



**PROGRAMME DESIGN DOCUMENT FORM FOR CDM PROGRAMMES OF
ACTIVITIES (F-CDM-PoA-DD)
Version 02.0**

PROGRAMME OF ACTIVITIES DESIGN DOCUMENT (PoA-DD)

PART I. Programme of activities (PoA)

SECTION A. General description of PoA

A.1. Title of the PoA

Title: Grid connected electricity generation from wind source under Programme of Activities in Brazil

Version: 04a

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A.2. Purpose and general description of the PoA

The “Grid connected electricity generation from wind source under Programme of Activities in Brazil” aims to contribute to the Brazilian rising demand for electric energy connected to the grid.

This Programme of Activities proposes to deliver renewable electricity to the National Interconnected System (*Sistema Interligado Nacional - SIN*) by means of the implementation of Greenfield wind power plants, as well as the replacement, retrofit or capacity addition of existing plants in baseline.

Environmental pros of wind-based electricity generation recognizably include contribution for atmospheric emissions reduction (including non-GHG gases) even by the displacement of CO₂ emissions that in the baseline would be emitted by thermoelectric plants, smaller demand for the construction of new large hydropower plants reservoirs, and the reduction of the risk derived from hydrological seasonality, in light of the aforementioned complementary nature of wind-based and hydroelectric electricity generation in Brazil².

Negative environmental impacts of wind power plants are relatively limited, but might arise from noise generated by the movement of the blades. Also, electromagnetic interference with data transmission systems (radio, television, etc.) is possible. Additionally, possible interference upon bird routes should be considered². However, new technologies are able to reduce the noise impact.

Regarding the framework of implementation of the present PoA, the government of Brazil releases the Brazilian Ten-year Plan for Energy Expansion¹ (*Plano Decenal de Expansão de Energia – PDE/2020*) the main directive for the electricity generation in Brazil is to prioritize renewable sources in the ten-year horizon. In this context the Wind Power sector is highlighted since it is expected the electric generation by this source increases an averaged of 4.35% per year till 2020 and currently already has competitive prices comparing to other alternative generation sources such as biomass and small-hydroelectric power plants.

Countries in the Latin America and the Caribbean region have expressed their commitment towards achieving a target of 10% renewable energy of total energy use in the region by 2010. Through an initiative from the Ministers of the Environment in 2002 (source: UNEP-LAC (2002). Final Report of the

¹ Ten-year plan for energy expansion 2020 (*Plano decenal de expansão de energia 2020*). 2011. Ministério de Minas e Energia. Empresa de Pesquisa Energética. Brasília, 319 pp.



7th Meeting of the Inter-Sessional Committee of the Forum of Ministers of Environment of Latin America and the Caribbean. United Nations Environment Programme, Regional Office for Latin America and the Caribbean. 15 to 17 May, 2002, São Paulo (Brazil), a preliminary meeting of the World Summit for Sustainable Development (WSSD) was held in Johannesburg in 2002. In the WSSD final Plan of Implementation no specific targets or timeframes were stated, however, their importance was recognized for achieving sustainability in accordance with the Millennium Development Goals (WSSD Plan of Implementation, Paragraph 19 (e): "Diversify energy supply by developing advanced, cleaner, more efficient, affordable and cost-effective energy technologies, including fossil fuel technologies and renewable energy technologies, hydro included, and their transfer to developing countries on concessional terms as mutually agreed. With a sense of urgency, substantially increase the global share of renewable energy sources with the objective of increasing its contribution to total energy supply, recognizing the role of national and voluntary regional targets as well as initiatives, where they exist, and ensuring that energy policies are supportive to developing countries' efforts to eradicate poverty, and regularly evaluate available data to review progress to this end."

In the late 1990's a strong increase in the energy demand in Brazil contrasted with a less-than- average increase in installed capacity, this caused the outbreak of the supply crisis/rationing in 2001/2002. One of the solutions the government provided was to review the legislation, favoring independent energy producers. Earlier, in 1995, the privatization process initiated with the expectation of adequate tariffs and better prices for generators. It drew the attention of investors to possible alternatives not available in the centrally planned electricity market. Furthermore the possible eligibility of renewable energy projects under the Clean Development Mechanism of the Kyoto Protocol drew the attention of investor.

