Section no.	C
Date: 11/12/2015			
Description of CL			
<i>It is not clear in section C.1 whether the local stakeholder consultation process is done at the PoA and/or CPA level.</i>			
Project participant response (1st round)			Date: 14/12/2015
<i>As stated in the PoA-DD the local stakeholder consultation process is conducted at the PoA level in line with the Brazilian DNA requirements to issue the Letter of Approval.</i>			
<i>The local stakeholder consultation process included in Santa Mônica wind complex refer to the process conducted as part of the environmental approval process. Therefore, to avoid misunderstanding, the information regarding this process has been removed from CPA-DD section C and included in section B.1.</i>			
Documentation provided by project participant (1st round)			
<input checked="" type="checkbox"/>	Changes in the PDD	Section(s): C; B.1	New version No.: 02
<input type="checkbox"/>	Changes in MR	Section(s):	New version No.:
<input type="checkbox"/>	Changes in XLS	Worksheet(s):	New version No.:
<input type="checkbox"/>	Other:		
DOE assessment (1st round)			Date: 15/01/2016
The local stakeholder consultation process in terms of CDM requirements has indeed been performed at PoA level, according to Brazilian DNA rules and in accordance with evidences provided by the CME.			
Nevertheless, a local stakeholder consultation has been done as part of the o the EIA process, according to Brazilian environmental rules and in accordance with evidences provided by the CME.			
In order to avoid any confusion, the CME has appropriately transferred the information regarding this consultation to the specific section of the CPA-DD (B.1 – Analysis of the environmental impacts).			
CL is closed			
Conclusion Tick the appropriate checkbox		<input type="checkbox"/> Additional action should be taken (finding remains open) <input checked="" type="checkbox"/> The finding is closed	

CL ID	D1	Section no.	D.5
Date: 11/12/2015			
Description of CL			
<i>The criterion (b) about the conditions to avoid double counting does not include checking participation of the CPA in other GHG programs other than CDM projects.</i>			
<i>In addition, the compliance of criterion (g) environmental impact analysis is not described in an objective way.</i>			
Project participant response (1st round)			Date: 14/12/2015
<i>The criterion (b) has been updated to include GHG programs other than CDM.</i>			
<i>The compliance of criterion (g) environmental impact analysis has been described in line with Instructions for</i>			

filling out the component project design document form for CDM component project activities, and best practice based on similar projects registered under the CDM.

Documentation provided by project participant (1 st round)			
<input checked="" type="checkbox"/>	Changes in the PDD	Section(s): D.5	New version No.: 02
<input type="checkbox"/>	Changes in MR	Section(s):	New version No.:
<input type="checkbox"/>	Changes in XLS	Worksheet(s):	New version No.:
<input type="checkbox"/>	Other:		
DOE assessment (1 st round)			Date: 15/01/2016
<p>a. Criterion (b): now there is clear reference to the necessity to conduct a search at UFCVC registry and other GHG programs to check that the CPA is not part of a standalone project or bundled project or PoA under any CDM or other GHG programs process stage. So, the criterion included the verification of the participation of the CPA in other GHG programs besides the CDM.</p> <p>b. Criterion (h): the compliance with the requirement of the environmental impact analysis is now described in a much more objective way making a more easy and clear understanding</p>			
CL is closed			
Conclusion Tick the appropriate checkbox		<input type="checkbox"/> Additional action should be taken (finding remains open) <input checked="" type="checkbox"/> The finding is closed	

CL ID	D2	Section no.	D.5	Date: 11/12/2015
Description of CL				
<i>On section D.5 – Step 2, the first bullet of first paragraph is not found in article 6 of the Law 12187/2009.</i>				
Project participant response (1st round)				Date: 14/12/2015
<i>The text has been adjusted in the referred section of the CPA-DD in order to make clear reference to article 6 of the Law 12187/2009.</i>				
Documentation provided by project participant (1 st round)				
<input checked="" type="checkbox"/>	Changes in the PDD	Section(s): D.5	New version No.: 02	
<input type="checkbox"/>	Changes in MR	Section(s):	New version No.:	
<input type="checkbox"/>	Changes in XLS	Worksheet(s):	New version No.:	
<input type="checkbox"/>	Other:			
DOE assessment (1 st round)				Date: 15/01/2016
Article 6 of the Law 12187/2009 is now literally stated. The bullets are consequences of the directives given by the law.				
CL is closed				
Conclusion Tick the appropriate checkbox		<input type="checkbox"/> Additional action should be taken (finding remains open) <input checked="" type="checkbox"/> The finding is closed		

CL ID	D3	Section no.	D.5	Date: 11/12/2015
Description of CL				
<i>At Section D.5 of CPA-DD it is not clearly documented the outcome of each step of the additionality tool.</i>				
Project participant response (1st round)				Date: 14/12/2015
<i>The outcome of each step of the additionality tool has been included.</i>				
Documentation provided by project participant (1 st round)				
<input checked="" type="checkbox"/>	Changes in the PDD	Section(s): D.5	New version No.: 02	
<input type="checkbox"/>	Changes in MR	Section(s):	New version No.:	
<input type="checkbox"/>	Changes in XLS	Worksheet(s):	New version No.:	
<input type="checkbox"/>	Other:			
DOE assessment (1 st round)				Date: 15/01/2016
The outcome of each step of the additionality tool is now clearly documented at Section D.5.				
CL is closed				
Conclusion Tick the appropriate checkbox		<input type="checkbox"/> Additional action should be taken (finding remains open) <input checked="" type="checkbox"/> The finding is closed		

CL ID	D4	Section no.	D.5	Date: 11/12/2015
Description of CL				

At Section D.5 of CPA-DD, Sub-step 2b, it is not clearly identified the financial indicator chosen. Further it is mentioned options for benchmark when it is used the default value.

Project participant response (1st round)		Date: 14/12/2015	
The financial indicator (equity IRR after taxes in real terms) for the investment analysis and the corresponding suitable benchmark selected (default value for the expected return on equity after taxes, expressed in real terms, for Brazilian energy industry projects provided in the Appendix) have been clearly identified in sub-step 2b.			
Documentation provided by project participant (1st round)			
<input checked="" type="checkbox"/>	Changes in the PDD	Section(s): D.5	New version No.: 02
<input type="checkbox"/>	Changes in MR	Section(s):	New version No.:
<input type="checkbox"/>	Changes in XLS	Worksheet(s):	New version No.:
<input type="checkbox"/>	Other:		
DOE assessment (1st round)		Date: 15/01/2016	
The chosen financial indicator (Equity IRR) and the default value of the benchmark given by the Methodological Tool Investment Analysis – version 06.0 of 10.65% are clearly described at Sub-step 2b of Section D.5 of the CPA-DD.			
CL is closed			
Conclusion Tick the appropriate checkbox		<input type="checkbox"/> Additional action should be taken (finding remains open) <input checked="" type="checkbox"/> The finding is closed	

CL ID	D5	Section no.	D.5	Date: 11/12/2015
Description of CL				
<i>At Section D.5 of CPA-DD, it is not justified in CPA-DD why financial analysis was carried out for the entire Santa Mônica Complex and not for each wind farm separately.</i>				
Project participant response (1st round)		Date: 14/12/2015		
<p>Santa Mônica wind complex financial analysis was carried out for the entire complex because it was conceived as only one project that consists of four adjacent wind farms. Prove of that is that at Tractebel Energia Board Meeting 131st the investment on the complex was approved as a whole.</p> <p>Furthermore, the engineering, construction and operation and maintenance contracts provided prove that the execution and operation of the farms projects were conceived and negotiated all together.</p> <p>Santa Mônica wind complex has been divided into four wind farms only to ensure its access to fiscal benefits. As mentioned above, an important benefit is the 50% discount on the Use of Transmission System Tariff (Tarifa de Uso do Sistema de Transmissão - TUST) the Brazilian Federal Government concedes to renewable energy projects with nominal capacities up to 30 MW.</p> <p>Therefore, developing financial models for each individual wind farm would be arbitrary and would hardly reflect the reality of the project. It is also important to note that, if each wind farm would be implemented separately, shared structures would dramatically increase the project's CAPEX, O&M and administrative costs that present economies of scale and thus, would further reduce the financial return of the project.</p> <p>Section D.5 has been updated to clarify the point.</p>				
Documentation provided by project participant (1st round)				
<input checked="" type="checkbox"/>	Changes in the PDD	Section(s): D.5	New version No.: 02	
<input type="checkbox"/>	Changes in MR	Section(s):	New version No.:	
<input type="checkbox"/>	Changes in XLS	Worksheet(s):	New version No.:	
<input type="checkbox"/>	Other:			
DOE assessment (1st round)		Date: 15/01/2016		
<p>It was explained during the site visit and now included at the CPA-DD that the investment analysis was done for all four plants together as the decision was taken for all plants together. The division in four plants just occurred because of Brazilian regulations that give benefits to renewable energy projects with nominal capacities up to 30 MW.</p> <p>In CPA-DD version 02 Section D.5 has been revised to include an appropriate justification for the conservativeness of the consideration of the entire Complex for the financial analysis.</p>				
CL is closed				
Conclusion Tick the appropriate checkbox		<input type="checkbox"/> Additional action should be taken (finding remains open) <input checked="" type="checkbox"/> The finding is closed		