The participation of wind-based electricity is still not significant in the electric matrix in Brazil (the Section B.1 has more information about the electric energy matrix in Brazil). One of the reasons for that derives from the fact that the Equity Internal Return Rate of this type of entrepreneurship is lower than a sectorial benchmark, as it will be demonstrated in each CPA. Moreover, it should be noted that most wind-based electricity generation entrepreneurs in Brazil accrue from one of the following incentive mechanisms: Clean Development Mechanism (CDM) and the Program of Incentive to Alternative Sources of Electric Energy (from the Portuguese: *Programa de Incentivo às Fontes Alternativas de Energia Elétrica* – PROINFA).

Considering the schedule of the program (PROINFA), which was launched in 2002 and forecasted plants operation covered by the program until 2010, PROINFA is not available by the time of PoA publication. Therefore, incentives provided by CDM are going to be the main source for the complementation of revenues for wind power entrepreneurs.

The PoA contributes the host country's sustainable development in the following ways:

- **Contribution to local environmental sustainability:** The PoA will produce renewable electricity from low environmental impact wind power plants;
- **Contribution to the net workplace generation:** New job posts will be created by the CPAs implementation;
- **Contribution towards the diversification of the electric mix and towards energetic security:** The period when there is the greatest abundance of wind resources is coincident with the period of the smallest hydraulic availability, in Brazil. Hence, wind-based electricity generation is complementary to hydroelectricity, which is the major electricity source in the Brazilian electrical

system, contributing to the security of renewable electricity supply throughout the year and, hence, to the diminishment of the dependence upon fossil fuels during the dry season².

- **Contribution to wind electricity generation sector's development in Brazil:** This type of project can stimulate similar initiatives inside the Brazilian energy sector and encourage the development of modern and more efficient renewable energy units throughout Brazil.

The proposed PoA is a voluntary action by the WayCarbon Soluções Ambientais e Projetos de Carbono Ltda. (hereinafter referred to as WayCarbon) (PoA's CME) and will accept Entrepreneurs of the Brazilian Wind Power sector as project participants and CPA proponents.

A.3. CMEs and participants of PoA

The CME (Coordinating and/or Managing Entity) of the proposed PoA is WayCarbon Soluções Ambientais e Projetos de Carbono Ltda. This entity is responsible to communicate with the Board under this PoA and may be also a project participant in any CPAs from this PoA.

A.4. Party(ies)

Name of Party involved (host) indicates a host Party	Private and/or public entity(ies) project participants (as applicable)	Indicate if the Party involved wishes to be considered as project participant (Yes/No)
Federative Republic of Brazil (host)	Private entity – WayCarbon Soluções Ambientais e Projetos de Carbono Ltda.	No

A.5. Physical/ Geographical boundary of the PoA

Brazil is the boundary for the PoA in terms of geographical area within which all Component Project Activities (CPAs) included in this PoA will be implemented (Figure 1).

² ANEEL (Brazilian Electricity National Agency – *Agência Nacional de Energia Elétrica*) – Brazilian Electricity Atlas (*Atlas de Energia Elétrica no Brasil*). Available at <http://www.aneel.gov.br/aplicacoes/Atlas/download.htm>. Accessed on 27/Dec/2011.



Figure 1. Geographical boundary of the proposed PoA. The figure depicts Brazil (the PoA boundary), within South America. Source of the map: http://pt.wikipedia.org/wiki/Ficheiro:Mapa_Politico_Brazil_1981_CIA.gif#file

A.6. Technologies/measures

A typical CDM Component Project Activity (CPA) of the proposed PoA may consist in: a) the implementation of new power plant (s) (Greenfield); b) the capacity addition by means of the installation of power plants/units besides or additional to existing power plants/units; c) the retrofit of an existing plant (s); **or** d) the replacement of a existing plant (s). In any of these cases, the technology to be employed is a grid connected wind electricity generation facility (i.e. constituted of one or more wind turbines) in Brazil.

Wind energy is defined as the kinetic energy contained by moving air masses (wind). Its use for the production of electricity occurs by means of the conversion of translational kinetic energy in rotational kinetic energy and, then, by means of the conversion of the former form of energy into electricity, by means of the employment of wind turbines or aerogenerators².

A.7. Public funding of PoA

Not applicable; there is no public funding of the programme of activities.

SECTION B. Demonstration of additionality and development of eligibility criteria

B.1. Demonstration of additionality for PoA

There are currently 71 operating wind power plants in Brazil, summing 1.53 GW of installed capacity, which represents 1.22% of the total installed capacity in the country (Table 1).

Table 1: Electricity production entrepreneurship in operation in Brazil.

Type	Units	Verified installed capacity	
		kW	%
Mini and Micro Hydroelectric Plants (≤ 1 MW)	371	214,305	0.18%
Wind power plants	73	1,471,192	1.26%

Small hydroelectric plants (1 MW – 30 MW)	421	3,878,507	3.31%
Photovoltaic plants	8	1,494	0.00%
Large hydroelectric plants (≥ 30 MW)	180	78,277,779	66.83%
Thermoelectric plants	1,528	31,274,624	26.70%
Nuclear plants	2	2,007,000	1.71%
Total	2,583	117,124,901	100.00%

Source: National Electric Energy Agency (ANEEL - *Agência Nacional de Energia Elétrica*): Generation Database (BIG - *Banco de Informação de Geração*). Available at <http://www.aneel.gov.br/aplicacoes/capacidadebrasil/capacidadebrasil.asp>. Accessed on 14/Mar/2012 (reference: BrazilianElectricityGenerationMatrix_ANEEL_20120314).

The data depicted in Table 1 show that the participation of wind-based electricity is still not significant in the electric matrix in Brazil. One of the reasons for that derives from the fact that the Equity Internal Return Rate of this type of entrepreneurship is lower than the benchmark, as it will be demonstrated in each CPA. Moreover, it should be noted that most wind-based electricity generation entrepreneurship in Brazil accrue from one of the following incentive mechanisms: CDM and PROINFA⁴.

PROINFA (*Programa de Incentivo às Fontes Alternativas de Energia Elétrica* – Program of Incentive to Alternative Sources of Electric Energy) was launched in 2002 with the objective of increasing the participation of electricity produced from wind and biomass sources and from small hydroelectric plants in the National Interconnected System (SIN). PROINFA is based on feed in tariffs and was designed to have 2 phases. The first phase initially set a quota of 3.3 GW of new generation capacity equally distributed among wind, biomass and small hydro. After the program was launched, part of the quota of biomass was transferred to wind projects⁴.

The program foresees the implementation of 144 plants, totaling 3,299.40 MW of installed capacity, being 1,191.24 MW from 63 small hydroelectric plants (1 MW - 30 MW), 1,422.92 MW from 54 wind plants and 685.24 MW from 27 biomass plants⁴.

Projects developed under PROINFA have a 20-year Power Purchase Agreement signed with the state-owned electricity utility ELETROBRÁS⁴. PROINFA presets the price of the electricity paid to generators as a technology specific economic value, which is defined as the value that guarantee, for a defined timeframe and efficiency level, the economic feasibility of a typical project based on alternative sources of energy. It is worthy mentioning that the prices paid by PROINFA are higher than those practiced by the market⁵.

Besides, electricity generation companies that had Electricity Purchase and Sale Contracts signed with ELETROBRÁS in the ambit of PROINFA could take up a loan from the National Development Bank (*Banco Nacional do Desenvolvimento* – BNDES). Under the so-called Program of Financial Support to Investments in Alternative Sources of Electric Energy in the Ambit of PROINFA (*Programa de Apoio Financeiro a Investimentos em Fontes Alternativas de Energia Elétrica no Âmbito do PROINFA*), borrowers could finance up to 70% of financeable items, where the first installment could be paid up to third month after the operation start date with up to 10-year amortization periods⁶.

⁴ Programa de Incentivo às Fontes Alternativas de Energia Elétrica/ *Program of Incentive to Alternative Sources of Electric Energy*. Available at <http://www.mme.gov.br/programas/proinfa>. Accessed on 10/Apr/2012.

⁵ Alves de Brito, M.L. 2009. Investments in Wind Energy in Brazil: Comparing PROINFA and CDM project finance. Master Thesis. Graduate School of Humanities and Social Sciences. University of Tsukuba, Japan.