CL ID	D6	Section no.	D.5	Date: 11/12/2015
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Description of CL			
<i>At Section D.5 of CPA-DD, the value applied for TUST is not correct.</i>			
Project participant response (1st round)			Date: 14/12/2015
<i>The TUST value was recalculated as the weighted average of the TUST of each of the four wind farms that conforms Santa Mônica wind complex as per the provided evidence.</i>			
Documentation provided by project participant (1st round)			
<input checked="" type="checkbox"/>	Changes in the PDD	Section(s): D.5	New version No.: 02
<input type="checkbox"/>	Changes in MR	Section(s):	New version No.:
<input checked="" type="checkbox"/>	Changes in XLS	Worksheet(s): FA Input data&references	New version No.:
<input type="checkbox"/>	Other:		
DOE assessment (1st round)			Date: 15/01/2016
In Excel sheet version 02 the value of TUST has been correctly calculated as weighted average and the value corrected in section D.5 of CPA-DD version 2.			
CL is closed			
Conclusion Tick the appropriate checkbox		<input type="checkbox"/> Additional action should be taken (finding remains open) <input checked="" type="checkbox"/> The finding is closed	

CL ID	D7	Section no.	D.5	Date: 11/12/2015
Description of CL				
<i>At Section D.5 of CPA-DD:</i>				
<i>a. It is not sufficiently evidenced the calculation of value applied for CCEE fee;</i> <i>b. It is not evidenced the calculation of value applied for ONS fee.</i>				
Project participant response (1st round)				Date: 15/12/2015
<i>The CCEE fee has been corrected in section D.5 of the CPA-DD and the Excel calculator according to CCEE fee from 2013 (http://www.ccee.org.br/relatoriodeadministracao/70-financas-20.html)</i>				
<i>The excel spread sheet with the calculation of the ONS fee for Santa Monica wind complex was already provided as reference to illustrate the calculations based on ONS public data. Please, refer to the file "Simulador de Encargos Gerador ONS" within the folder "Energy sector charges".</i>				
Documentation provided by project participant (1st round)				
<input checked="" type="checkbox"/>	Changes in the PDD	Section(s): D.5	New version No.: 02	
<input type="checkbox"/>	Changes in MR	Section(s):	New version No.:	
<input checked="" type="checkbox"/>	Changes in XLS	Worksheet(s): FA Input data&references	New version No.: 2	
<input type="checkbox"/>	Other:			
DOE assessment (1st round)				Date: 15/01/2016
The CCEE fee was corrected in both the excel sheet calculations and in section D.5 of the CPA-DD version 02 according to publicly available information on CCEE website.				
Evidence indicating the budget of the ONS and the respective portion of it covered by contribution of associates was provided. In addition, an explanation by internal email was provided, along with an excel sheet "Simulador de Encargos Gerador ONS" calculating the ONS fee for the Wind Complex. Nevertheless, reference/evidence for the following input data is missing:				
<ul style="list-style-type: none"> - Number of votes per each category of associate; - Number of associates in category "production" ; - Legal base for allocation Criteria 20-80%. 				
CL remains open				
Project participant response (2nd round)				Date: 02/03/2016
<i>The reference/evidences for the input data missing could not be obtained. Therefore, to be conservative, the ONS fee has been removed from the CPA-DD and the excel calculator.</i>				
Documentation provided by project participant (2nd round)				
<input checked="" type="checkbox"/>	Changes in the PDD	Section(s): D.5	New version No.: 03	
<input type="checkbox"/>	Changes in MR	Section(s):	New version No.:	
<input checked="" type="checkbox"/>	Changes in XLS	Worksheet(s): FA Input data&references	New version No.: 3	
<input type="checkbox"/>	Other:			

DOE assessment (2nd round)		Date: 03/03/2016
OK, the ONS fee was removed from Excel sheet version 03 and therefore conservatively not considered in IRR calculation.		
CL is closed		
Conclusion Tick the appropriate checkbox	<input type="checkbox"/> Additional action should be taken (finding remains open) <input checked="" type="checkbox"/> The finding is closed	

CL ID	D8	Section no.	D.5	Date: 11/12/2015
Description of CL				
<i>The reference given for <u>Accounts Payable</u> is Santa Mônica Complex contracts. However no information was found in OPEX Contract with Alstom on which to base the assumption of 30 days.</i>				
Project participant response (1st round)				Date: 14/12/2015
<i>Tractebel declares that the assumption of 30 days for Accounts Payable is an internal estimate used by the company in its financial analysis.</i> <i>The company confirms that this figure is a reasonable expectation for accounts payable based on the company's extensive experience in this sector.</i> <i>An example of that is the O&M substation and transmission line contract for Trairi wind farm project (17/09/2013) which states that the payments are conducted monthly.</i> <i>Please note that the impact of reasonable variations on this figure is immaterial for the result of the financial analysis.</i> <i>The reference in the CPA was corrected accordingly.</i>				
Documentation provided by project participant (1st round)				
<input checked="" type="checkbox"/>	Changes in the PDD	Section(s): D.5	New version No.: 02	
<input type="checkbox"/>	Changes in MR	Section(s):	New version No.:	
<input checked="" type="checkbox"/>	Changes in XLS	Worksheet(s): FA input data & references	New version No.: 2	
<input type="checkbox"/>	Other:			
DOE assessment (1st round)				Date: 15/01/2016
The reference in the CPA-DD was correctly accordingly. According to the local expertise of the validation team, 30 days for Accounts Payable is a standard market average and a reasonable expectation. Moreover, the contract for O&M of Substation and Transmission lines of Trairi wind farm (Contract CETR.NAEL.13.156), submitted by PP as a close example/reference, was checked and indeed states payments of services monthly within 30 days (Clause 12 – Payments), confirming the reasonableness of the estimate. Further, the validation team simulated in the financial spread sheet the substitution of the 30 days by 60 days (double) and the result was an increase of only 0.05% in the IRR, hence immaterial impact in the result of financial analysis.				
CL is closed				
Conclusion Tick the appropriate checkbox	<input type="checkbox"/> Additional action should be taken (finding remains open) <input checked="" type="checkbox"/> The finding is closed			

CL ID	D9	Section no.	D.5	Date: 11/12/2015
Description of CL				
<i>The 10-year bond (Treasury Notes B) was used as reference for the interest rate of 6.45% indicated in section D.5 of CPA-DD. However, it is not justified the appropriateness of considering a government bond as the lending rate.</i>				
Project participant response (1st round)				Date: 15/12/2015
<i>According to the Methodological tool: Investment Analysis, version 06.0 paragraph 25: "If the benchmark is based on parameters that are standard in the market, the cost of debt should be calculated as the cost of financing in the capital markets (e.g. commercial lending rates and guarantees required for the country and the type of project activity concerned), based on documented evidence from financial institutions with regard to the cost of debt financing of comparable projects. In cases where such data is not available, use the commercial lending rate in the host country to calculate the cost of debt."</i> <i>Due to the above requirement, the cost of debt will be corrected based on commercial lending rate from the Brazilian Development Bank (BNDES) during the period April-June 2014 period.</i>				
Documentation provided by project participant (1st round)				
<input checked="" type="checkbox"/>	Changes in the PDD	Section(s): D.5	New version No.: 02	