⁶ Program of Financial Support to Investments in Alternative Sources of Electric Energy in the Ambit of PROINFA/*Programa de Apoio Financeiro a Investimentos em Fontes Alternativas de Energia Elétrica no Âmbito do PROINFA*. Available at <http://www.mme.gov.br/programas/proinfa/galerias/arquivos/programa/resolproinfa.pdf>. Accessed on 03/Jan/2012.

Another differential of PROINFA for Brazilian generation companies was the electricity prices practiced in the program. For wind power plants that sold electricity in the program, the prices in December 2011 was around R\$281,90/MWh. The starting price of PROINFA in March 2004 was R\$180.18/MWh for wind power plants that had a higher Plant Load Factor, according to the following presentation: <http://www.mme.gov.br/programas/proinfa/galerias/arquivos/apresentacao/PROINFA-ANEXO1-InstitucionalMME.pdf>. The readjusted Electricity Price for Wind Power Plants under PROINFA, in December 2011 was calculated and presented in the spreadsheet: “PROINFA WIND price_1”), which resulted in R\$281,90/MWh.

It is worthy mentioning that “PROINFA also aims at the reduction of GHG, in the terms of UNFCCC, contributing to sustainable development” and “it is the attribution of ELETROBRÁS the direct or indirect development of the processes of preparation and validation of PDDs, registration, monitoring, and certification of the emissions reductions, and the commercialization of carbon credits obtained by PROINFA”. “The resources originated from the activities related to the CDM or other carbon markets will be destined to the reduction of the costs of PROINFA”⁷. In that sense, 12 PROINFA wind projects in operation in Brazil are being/were developed as CDM projects.

It shall be emphasized that considering the schedule of the program (PROINFA), which was launched in 2002 and forecasted plants operation covered by the program until 2010, PROINFA is not available by the time of PoA publication.

Therefore, none of the future CPAs that will included under the PoA would occur considering that most wind projects in Brazil have been implemented under a program of incentive: PROINFA or CDM. The demonstration of additionality will be applied in the CPAs level, in this way the component project activities will demonstrate that they are additional and will require CDM revenues to complement the rate of return of the shareholder.

B.2. Eligibility criteria for inclusion of a CPA in the PoA

The eligibility criteria for inclusion of a CPA under the PoA are in accordance with the latest version of “Standards for demonstration of additionality, development of eligibility criteria and application of multiple methodologies for Programme of Activities”, as follows:

- A. “The geographical boundary of the CPA including any time-induced boundary consistent with the geographical boundary set in the PoA”

Outcome: The CPA shall correspond to a wind electricity generation facility (wind farm, i.e. constituted of one or more wind turbines) located in Brazil and connected to the Brazilian National Interconnected System (*Sistema Interligado Nacional - SIN*);

Verifiable evidence: documents from the Brazilian Electricity Regulatory Agency (Agência Nacional de Energia Elétrica (ANEEL), National System Operator (Operador Nacional do Sistema – ONS), or consistent documents regarding the location of the power plant(s) unit(s) can be presented to ensure the CPA location.

- B. “Conditions that avoid double counting of emission reductions like unique identifications of product and end-user locations (e.g. programme logo)”

⁷ Federal Decree 5025 of March 30th 2004. Available at <http://www.jusbrasil.com.br/legislacao/97855/decreto-5025-04>. Accessed on 03/Jan/2012.

Outcome: The CPA's geographical coordinates shall be provided in an unambiguous manner in order to allow the unique identification of the CPA's product (electricity generation), avoiding double counting of GHG emissions reductions.

A wind power plant involved in the CPA shall choose one of the following conditions to avoid double accounting in different GHG Programs: the power plant(s) shall (i) not participate on another GHG Program or participate on the following another GHG program, other than CDM, and request issuance of Certified Emission Reductions (CERs) during the period on which is monitoring the activity under the Clean Development Mechanism, i.e. will not request issuance of credits for the same monitoring year simultaneously in both program.

Verifiable evidence: during the validation of each CPA the activity implementer – and the CME, in case it is a Project Participant – shall demonstrate by means of documentary evidences or accessible internet links from the Brazilian Electricity Regulatory Agency (Agência Nacional de Energia Elétrica (ANEEL), National System Operator (Operador Nacional do Sistema – ONS), consistent documents or other GHG Programs databases, that the power plant(s) unit(s) is not requesting CER issuance simultaneously with another GHG Program and that is not part of a larger CDM project activity developed under a PDD or a another PoA. That demonstration may be performed by means of a declaration according to which the CPA is not registered and will not be registered under another PoA or CDM project activity.