<input type="checkbox"/>	Changes in MR	Section(s):	New version No.:
<input checked="" type="checkbox"/>	Changes in XLS	Worksheet(s): FA input data & references	New version No.: 2
<input type="checkbox"/>	Other:		
DOE assessment (1st round)			Date: 15/01/2016
<p>BNDES is the main financial institution for financing wind projects in Brazil, hence the use of BNDES lending rates for wind farms is appropriate.</p> <p>Excel Sheet and CPA-DD were revised accordingly using BNDES public available information on financing conditions, i.e. Long Term Interest Rate, Basic Remuneration and Risk Spread.</p> <p>For risk spread (client risk) it was also considered a rate obtained by Tractebel in the financing of an earlier project (Trairi) which is deemed adequate as it is a low/conservative rate (1.51%).</p> <p>Nevertheless, the input data of <u>target inflation rate</u> used for calculation of interest rate in real terms is not traceable.</p> <p>CL remains open</p>			
Project participant response (2nd round)			Date: 02/03/2016
<p>As stated in the CPA-DD and the Excel spread sheet the inflation rate time series has been constructed based on:</p> <ul style="list-style-type: none"> - The market inflation rate expectations from 2014 until 2018; and - The Government target inflation rate from 2020 onwards. <p>The reason is that, for the first years (2014-2018) the market expectations (from 6.23% in 2014 up to 5.16% in 2018 as per the Central Bank of Brazil consolidated statistical series) were higher than the Government target inflation rate of 4.5% (as per Resolution 4.095 (28/6/2012) and Resolution 4.237 (28/6/2013)). Therefore, it was considered conservative to utilize the highest inflation rate values that would conduct to a lower cost of debt in real terms.</p> <p>Given that the market inflation rate expectations by the 16/06/2014 (project start date) ended in 2018, from 2019 onwards, it was considered conservative, firstly, to assume that 2019 inflation rate will be the average of the previous years. From 2020 onwards the inflation rate was assumed equal to the Government target inflation rate considering that in the long term the real inflation rate will converge to the Government target.</p> <p>Regarding the traceability of the market inflation rate expectations available in the Central Bank of Brazil web page, the way to assess this information is through the "Market Expectations - Time Series" link on Brazil Banco Central website: https://www3.bcb.gov.br/expectativas/publico/en/serieestatisticas</p> <p>Once in the webpage, to access to inflation indexes consensus, the following inputs should be filled:</p> <p>indicator = "price indices"</p> <p>checkboxes = "IPCA" for local CPI</p> <p>Calculation = "median" (but there is also standard deviation, max, min, avg...)</p> <p>Periodicity = "annual"</p> <p>For the latest market consensus it can be set any period of time or a specific date. For the project it was selected a reasonable period of 6 months before the project starting date:</p> <p>Starting date of series = "01/01/2014"</p> <p>Final date of series = "16/06/2014" (project start date)</p> <p>Finally, the period of projections should be set:</p> <p>Starting year = "2014" (project starting year)</p> <p>Final year = "2020" (last year of projections as per the Central Bank of Brazil webpage)</p>			

← → ↻ <https://www3.bcb.gov.br/expectativas/publico/en/?wicketinterface=:07...> 23/02/2016

Sistema de Expectativas de Mercado
Consolidated statistical series
Página Inicial → Consolidated statistical series [EXPFW0701]

Consolidated statistical series

Statistics properties

Statistics

* Indicator¹ Price indices
☐ IGP-DI ☐ IGP-M ☐ INPC ☐ IPA-DI ☐ IPA-M ☒ IPCA ☐ IPCA-15 ☐ IPC-Fipe

* Calculation Median

* Periodicity Annual

Period in which the projections were made² (From 01/03/2000 until 02/19/2016)
 * Starting date of series 01/01/2014 * Final date of series 06/16/2014

Period to which the projections were made³ (From 2000 until 2020)
 * Starting year 2014 * Final year 2020

¹ For the consultation to Price indices, some indicators can be consulted together, such as: IPCA and INPC; IGP-DI and IPA-DI; IGP-M and IPA-M.
² The queried period should not exceed two years. The statistics are available from January 2000 up to the most recent Focus-Market Readout, with slight changes in the starting date, depending on the indicator.
³ Depending on the selected calculation and period, there might not be available statistics.
 * If the queried period exceeds the interval with valid projections, just the available data will be presented.
 Note: Total GDP is projected at market prices; sectoral GDPs are projected at added value.
 * In case the periods are very large, there is the possibility of horizontal and vertical scrolling.

Search Generate CSV Generate XLS Clear Back

Finally, the “search” button or the “Generate XLS” button can be clicked.

Following this instructions, a new page with the projected inflation rate from 2014 until 2018 will be opened.

Documentation provided by project participant (2 nd round)			
<input checked="" type="checkbox"/>	Changes in the PDD	Section(s): D.5	New version No.: 03
<input type="checkbox"/>	Changes in MR	Section(s):	New version No.:
<input checked="" type="checkbox"/>	Changes in XLS	Worksheet(s): FA input data&references; FA Santa Monica	New version No.: 3
<input type="checkbox"/>	Other:		

DOE assessment (2 nd round)	Date: 03/03/2016
<p>The use of market inflation rate expectation for years 2014 to 2018 is deemed conservative. Following the link and the steps indicated in corrective action the values could be traced to public information in the Brazil Central Bank webpage.</p> <p>In addition, for period 2020 to 2036, the use of official target inflate rate of 4,5% (for 2014 and 2015) is appropriate and the value was cross checked against (respectively) Resolution 4.095 (28/6/2012) and Resolution 4.237 (28/6/2013) at: https://www.bcb.gov.br/Pec/metast/TabelaMetaseResultados.pdf</p> <p>Finally, for year 2019 the use of average rate of previous years, i.e. 2014 to 2018, as explained to PP above in corrective action round 2, is deemed reasonable and conservative. Nevertheless, in the calculation excel sheet it has been considered the average between 2018 and 2020, which is even more conservative, hence accepted by VT.</p>	

CL is closed

Conclusion Tick the appropriate checkbox	<input type="checkbox"/> Additional action should be taken (finding remains open) <input checked="" type="checkbox"/> The finding is closed
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CL ID	D10	Section no.	D.5	Date: 11/12/2015
Description of CL				
<p>In Excel spread sheet in tab “FA Input data &references”:</p> <p>a. Input data (sales, general and administrative expenses) are inside formula in cell H61, therefore not precisely referenced. Moreover, the values taken correspond to the concept “Control” not “Consolidated”.</p> <p>b. Reference to applicable Brazilian law for taxes is not given (cells F36 to F38). Moreover, the calculation for additional Income Tax is not correct according to legislation as it is due only for turnover above 240kBRL.</p>				
Project participant response (1st round)				Date: 14/12/2015
<p>The Excel spread sheet and CPA-DD section D.5 have been updated accordingly.</p> <p>a. A breakdown of the referred input data (cost of sales, general and administrative expenses) are now available in lines 67 and 68 and consolidated (summed) in line 69 of “FA Input data&references” worksheet. In addition, the values taken now correspond to the concept “Consolidated”.</p>				

- b. References to applicable Brazilian laws for taxes are now provided in cells F36 to F38, as follows:
- PIS/COFINS (Cumulative): Budgeted as applicable Brazilian Law 10,637, Law 10,833, Normative Instruction 247.
 - Income tax base: Budgeted as applicable Brazilian Law 9,249, Law 9,430.
 - 'Social Contribution Base: Budgeted as applicable Brazilian Law 9,249, Law 9,431.

Regarding the calculation of the Income Tax, this has been now adjusted in the financial analysis (see line 39 in "FA Santa Monica" worksheet.