- C. “The specifications of technology/measure including the level and type of service, performance specifications including compliance with testing/certifications”

Outcome: The CPA shall correspond to a wind electricity generation facility (wind farm, i.e. constituted of one or more wind turbines) connected to the Brazilian National Interconnected System that: (a) install a new power plant at a site where no renewable power plant was operated prior to the implementation of the project activity (greenfield plant); (b) involve a capacity addition; (c) involve a retrofit of (an) existing plant(s); or (d) involve a replacement of (an) existing plant(s).

The technology measures are in line with the provisions from the applicable methodology (ACM0002), where:

- (a) Install a new power plant at a site where no renewable power plant was operated prior to the implementation of the project activity (greenfield plant) is to install a new power plant at a site where no renewable power plant was operated prior to the implementation of the project activity. So, installing a greenfield power plant;
- (b) Capacity addition is to increase the installed power generation capacity of an existing power plant through: (i) the installation of a new power plant beside the existing power plant/units, or (ii) the installation of new power units, additional to the existing power plant/units. The existing power plant/units continue to operate after the implementation of the activity.
- (c) Retrofit of (an) existing plant(s) represents respectively an investment to repair or modify an existing power plant/unit, with the purpose to increase the efficiency, performance or power generation capacity of the plant, without adding new power plants or units, or to resume the operation of closed (mothballed) power plants; a retrofit restores the installed power generation capacity to or above its original level. Retrofits shall only include measures that involve capital investments and not regular maintenance or housekeeping measures.
- (d) A replacement is an investment in a new power plant or unit that replaces one or several existing unit(s). The new power plant or unit has the same or a higher power generation capacity than the plant or unit that was replaced. The new power plant(s) unit(s) may be either installed at the same location as the existing power plant(s) or unit(s) or (partially) at a different location.

In all cases mentioned above, it is not accepted Wind Turbines Generators that was under operation in another plant before being implemented in the CPA.

Verifiable evidence: during the validation of each CPA the activity implementer – and the CME, in case it is a Project Participant – shall demonstrate by means of documentary evidences (including accessible internet links), from the Brazilian Electricity Regulatory Agency (Agência Nacional de Energia Elétrica (ANEEL), National System Operator (Operador Nacional do Sistema – ONS) and other consistent documents that the power plant(s) unit(s) is under one of the measures described above and accomplishes the specifications of technology/measure including the level and type of service, performance specifications including compliance with testing/certifications and that is in accordance with the applicability conditions of the methodology.

D. “Conditions to check the start date of the CPA through documentary evidence”

Outcome: Documents that demonstrate the start date of the CPA shall be made available. Such documents can be contracts that have been signed for equipment or construction/operation services, memorandum of understanding between entrepreneurs and others.

Verifiable evidence: during the validation of each CPA the activity implementer – and the CME, in case it is a Project Participant – shall demonstrate by means of documentary evidences (including accessible internet links), information from the Brazilian Electricity Regulatory Agency (Agência Nacional de Energia Elétrica (ANEEL), National System Operator (Operador Nacional do Sistema – ONS) and other consistent documents that the start date of the CPA occurs after the PoA publication for Global Stakeholders Consultation. Such documents can be contracts that have been signed for equipment or construction/operation services, memorandum of understanding between entrepreneurs and others.

E. “Conditions that ensure compliance with applicability and other requirements of single or multiple methodologies applied by CPAs”

Outcome: The CPA shall fulfill the applicability criteria of ACM0002 (“Consolidated baseline methodology for grid-connected electricity generation from renewable sources”) in respect to grid connected wind power generation.

Verifiable evidence: during the validation of each CPA the activity implementer – and the CME, in case it is a Project Participant – shall demonstrate by means of documentary evidences (including accessible internet links), from the Brazilian Electricity Regulatory Agency (Agência Nacional de Energia Elétrica (ANEEL), National System Operator (Operador Nacional do Sistema – ONS) and other consistent documents that the power plant(s) unit(s) is under one of the measures previewed in the PoA, accomplishes the specifications of technology/measure including the level and type of service, performance specifications including compliance with testing/certifications and that is in accordance with the applicability conditions of the methodology.

F. “The conditions that ensure that CPAs meet the requirements pertaining to the demonstration of additionality” as specified in Section B.5 of the Part II of this document below

Outcome: The additionality of the CPA shall be demonstrated as per the latest versions of the “Tool for the demonstration and assessment of additionality” and the “Combined tool to identify the baseline scenario and demonstrate additionality”.

As per the latest version of the “Tool for the demonstration and assessment of additionality”, the following steps apply:

- Step 1: Identification of alternatives to the project activity consistent with current laws and regulations.
- Step 2: Investment analysis.
- Step 3: Barrier analysis.
- Step 4: Common practice analysis.

Verifiable evidence: the demonstration of additionality shall be demonstrated in each CPA. Documentary evidence shall be provided by each activity in order to have a consistent argumentation. Publicly available evidences, contracts signed by a CPA implementer in other similar activities, commercial proposals for the project or other similar to the objective of the proposed CPA, technical studies provided by reliable third parties or based on entrepreneurs experience and other consistent evidences not limited to the examples provided can be used to demonstrate the additionality of a CPA.

- G. “The PoA-specific requirements stipulated by the CME including any conditions related to undertaking local stakeholder consultations and environmental impact analysis”

Outcome: The CPA shall be in accordance to the Brazilian environmental licensing process; local stakeholders consultation is done in the PoA-DD level according to the Brazilian DNA (named *Comissão Interministerial de Mudança Global do Clima* - Interministerial Commission for Global Climate Change / CIMGC) Resolution number 09, i.e. the local stakeholder consultation shall not be done in the CPA level.

A Wind Power Plant in a CPA shall be in accordance to the Brazilian environmental licensing process, since it shall develop an Environmental Impact Study, either EIA/RIMA – *Estudo de Impacto Ambiental/Relatório de Impacto no Meio Ambiente*, or a RAS – *Relatório Ambiental Simplificado*, both types of environmental impact study. Also, the CPA implementer shall request or provide the Previous License or Installation License or Operational License.

In the case that none of both Environmental Impact Assessment (EIA/RIMA or a RAS) is available by the time of inclusion of the CPA, the project implementer shall justify in what phase the plant(s) involved is under licensing. Moreover, it shall be emphasized that the Environmental Impact Study may have another name depending on the Brazilian State the Wind Power Plant is located. Therefore, the CPA can accept such Environmental Impact Study.

In the case that none Environmental Licenses is available by the time of inclusion of the CPA, the project implementer shall justify in what phase the plant(s) involved is under licensing.

More information about the framework and laws on which wind power entrepreneurs are inserted is provided in the Section E.

Verifiable evidence: Archives containing all information regarding the Local Stakeholders Consultation shall be provided to DOEs during all the length of the PoA.

Information regarding the status of the Environmental Licensing Process shall be provided in the CPA level, either concerning the environmental study either EIA/RIMA – *Estudo de Impacto Ambiental/Relatório de Impacto no Meio Ambiente*, or a RAS – *Relatório Ambiental Simplificado*, and information regarding the status of issuance of Previous License or Installation License or Operational License.

- H. “Conditions to provide an affirmation that funding from Annex I parties, if any, does not result in a diversion of official development assistance”

Outcome: The CPA shall provide an affirmation that, if any funding from Annex I parties have been provided, it does not result in a diversion of official development assistance.

Verifiable evidence: the CPA implementer shall provide information about the type funding it is the one will be intended to apply for. Information regarding funding can be demonstrated in the level of CPA in the demonstration of additionality.

- I. Where applicable, target group (e.g. domestic/commercial/industrial, rural/urban, grid connected/off-grid) and distribution mechanisms (direct installation);

Outcome: All CPAs included in the PoA shall be connected in the National Interconnected System (*Sistema Interligado Nacional*, in Portuguese), grid on which the calculation of the Combined Margin Emission Factor is calculated in the context of the present Programme.

Verifiable evidence: information about the location of the activity, public information from the National Electricity Regulatory Agency (ANEEL) and documents provided to the Energy Research Company (*Empresa de Pesquisa Energética*, in Portuguese), among other, evidence considering that this eligibility condition is applied in the PoA.