Documentation provided by project participant (1 st round)			
<input checked="" type="checkbox"/>	Changes in the PDD	Section(s): D.5	New version No.: 02
<input type="checkbox"/>	Changes in MR	Section(s):	New version No.:
<input checked="" type="checkbox"/>	Changes in XLS	Worksheet(s): FA Input data & references	New version No.: 2
<input type="checkbox"/>	Other:		
DOE assessment (1 st round)			Date: 15/01/2016
Excel spread sheet version 02 was submitted and verified by validation team:			
<ol style="list-style-type: none"> corrections were carried out so that now the values are precisely referenced and correspond to the correct values of <u>consolidated</u> concept in the "Administration report and Financial Statement 2013"; Reference for respective legislation has been correctly included and the calculation of Addition income tax is now in line with legislation. 			
CL is closed			
Conclusion Tick the appropriate checkbox		<input type="checkbox"/> Additional action should be taken (finding remains open) <input checked="" type="checkbox"/> The finding is closed	

CL ID	D11	Section no.	D.5	Date: 11/12/2015
Description of CL				
<i>In Excel spread sheet in tab "FA Santa Monica", the total amount of distribution tariff is different in the first and last year due to date of commissioning. However the distribution tariff per kw/month is constant during the entire period.</i>				
Project participant response (1 st round)				Date: 14/12/2015
<i>The distribution tariff along the cash flow has been corrected to illustrate it is constant during the entire period. Section D.5 of the CPA was also updated to be in line with the cash flow.</i>				
Documentation provided by project participant (1 st round)				
<input checked="" type="checkbox"/>	Changes in the PDD	Section(s): D.5	New version No.: 02	
<input type="checkbox"/>	Changes in MR	Section(s):	New version No.:	
<input checked="" type="checkbox"/>	Changes in XLS	Worksheet(s): FA Santa Monica	New version No.: 2	
<input type="checkbox"/>	Other:			
DOE assessment (1 st round)				Date: 15/01/2016
Inconsistency in tab "FA Santa Monica" of Excel spread sheet version 02 was corrected.				
CL is closed				
Conclusion Tick the appropriate checkbox		<input type="checkbox"/> Additional action should be taken (finding remains open) <input checked="" type="checkbox"/> The finding is closed		

CL ID	D12	Section no.	D.5	Date: 11/12/2015
Description of CL				
<i>In Excel spread sheet in tab "FA Santa Monica", the calculation of sensitivity analysis and breakeven point is not traceable.</i>				
Project participant response (1 st round)				Date: 14/12/2015
<i>The Excel calculator has been updated to include traceable calculations of the sensitivity analysis and breakeven point.</i>				
Documentation provided by project participant (1 st round)				
<input type="checkbox"/>	Changes in the PDD	Section(s):	New version No.:	
<input type="checkbox"/>	Changes in MR	Section(s):	New version No.:	
<input checked="" type="checkbox"/>	Changes in XLS	Worksheet(s): FA Santa Monica	New version No.: 2	
<input type="checkbox"/>	Other:			

DOE assessment (1st round)	Date: 15/01/2016
Tab "FA Santa Monica" in Excel spread sheet was correctly revised using Excel data table function and calculations are now traceable.	
CL is closed	
Conclusion Tick the appropriate checkbox	<input type="checkbox"/> Additional action should be taken (finding remains open) <input checked="" type="checkbox"/> The finding is closed

Table 2. CAR from this validation

CAR ID	D1	Section no.	D.5	Date: 11/12/2015
Description of CAR				
<p>According to Guidelines/tool for financial analysis, input parameters of financial analysis shall be valid and applicable at the time of investment decision. As the start date of CPA was on 2014-06-16, this is the case for:</p> <ul style="list-style-type: none"> a. Electricity Tariff average for 2014 (2014-11-28); b. O&M contracts Substation & Transmission Line (date); c. PLF of wind farm Ouro Verde de (July 2014); d. ANEEL Dispatch 76 (2015-01-15). 				
Project participant response (1st round)				Date: 15/12/2015
<p>The above mentioned parameters have been corrected as follows:</p> <ul style="list-style-type: none"> a. Electricity tariff: Average wind energy price of the latest Energy Auction in Brazil before the project start date (19^o LEILÃO DE ENERGIA NOVA A-3/2014; 06/06/2014). Evidences: <ul style="list-style-type: none"> - Date: http://www.epe.gov.br/leiloes/Paginas/Leil%C3%A3o%20de%20Energia%20A-3%202014/Leil%C3%A3odeenergiaA-32014contrata968,6MW.aspx?CategoriaID=6905; - Wind energy average price: http://www.ccee.org.br/ccee/documentos/CCEE_251089 b. O&M contracts Substation & Transmission Line; the estimation has been corrected based on Trairi contract signed on 17/09/2013. c. PLF of wind farm Ouro Verde corrected according to Consistency Certificate of the Anemometric Measurement Campaign and of the Annual Production Estimative; MEGAJOULE; 25/09/2013. d. TFSEE Base Tariff corrected according to Despacho SRE Nº71 ANEEL, Jan 14th, 2014. 				
Documentation provided by project participant (1st round)				
<input checked="" type="checkbox"/>	Changes in the PDD	Section(s): D.5	New version No.: 02	
<input type="checkbox"/>	Changes in MR	Section(s):	New version No.:	
<input checked="" type="checkbox"/>	Changes in XLS	Worksheet(s): FA input data & references	New version No.: 2	
<input type="checkbox"/>	Other:			
DOE assessment (1st round)				Date: 15/01/2016
<p>Excel Sheet and CPA-DD version 02 were verified by VT as follows:</p> <ul style="list-style-type: none"> a. the date of the 19th Auction (2014-06-06) is before the CPA start date (2014-06-16). Nevertheless the average price of wind farms is not correctly calculated; In addition, in cell Z19 of tab "FA Santa Monica", the formula considers operation the entire year, which is not consistent with period of analysis; b. the contract for O&M of Trairi Wind farm is dated 2014-09-17 and has an annual cost of R\$232,496.70. The PP made the estimation for this CPA dividing this value by the installed capacity of Trairi wind farm (25.4MW) and then multiplying by the installed capacity of the CPA, reaching kBRL 890/year. Nevertheless, this assumption is not deemed conservative as in an approx. 4 times larger project (97,2 MW of this CPA against 25,4MW of Trairi) there are economies of scale and the comparison cannot be linear; c. the certificate of Mega Joule was verified and the values corrected in the Excel Sheet calculations; d. the Despacho ANEEL #71 dates 2014-01-14 and the excel sheet was revised accordingly considering the base value of R\$ 470.63. 				
CAR remains open				
Project participant response (2nd round)				Date: 02/03/2016
<ul style="list-style-type: none"> a. The average energy price of wind farms of the 19th Energy Auction in Brazil has been previously correctly calculated. <p>In this regard, please take into account that to calculate it, the contracted "Physic Guarantee" ("GF</p>				

contratada (MW médios”) of each wind farm has been determined as the contracted lots divided per 10. The reason is that in this auction the size of each lot is 0.1 MW (as can be confirmed in the file Auction Result downloadable at: http://www.aneel.gov.br/aplicacoes/editais_geracao/documentos_editais.cfm?IdProgramaEdital=129).

In the cases of ITAREMA wind farms the contracted “Physic Guarantee” were lower than the total “Physic Guarantee” because the contracted lots were lower than the total lots.

Based on the above, the average energy price of the wind farms has been previously correctly calculated.

The distribution cost in year 2036 (tab “FA Santa Monica”, Cell Z19) has been corrected considering the operational days during the year.

- b. Regarding the O&M Substation & Transmission Line cost for Santa Monica wind complex it has been updated based on the total cost of O&M Substation & Transmission Line cost for Trairi wind complex (total installed capacity 115.4 MW: Guajiru (30.004 MW); Mundaú (30.004 MW), Fleixeiras (30.004 MW) and Trairi (25.388 MW); <http://www.aneel.gov.br/aplicacoes/capacidadebrasil/OperacaoGeracaoTipo.asp?tipo=7&ger=Combustivel&principal=E%F3lica>).

Given that there will be synergies between Trairi and Santa Monica wind complexes substation and transmission lines, it has been conservatively assumed that the total O&M cost will not be increased by Santa Monica wind complex.

Therefore, the cost per MW has been calculated by dividing Trairi complex total O&M for transmission line and substation per the total installed capacity of Trairi wind complex plus Santa Monica wind complex (97.2 MW).