- J. Where applicable, the conditions related to sampling requirements for a PoA in accordance with the approved guidelines/standard from the Board pertaining to sampling and surveys;

Outcome: not applicable to the present Programme of Activities.

Verifiable evidence: evidence is not required considering that this eligibility condition is not applied in the PoA.

- K. Where applicable, the conditions that ensure that every CPA in aggregate meets the small-scale or microscale thresholds throughout the crediting period of the CPA;

Outcome: not applicable to the present Programme of Activities. The present Programme of Activities is a large-scale project so CPAs will not be constrained to any limit.

Verifiable evidence: evidence is not required considering that this eligibility condition is not applied in the PoA.

- L. The determination of the crediting period of a CPA shall correspond to:

Outcome: the starting date of the CPA shall not be before PoA Validation (April 20, 2012) and that the crediting period will not exceed the end of the PoA. The crediting period of a CPA will be either a maximum of seven years, which may be renewed at most two times or a maximum of ten years with no option of renewal. However, the duration of crediting period of any CPA shall be limited to the end date of the PoA regardless of when the CPA was added. Each CPA shall apply any resulting changes to the PoA at the time of the first renewal of its crediting period after such change to the PoA.

Verifiable evidence: each CPA shall determine the type of crediting period and the length is either a maximum of seven years, which may be renewed at most two times or a maximum of ten years with no option of renewal. Moreover, each monitoring report of Emission Reductions,

performed by the project implementers, shall contain a declaration that monitoring period does not exceed the PoA lifetime.

Each CPA shall present evidences to ensure that the Start Date of each activity is after the publication of the PoA for Global Stakeholders Consultation (April 20, 2012).

- M. Awareness and agreement by CPA Project Participants of participating in the PoA and regarding ownership of Certified Emission Reductions (CERs):

Outcome: in order to ensure that CPA operator is aware and have agreed that its activity is being subscribed to the PoA, the CPA operator and the CME shall sign a contract agreeing that (i) the CPA has not and will not be registered as a CDM project activity by means of a PDD or as a CPA under another PoA and (ii) the CPA operator is aware and have agreed that its activity is being subscribed to the proposed PoA. A declaration by CPA Project Participants regarding the awareness of participating in the PoA can be used to accomplish this issue.

Verifiable evidence: the CPA operator and the CME shall present a contract agreeing that (i) the CPA has not and will not be registered as a CDM project activity by means of a PDD or as a CPA under another PoA; (ii) the CPA operator is aware and have agreed that its activity is being subscribed to the proposed PoA or declaration by CPA Project Participants regarding the awareness of participating in the PoA; and (iii) the PPs of the CPA included shall provide a contract showing the ownership of Certified Emission Reductions (CERs) or a similar agreement, such as a Memorandum of Understanding (M.o.U.), but not limited to, on which they are aware about the CERs ownership.

- N. Verification that the CPA included in the PoA will not comprise activities that involves a fragmentation of a large-scale activity into smaller parts, in order to avoid de-bundling:

Outcome: The CPA included in the PoA will not comprise activities that involve a fragmentation of a large-scale activity into smaller parts, so de-bundling is not accepted in the context of the present PoA. The CME shall perform verification in order to understand context of development of plants that aims to participate of the PoA.

Wind power plants will be considered a de-bundled activity if there is a registered CDM project activity or a request for registration by another project activity that involves the one that aims to be part of the PoA. If the plant(s) is part of another large-scale project activity or Programme, the plant shall not be included under the present PoA.

Verifiable evidence: during the validation of each CPA the activity implementer – and the CME, in case it is a Project Participant – shall demonstrate by means of documentary evidences, a signed declaration by PPs of the CPA or accessible internet links from the Brazilian Electricity Regulatory Agency (Agência Nacional de Energia Elétrica (ANEEL), National System Operator (Operador Nacional do Sistema – ONS), consistent documents or other GHG Programs databases that the power plant(s) unit(s) is not requesting CER issuance simultaneously with another GHG Program and that is not part of a larger CDM project activity developed under a PDD or a another PoA.