Finally, the cost per MW has been multiplied by Santa Monica wind complex to apportion this cost to Santa Monica wind complex.

Documentation provided by project participant (2 nd round)			
<input checked="" type="checkbox"/>	Changes in the PDD	Section(s): D.5	New version No.: 03
<input type="checkbox"/>	Changes in MR	Section(s):	New version No.:
<input checked="" type="checkbox"/>	Changes in XLS	Worksheet(s): FA input data & references; FA Santa Monica	New version No.: 3
<input checked="" type="checkbox"/>	Other: Detailed result of auction A-3 2014		
DOE assessment (2 nd round)			Date: 03/03/2016

- a. PP is correct. In the respective auction rules it was specified that the lot correspond to 0.1MW and PP made the calculation not total using total physical guarantee, but instead reached the physical guarantee contracted (MW) dividing the total contracted lots by 10, hence the average price of energy was previously correctly calculated. The formula in cell Z19 of tab “FA Santa Monica” has been corrected and it is now consistent with period of assessment.
- b. the new calculation approach is conservative as it assumes that the operation costs of Substation and Transmission line has not increased by the addition of Santa Monica Complex wind farms into such facilities. An excel file with calculation was submitted by PP and checked by the VT w.r.t to formulas and correctness of calculation. Costs were cross checked against the O&M contracts of the 4 wind farms composing Trairi Wind Complex (Fleixeiras, Guajiru, Mundaú and Trairi) and their respective installed capacity as per ANEEL link provided by PP (<http://www.aneel.gov.br/aplicacoes/capacidadebrasil/OperacaoGeracaoTipo.asp?tipo=7&ger=Combustivel&principal=E%F3lica>).

CAR is closed

Conclusion Tick the appropriate checkbox	<input type="checkbox"/> Additional action should be taken (finding remains open) <input checked="" type="checkbox"/> The finding is closed
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Table 3. FAR from this validation

FAR ID	-	Section No.	-	Date: -
Description of FAR				
-				
CME response				Date: -
Documentation provided by CME				

DOE assessment	Date: -

Appendix 5. Monitored Parameters

Table A-5: Validation Checklist – Monitored Parameters

Checklist Item (incl. guidance for the verification team)	Reference	Validation Team Comments (Means and results of assessment)			Draft Concl.	Final Concl.			
1. EG_{grid,OM,y}	<u>Parameter:</u> Operation margin emission factor in year y								
<p>Indicate whether the provided information for the monitoring parameter complies with the approved methodology including applicable tool(s) in the aspects listed.</p> <p>For checking the use of international standards in the nomenclature, consider:</p> <p>Standard format (e.g. 1,000 representing one thousand and 1.0 representing one).</p> <p>Values shall be directly given in SI units – or additionally to original units transferred to SI.</p> <p>Short scale naming system: (Only) million = 10⁶ and billion 10⁹ shall be used.</p>	/CPADD/	Requirement	OK	Not OK	N/A	OK	OK		
	/POADD/	Label	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
	/METH/	Data Unit	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
	/MT/	Description	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
		Source of data	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
		Measurement equipment / measure method	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
		Monitoring frequency	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
		QA/QC procedures	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
		Purpose of data	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
		Standard format	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
		SI units	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
		Short scale naming	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>				
	In the context of this parameter the following finding was raised:								
	N/A								
2. EG_{grid,CM,y}	<u>Parameter:</u> Combined margin CO ₂ emission factor for grid connected power generation in year y calculated using the latest version of the “Tool to calculate the emission factor for an electricity system”								
<p>Indicate whether the provided information for the monitoring parameter complies with the approved methodology including applicable tool(s) in the aspects listed.</p> <p>For checking the use of international standards in the nomenclature, consider:</p> <p>Standard format (e.g. 1,000 representing one thousand and 1.0 representing one).</p> <p>Values shall be directly given in SI units – or additionally to original units transferred to SI.</p>	/CPADD/	Requirement	OK	Not OK	N/A	OK	OK		
	/POADD/	Label	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
	/METH/	Data Unit	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
	/MT/	Description	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
		Source of data	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
		Measurement equipment / measure method	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
		Monitoring frequency	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
		QA/QC procedures	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
		Purpose of data	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
		Standard format	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				

Checklist Item (incl. guidance for the verification team)	Reference	Validation Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.																																																				
Short scale naming system: (Only) million = 10^6 and billion 10^9 shall be used.		SI units <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Short scale naming <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <i>In the context of this parameter the following finding was raised:</i> N/A																																																						
3. EG_{facility,y}	<i>Parameter:</i> Quantity of net electricity generation supplied by the project plant/unit to the grid in year y																																																							
Indicate whether the provided information for the monitoring parameter complies with the approved methodology including applicable tool(s) in the aspects listed. For checking the use of international standards in the nomenclature, consider: Standard format (e.g. 1,000 representing one thousand and 1.0 representing one). Values shall be directly given in SI units – or additionally to original units transferred to SI. Short scale naming system: (Only) million = 10^6 and billion 10^9 shall be used.	/CPADD/ /POADD/ /METH/	<table border="1"> <thead> <tr> <th>Requirement</th> <th>OK</th> <th>Not OK</th> <th>N/A</th> </tr> </thead> <tbody> <tr> <td>Label</td> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>Data Unit</td> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>Description</td> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>Source of data</td> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>Measurement equipment / measure method</td> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>Monitoring frequency</td> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>QA/QC procedures</td> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>Purpose of data</td> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>Standard format</td> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>SI units</td> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>Short scale naming</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> </tr> <tr> <td colspan="4"><i>In the context of this parameter the following finding was raised:</i> N/A</td> </tr> </tbody> </table>	Requirement	OK	Not OK	N/A	Label	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Data Unit	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Description	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Source of data	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Measurement equipment / measure method	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Monitoring frequency	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	QA/QC procedures	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Purpose of data	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Standard format	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	SI units	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Short scale naming	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<i>In the context of this parameter the following finding was raised:</i> N/A				OK	OK
Requirement	OK	Not OK	N/A																																																					
Label	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																																					
Data Unit	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																																					
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Measurement equipment / measure method	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																																					
Monitoring frequency	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																																					
QA/QC procedures	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																																					
Purpose of data	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																																					
Standard format	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																																					
SI units	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																																					
Short scale naming	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>																																																					
<i>In the context of this parameter the following finding was raised:</i> N/A																																																								

Appendix 6. Assessment of Applicability Criteria of Methodology

Table A-6: Assessment of Applicability Criteria

Applicability Criteria	Evidence used	Met	N/A	Assessment of validation team
For grid-connected renewable energy 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 operating plant(s)/unit(s); (d) Involve a rehabilitation of (an) existing plant(s)/unit(s); or (e) involve a replacement of (an) existing plant(s)/unit(s).	/CPADD/ /POADD/ /METH/	<input checked="" type="checkbox"/>	<input type="checkbox"/>	The CPA complies with the condition as it fits option (a), consisting in the implementation of new power plant/unit (Greenfield plant).
The project activity may include renewable energy power plant/unit of one of the following types: hydro power plant/unit (either with or without reservoir), wind power plant/unit, geothermal power plant/unit, solar power plant/unit, wave power plant/unit or tidal power plant/unit.	/CPADD/ /POADD/ /METH/	<input checked="" type="checkbox"/>	<input type="checkbox"/>	The CPA complies with the condition as it consists in renewable wind power plant/unit.
In the case of capacity additions, retrofits or replacements (except for wind, solar, wave or tidal power capacity addition projects) the existing plant started commercial operation prior to the start of a minimum historical reference period of five years, used for the calculation of baseline emissions and defined in the baseline emission section, and no capacity expansion, retrofit, or rehabilitation of the plant/unit has been undertaken between the start of this minimum historical reference period and the implementation of the project activity.	/CPADD/ /POADD/ /METH/	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Not applicable to the CPA as it consists in new renewable power plant/unit.
In case of hydro power plants, one of the following conditions shall apply: (a) the project activity is implemented in an existing reservoir, with no change in the volume of reservoir; or (b) the project activity is implemented in an existing reservoir, where the volume of reservoir is increased and the power density calculated using equation (3) of the tool is greater than 4 W/m ² ; or (c) the project activity results in new single or multiple reservoirs and the power density calculated using equation (3) of the tool is greater than 4 W/m ² ; or (d) the project activity is an integrated hydro power project involving multiple reservoirs, where the power density for any of the reservoirs, calculated using equation (3) of the tool, is lower than or equal to 4 W/m ² , all of the following conditions shall apply: (i) the power density calculated using the total installed capacity of the integrated project, as per equation (4) of the tool, is greater than 4 W/m ² ; (ii) water flow between reservoirs is not used by any other hydropower unit which is not a part of the project activity; (iii) Installed capacity of the power plant(s) with power density lower than or equal to 4 W/m ² shall be: a) lower than or equal to 15 MW; and b) less than 10 per cent of the total installed capacity of integrated hydro power project.	/CPADD/ /POADD/ /METH/	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Not applicable to the CPA as it is not a hydro power plant.

In the case of integrated hydro power projects, project proponent shall: (a) demonstrate that water flow from upstream power plants/units spill directly to the downstream reservoir and that collectively constitute to the generation capacity of the integrated hydro power project; or (b) provide an analysis of the water balance covering the water fed to power units, with all possible combinations of reservoirs and without the construction of reservoirs. The purpose of water balance is to demonstrate the requirement of specific combination of reservoirs constructed under CDM project activity for the optimization of power output. This demonstration has to be carried out in the specific scenario of water availability in different seasons to optimize the water flow at the inlet of power units. Therefore this water balance will take into account seasonal flows from river, tributaries (if any), and rainfall for minimum five years prior to implementation of CDM project activity.	/CPADD/ /POADD/ /METH/	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Not applicable to the CPA as it is not a hydro power plant.
The methodology is not applicable to: (a) project activities that involve switching from fossil fuels to renewable energy sources at the site of the project activity, since in this case the baseline may be the continued use of fossil fuels at the site; (b) biomass fired power plants/units.	/CPADD/ /POADD/ /METH/	<input checked="" type="checkbox"/>	<input type="checkbox"/>	The CPA complies with the condition as it does not involve switching from fossil fuels to renewable energy sources at the site of the project activity, nor biomass fired power plants/units.
In the case of retrofits, rehabilitations, replacements, or capacity additions, this methodology is only applicable if the most plausible baseline scenario, as a result of the identification of baseline scenario, is "the continuation of the current situation, that is to use the power generation equipment that was already in use prior to the implementation of the project activity and undertaking business as usual maintenance".	/CPADD/ /POADD/ /METH/	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Not applicable to the CPA as it does not consist in retrofit, rehabilitation, replacement, or capacity addition.
The applicability conditions included in the tools referred to in the applied methodology.	/CPADD/ /POADD/ /METH/	<input checked="" type="checkbox"/>	<input type="checkbox"/>	The CPA complies with the condition as it accomplishes to all requirements of the tools to which the methodology refers to.

Appendix 7. Assessment of Financial Parameters

Table A-7: Assessment of Financial Parameters

<input type="checkbox"/>	No financial parameters are used for additionality justification
<input checked="" type="checkbox"/>	Assessment of all financial parameters see below

Parameter	Value applied	Unit	Source of Information	Reference	DOE ASSESSMENT		
					Correctness of applied value	Appropriateness of source	Comment
Installed Capacity	97.2	MW	Technical Report Layout and Energy Generation Estimation – MegaJoule Technical Specifications	/TD/ /PLF/	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<p><i>Description:</i> the value is the sum of the total installed capacity in all four wind plants:</p> <ul style="list-style-type: none"> - Ouro Verde: 29.7 MW; - Estrela: 29.7 MW; - Cacimbas 1: 18.9 MW; - Santa Mônica I: 18.9 MW. <p><i>Validator's action:</i> those values can be evidenced by the technical specifications of the wind generators' supplier, in the Technical Qualification documents submitted to EPE and by the third party studies of the energy production.</p> <p><i>Conclusion:</i> the values are consistent among all sources and the certifications have been made by third parties and the value is the total amount of power of all wind generators of Santa Monica Complex.</p>
Total Investment	459,402	kBRL	Tractebel Energia 131 st Minutes of Board Meeting Santa Monica CAPEX budget spread sheet	/PSD/ /FD/	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<p><i>Description:</i> total investment cost reported is composed of all costs of CAPEX. Several items have been described and supporting evidences submitted to validation team along with the financial analysis of the project.</p> <p><i>Validator's action:</i> the budget spread sheet and the Minutes</p>

of Board Meeting where the investment of kBRL 459,402 was approved have been checked by the validation team. The budget was made based on comprehensive commercial proposal by Alstom (2014-02-13), which was reviewed by VT.

In addition, subsequent EPC contracts (wind generators, civil works and electromechanical) executed by PP following the Board decision were reviewed by VT and correspond to 92% of total CAPEX, which indicates the value budgeted was realistic as other expenses not covered by these 3 classes of contracts likely represent 8% of more of the considered budget (e.g. administrative, environmental, etc.).

Further, the project activity has an investment around **US\$ 2,118** per installed kW (*conversion rate on 2014-06-16: US\$ 1.00 = R\$ 2.2313*).

When comparing this value with other wind farms investments per installed MW it is possible to conclude that the project activity has an investment comparable to the market value as can be cross checked with public and official sources, as can be verified below:

- Examples of wind projects in Brazil:

Title	MW	US\$/kW
Osório Wind Power Plant ¹	50	6,584
Pedra do Sal Wind Farm ²	18	3,565

¹ CDM registered project Ref. # 0603;

² CDM registered project Ref. # 0693.

By this comparison, the weighted average value of total investment in wind farms in Brazil is around US\$ 3,600 per installed kW and the present project activity presents an investment similar to European and American projects, even with foreigner technology and know-how.

- Specialized literature:
 - Financing Renewable Energy in the European Energy Market – Final Report by Ecofys, Fraunhofer ISI, TU Vienna EEG and Ernst & Young (2011): price in Europe: from US\$ 1,504/kW to US\$ 2,039/kW;

						<p>- IEA Wind Task 26 Final Report – National Renewable Energy Laboratory (NREL) – (2011) – Price of Reference Case taking into account the values of Denmark, Germany, Netherlands, Spain, Sweden, Switzerland and United States: US\$ 2,014/kW.</p> <p>In addition, according to the Word Energy Council analysis of cost energy technologies, average CAPEX for wind power projects in Brazil is US\$ 1,670 kW, excluding grid-connection charges.</p> <p>Therefore, the total investment presented is assessed as adequate by the validation team.</p> <p><i>Conclusion:</i> the total investment has been evidenced by proposals, budget, minutes of board decision and contracts.</p> <p>All calculations have been demonstrated in the Financial Analysis and the evidences have been presented to validation team and the total CAPEX has been considered reasonable and consistent by the validation team.</p> <p>In addition, the comparison of the investment value with other wind farms investments, official sources of information and specialized articles reveals that the used investment values of the project activity are compatible with the market and official sources, in line with paragraph 129 (b) of the VVS.</p> <p>As per the DOE's understanding the value used for the investment analysis is adequate and conservative and can be assessed as valid at the time of the management decision and compatible with the wind farms market in Brazil.</p>
PLF	49.1	%	Anemometric Monitoring Certificate – MegaJoule	/PLF/ /TD/	<input checked="" type="checkbox"/>	<p><i>Description:</i> the values are certified by a third party (MegaJoule) as a guarantee percentage (P90) of energy that will be generated at the complex. The PLF per plant from the study is as follows:</p> <ul style="list-style-type: none"> - Ouro Verde: 44.3%; - Estrela: 47.5%; - Cacimbas 1: 54.6%; - Santa Mônica I: 53.7%. <p>The weighted average PLF for the Complex is 49.1%.</p> <p><i>Validator's action:</i> a third party's report has been reviewed by VT.</p>

							<p><i>Conclusion:</i> the PLF is quite high, but consistent with other wind farms in the region and the values are consistent with the certification report carried out by a third party and thus, it is in line with EB 48, Annex 11.</p>
Energy Generation	413,981	MWh/y	Anemometric Monitoring Certificate – MegaJoule	/PLF/ /TD/	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<p><i>Description:</i> the values are certified by a third party (MegaJoule) as a guarantee percentage (P90) of energy that will be generated at the complex. The energy generation estimated per plant (P90) is as follows:</p> <ul style="list-style-type: none"> - Ouro Verde: 114,112 MWh/y; - Estrela: 122,328 MWh/y; - Cacimbas 1: 89,508 MWh/y; - Santa Mônica I: 88,033 MWh/y. <p><i>Validator's action:</i> a third party's report has been reviewed by VT.</p> <p><i>Conclusion:</i> the values are consistent since the input data are evidenced by a certified third party's study.</p>
Electricity tariff	133.13	BRL/MWh	http://www.epe.gov.br/leiloes/Paginas/Leil%C3%A3o%20de%20Energia%20A-3%202014/Leil%C3%A3o%20de%20Energia%20A-32014contrata968,6MW.aspx?CategoriaID=6905 http://www.ccee.org.br/ccee/documentos/CCEE_251089	/FD/	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<p><i>Description:</i> average wind energy price of the latest Energy Auction in Brazil (19th A-3) before the project start date (2014-06-06).</p> <p><i>Validator's action:</i> the result of the Auction is publicly available as per link provided and it was verified by VT and cross checked with excel spread sheet with calculation of weighted average price.</p> <p><i>Conclusion:</i> the price is the official result of the public auction, which awards the winning projects a 20 year PPA with this fixed price. The public Auctions are the best indicator of energy price for wind farms in Brazil, as the vast majority of wind projects are only implemented through the government auctions. Hence the value is considered appropriate by VT.</p>
O&M costs Wind Farms	25.325 (1 st and 2 nd years) 156.55 (3 rd to 5 th years)	kBRL/y	Alstom Proposal Aero generators and O&M	/FD/	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<p><i>Description:</i> O&M costs per wind generator per period of years given proposed by the supplier Alstom in commercial proposal.</p> <p><i>Validator's action:</i> the proposal issued by the supplier Alstom to the PP was checked.</p> <p><i>Conclusion:</i> it is a fixed value established per period of years (as shown at the values column) given by the agreement that set the purchase and maintenance of the wind generators.</p>

	173.54 (6 th to 20 th years)					<p>The values are part of the same commercial package (proposal) of the of the wind generators.</p> <p>In addition, when calculated the total O&M (wind turbines + substation and transmission lines), the amount represents an average over 20 years of R\$ 6,151/year = USD 2,757/year, which correspond to 1.3% per year of the total investment which is adequate to the type of project, as the market value for O&M costs according to specialized literature is from 3% to 5%, i.e. http://www.windpowermonthly.com/news/1010136/Breaking-down-cost-wind-turbine-maintenance/</p> <p>Finally, as demonstrated in sensitivity analysis, even if <u>zero</u> total O&M costs were used in IRR calculation, the IRR would be 7.52%, which is still far from default benchmark of 10,65%</p>
O&M costs Substation & Transmission Line	529.374	kBRL/y	O&M Substation & Transmission Line contracts for Trairi Complex i.e. wind farms Mundaú, Fleixeiras, Guajiru and Trairi	/FD/	<input checked="" type="checkbox"/>	<p><i>Description:</i> estimated based on O&M Substation & Transmission Line cost per MW as per the O&M Substation & Transmission Line contracts for Trairi Complex wind farms.</p> <p><i>Validator's action:</i> Trairi is a nearby complex of wind farms owned by the same PP. The PP submitted the O&M Substation & Transmission Line contracts which were verified by VT. In addition, the PP provided and excel sheet demonstrating the calculation of cost per MW including the installed MWs of Santa Monica Complex, which will be connected to the same transmission line and substation. Hence, the calculation is conservative as it assumes that the addition of the Santa Monica 4 wind farms to the existing transmission line and substation will not lead to any additional costs to the existing Contracts for Trairi (see analysis in CAR D1). Finally, the final value considered was obtained multiplying the cost per MW by the installed capacity of Santa Monica Complex.</p> <p><i>Conclusion:</i> the calculation carried out by PP is traceable, correct and conservative.</p> <p>In addition, as stated above, when calculated the total O&M (wind turbines + substation and transmission lines), the amount represents an average over 20 years of R\$ 6,151/year = kUSD 2,757/year, which correspond to 1.3% per year of the total investment which is adequate to the type of project, as the market value for O&M costs according to specialized literature is from 3% to 5%, i.e. http://www.windpowermonthly.com/news/1010136/Breaking-down-cost-wind-turbine-maintenance/</p>

						down-cost-wind-turbine-maintenance/ <p>Finally, as demonstrated in sensitivity analysis, even if <u>zero</u> total O&M costs were used in IRR calculation, the IRR would be 7.52%, which is still far from default benchmark of 10.65%</p>
SG&A (Sales, General & Administrative Cost)	2.206	kBRL/y	Project Participant Estimate	/IRR/ /FD/ /TRACTEB EL/ /RENOVA/	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> <p><i>Description:</i> all costs related to the administration of the project activity. It is an estimate made by the PPs based on total <u>Sales, General and Administrative</u> costs (consolidated concept) of PP Tractebel.</p> <p><i>Validator's action:</i> first, the VT reviewed the Financial Statement 2013 of Tractebel (externally audited by KPMG) to validate the values of SG&A. Then, the VT validated also the installed capacity of Tractebel. Finally, the excel calculation provided by PP to reach the cost per MW was reviewed by PP who can confirm the correctness of all input data and formulae applied by PP.</p> <p><i>Conclusion:</i> the estimated value is considered conservative as Tractebel is the largest private energy producer in Brazil and hence the calculation of SG&A cost per MW incorporates the economies of scale. The applied value is proportional to the installed capacity of the complex, calculated as R\$ 6,687/MW/year. This value is assessed as a market value and can be cross-checked with Renova Energia (publicly traded company focused on wind energy projects) which presented average administrative costs in its portfolio of approximately R\$ 6,700/MW for a nominal capacity of approx. 2,100 MW.</p>
Benchmark	10.65	%	Methodological Tool Investment Analysis – version 06.0	/MT/	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> <p><i>Description:</i> the chosen benchmark is the default value in the Methodological Tool Investment Analysis (real terms, post-tax).</p> <p><i>Validator's action:</i> the value was checked against the tool.</p> <p><i>Conclusion:</i> correct default value was applied.</p>
Depreciation	20	Years	Manual of Asset Control of Electric Sector – page 215 – item 590	/FD/ /LIFE/	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> <p><i>Description:</i> the period is defined in the Manual of Asset Control of Electric Sector issued by ANEEL.</p> <p><i>Validator's action:</i> the value was cross-checked against ANEEL Manual.</p> <p><i>Conclusion:</i> the value is correct as it follows official ANEEL regulation for depreciation and it is also appropriate considering that the technical lifetime of the project is 20 years and after this it is not expected that the wind generators will have any residual value. On the contrary, it is</p>

							expected a cost to de-commission them.
Land Lease	1.5	% net revenues	Land lease contracts	/FD/	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<p><i>Description:</i> the cost of the lease of the land, where the project activity is located. For the four plants, several land lease contracts have been signed between the land owners and the project developer. All of them establish a payment of 1.5% of the net revenues during the exploitation phase of the project.</p> <p><i>Validator's action:</i> the land lease contracts have been verified by the VT.</p> <p><i>Conclusion:</i> the value is stated in a clause all the land lease contracts and within standard range in the market in Brazil</p>
TUST	7.714	BRL/kW /month	Law # 10438 Law # 10762 ANEEL Resolution # 1651 - EB 22 – Annex 3 – paragraph 7b EB 27 – Annex 1	/LEGIS/ /unfccc/	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<p><i>Description:</i> it is a fee charged monthly by ANEEL over the use of transmission line. The value is the calculated weighted average, based on the installed kW and TUST defined by ANEEL for each wind farm. Although the project activity is eligible for an incentive created by ANEEL which determines a reduction of 50% on tariffs for the use of electrical systems for transmission and distribution by hydroelectric developments and for those based on solar, wind, biomass or qualified cogeneration, where the power injected into the transmission and distribution systems is less than or equal to 30,000 kW, this was not used in the financial analysis as it was created after the adoption of the CDM M&P. Hence, it is an E- policy according to EB 22 – Annex 3 – paragraph 7b.</p> <p><i>Validator's action:</i> it is an official fee charged by ANEEL based on Laws #10438 and 10762 and defined in ANEEL Resolution # 1651. E- policies are regulated by EB 22 – Annex 3 and EB 27 – Annex 1.</p> <p><i>Conclusion:</i> the values are correctly applied according to Brazilian specific legislation and EB guidance.</p>
TFSEE Base Tariff	470,63	BRL/kW	Law 9247/1996 Art. 12 Dispatch # 71 - ANEEL	/LEGIS/	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<p><i>Description:</i> TFSEE is a fee paid over the annual income resulted from the generation service. It is charged in Brazil by the ANEEL. It is 0.4% of the annual typical unitary economic benefit which is R\$ 470.63 per installed kW.</p> <p><i>Justification of Evidences:</i> ANEEL regulation was checked. The percentage of 0.4% is set by Law 9247 art. 12 and the typical unitary economic benefit is set by ANEEL Dispatch # 71.</p>

							<i>Conclusion:</i> the value applied by PP in IRR calculation is correct according to regulations.
CCEE fee	0.00012	kBRL/M Wh/y	http://www.ccee.org.br/elatoriodeadministracao/70-financas-20.html	/FD/	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<i>Description:</i> fee charged by CCEE. <i>Validator's action:</i> the value was cross-checked against CCEE webpage indicated. <i>Conclusion:</i> the value applied by PP in IRR calculation is correct and publicly available in CCEE webpage.
PIS/COFINS	3.65	%	Normative Instruction # 247 – Article 52	/LEGIS/ /fazenda/	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<i>Description:</i> Brazilian tributes are charged over the company's assumed profit (companies with gross revenue below R\$ 48 million can apply the modality of tax call "Assumed profit tax regime"). As the project activity is divided in four plants and each one is owned by a different company, the gross revenues of each one remains below the limit of R\$ 48 million and so all of them are eligible for the Assumed Profit Regime. <i>Justification of Evidences:</i> the presumed profit and the taxes are calculated as follows: <ul style="list-style-type: none"> - PIS / PASEP (Social Integration Program): 0.65% of the gross profit; - COFINS (Contribution for Financing Social Security): 3% of the gross profit; - CSSL (Social Contribution): 9% of 12% of the gross profit; (assumed profit) - Income tax: 15% of 8% of the gross profit; (assumed profit) - Additional Income tax: 10% of the assumed profit (8%) which exceeds R\$ 240 thousand/year. <i>Conclusion:</i> government taxes established by law. Each Specific Purpose Society created for each wind farm, can apply the assumed profit tax modality which is calculated over an assumed percentage over gross revenues.
Income Tax	15	%	Law # 9249 – Article 3 Law # 9430 – Article 2 Law # 10637 – Article 46	/LEGIS/ /fazenda/	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Additional Income Tax	10	%	Law # 9430 – Article 2	/LEGIS/ /fazenda/	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
CSSL	9	%	Law # 7689 – Article 3	/LEGIS/ /fazenda/	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Exchange Rate	2.2313	BRL/ USD	Central Bank of Brazil	/bcb/	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<i>Description:</i> exchange rate on 2014-06-16. <i>Validator's action:</i> webpage of Brazilian Central Bank was verified. <i>Conclusion:</i> rate applied is official Central Bank Rate on project start date.

Amortization period	16	years	http://www.bndes.gov.br/SiteBNDDES/bndes/bndes_pt/Areas_de_Atualizacao/Infraestrutura/Energia/Leilao_Energia/projetos_renovaveis_2014.html	/bndes/	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<p><i>Description:</i> the period is set by BNDES directives. It is important to note that BNDES is the major loan agent for electricity projects in Brazil.</p> <p><i>Validator's action:</i> the BNDES directives have been checked.</p> <p><i>Conclusion:</i> the period is standard for BNDES loans.</p>
Grace period	1	year	Contract with BNDES for Trairi wind complex	/FD/	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<p><i>Description:</i> based on contract with BNDES for Trairi wind complex</p> <p><i>Validator's action:</i> Trairi is a nearby complex of wind farms owned by the same PP. The PP submitted the contract which was verified by VT.</p> <p><i>Conclusion:</i> appropriate as Trairi is also owed by Tractebel and therefore it is evidence of BNDES previous evaluation of company risk.</p>
TJLP	5	%	http://www.bndes.gov.br/SiteBNDDES/bndes/bndes_pt/Ferramentas_e_Normas/Custos_Financeiros/Taxa_de_Juros_de_Longo_Prazo_TJLP/index.html	/bndes/	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<p><i>Description:</i> it is a Long Term Interest Rate set by BNDES directives. It is important to note that BNDES is the major loan agent for electricity projects in Brazil.</p> <p><i>Validator's action:</i> the BNDES directives have been checked.</p> <p><i>Conclusion:</i> the interest rate is standard for BNDES loans.</p>
Basic Spread	1	%	http://www.bndes.gov.br/SiteBNDDES/bndes/bndes_pt/Areas_de_Atualizacao/Infraestrutura/Energia/Leilao_Energia/projetos_renovaveis_2014.html	/bndes/	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<p><i>Description:</i> based on BNDES directives. It is important to note that BNDES is the major loan agent for electricity projects in Brazil.</p> <p><i>Validator's action:</i> the BNDES directives have been checked.</p> <p><i>Conclusion:</i> the value is clearly and publicly stated and they met BNDES rules for loan.</p>
Risk Spread	1.51	%	Contract with BNDES for Trairi wind complex	/FD/	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<p><i>Description:</i> based on contract with BNDES for Trairi wind complex</p> <p><i>Validator's action:</i> Trairi is a nearby complex of wind farms owned by the same PP. The PP submitted the contract which was verified by VT.</p> <p><i>Conclusion:</i> appropriate as Trairi is also owed by Tractebel and therefore it is evidence of BNDES previous evaluation of company risk.</p>
Inflation rate	4.76	%	Brazil Central Bank	/bcb/	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<p><i>Description:</i> Average value of 2014-2036 time period. The value of each year has been determined based on:</p> <p>i - 2014-2018 series: "Market Expectations - Time Series"</p>

						<p>available at the Brazil Central Bank website: https://www3.bcb.gov.br/expectativas/publico/en/serieestatisticas (To access to the file select the following data inputs: - indicator = "price indices"; checkboxes = "IPCA" for local CPI; calculation = "median"; periodicity = "annual"; Starting date of series = "2014-01-01"; Final date of series = "2014-06-16" (project start date); period of projections: Starting year = "2014" (project starting year), Final year = "2020" (last year of projections as per the Central Bank of Brazil webpage);</p> <p>ii - 2019: calculated as 2018-2020 average; and</p> <p>iii - 2020 onwards: based on target inflation rate 2014 (Resolution 4095 – 2012-06-28) and 2015 (Resolution 4237 – 2013-06-28); National Monetary Council; https://www.bcb.gov.br/Pec/metase/TabelaMetaseResultados.pdf</p> <p><i>Validator's action:</i> all values have been cross-checked against publicly available data in Brazil Central Bank website.</p> <p><i>Conclusion:</i> Values applied are based on official Central Bank data, which are publicly available and therefore deemed correct and appropriate.</p>
Leverage	50	%	Methodological Tool Investment Analysis	/MT/	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> <p><i>Description:</i> as per the Methodological Tool Investment Analysis, if the benchmark is based on parameters that are standard in the market, then the typical debt/equity finance structure observed in the sector of the country should be used. If such information is not readily available, 50 per cent debt and 50 per cent equity financing may be assumed as a default.</p> <p><i>Validator's action:</i> the percentage was checked against the tool.</p> <p><i>Conclusion:</i> correct default value was applied as the default benchmark has been used.</p>
Period of Assessment	20	years	IRR Excel Spread Sheet	/FD/ /LIFE/	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> <p><i>Description:</i> period used by the PP on the investment assessment.</p> <p><i>Validator's action:</i> IRR Excel Spread Sheet has been checked.</p> <p><i>Conclusion:</i> in line with technical lifetime of CPA and conservative according to the Methodological Tool Investment Analysis which recommends at least 10 years.</p>

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Document information

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