- O. New CPAs shall be evaluated by the CME before its inclusion under the Programme of Activities. The CME shall verify:

- a. If the Eligibility Criteria defined under the PoA are accomplished by each CPA;
- b. If the type/measure to be implemented under the CPA is in line with the measures comprised in the present PoA and in line with the ACM0002;

- c. If the CPA implementer agrees that its activity will be included under the PoA and that will not include the plant(s) under another PoA or develop a separately/independently PDD;
- d. If the CPA is additional by applying the applicable by the methodology and related tools;
- e. If the methodology is applicable.

Outcome: All activities which want to participate in the PoA, as a CPA, shall comply with all criteria and conditions determined by the PoA (all Eligibility Criteria described above).

Verifiable evidence: The CME can approve the inclusion of a CPA under the PoA by confirming the participation of and activity by a signed document.

B.3. Application of methodologies

The technology/measures that will be used in the PoA consist of grid-connected wind electricity generation project activities that (a) install a new power plant at a site where no renewable power plant was operated prior to the implementation of the project activity (greenfield plant); (b) involve a capacity addition; (c) involve a retrofit of (an) existing plant(s); or (d) involve a replacement of (an) existing plant(s). Therefore, the Approved consolidated baseline and monitoring methodology ACM0002 Version 12.3.0 “Consolidated baseline methodology for grid-connected electricity generation from renewable sources” is applicable to the proposed PoA.

SECTION C. Management system

WayCarbon (CME) will develop and implement a management system that includes the following:

- a) A clear definition of roles and responsibilities of personnel involved in the process of inclusion of CPAs, including a review of their competencies:

Personnel involved in the process of inclusion of CPAs consist in a team of CME employees specially selected and trained for such task. The role of the team is to clearly understand the eligibility criteria of the PoA and apply them to all potential CPAs, including in the PoA only CPAs that meet all requirements. The responsibilities of the team include collecting all data and evidences necessary to the eligibility assessment, assessing eligibility and deciding on the inclusion of the CPA candidates.

A registry shall be created in order to identify the participants involved in training courses so a databank containing names, roles and responsibilities after the training course for all CME employees. It will be recorded by the whole length of the Programme of Activities, and maintained for two years after the last inclusion of a CPA or the last request for credits from a CPA included in the PoA, whichever is more relevant for the evaluation of Eligibility Criteria.

- b) Records of arrangements for training and capacity development for personnel:

All personnel involved shall be trained in several issues regarding climate change, wind energy, the CDM and all other essential themes to the PoA. Every person involved shall keep a record of all training received, including date, type of training, issue, and bibliographic references. In case of experienced personnel, they shall keep an updated record of their knowledge on each issue and how it was acquired, including issue, bibliographic references and previous experience.

By each quarterly the CME will evaluate the necessity to perform a training course for its employees about the methodology involved in the present PoA and related tools, guidelines, etc.

Workshops concerning themes related to new information from the Executive Board Meetings and its reports and other matters-related will be performed in order to have the team updated on the rules and criteria related to the PoA.

A registry shall be created in order to identify the participants involved so a databank containing names, roles and responsibilities after the training course for all CME employees. It will be recorded by the whole length of the Programme of Activities, and maintained for two years after the last inclusion of a CPA or the last request for credits from a CPA included in the PoA, whichever is more relevant for the evaluation of Eligibility Criteria.

c) Procedures for technical review of inclusion of CPAs:

WayCarbon will implement a database (WayCarbon PoA Database) with relevant information for each CPA under the proposed PoA, including:

- A. Name of the CPA;
- B. Inclusion date of the CPA;
- C. Name of the wind farm facility(ies) that compound the CPA;
- D. Geographical coordinates of the CPA and of each wind turbine;
- E. Technical description of the CPA, which include, *inter alia*, wind turbine model, installed capacity and plant load factor;
- F. Financial information regarding the investment analysis performed by the time on which the investment decision was taken by the entrepreneur involved and the real actions in order to implement the project as a activity of the present CPA and its consideration of the CDM in the context of implementation;
- G. Information regarding the relevant milestones/activities regarding the event on which will define the Start Date of a CPA;

This database will be archived and kept at least for 2 years after the end of the crediting period or 2 years after the last issuance of CER for this PoA, whichever occurs later.

d) A procedure to avoid double accounting (e.g. to avoid the case of including a new CPA that has already been registered either as CDM project activity or as a CPA of another PoA):

WayCarbon will implement a database (UNFCCC Database) with relevant information for wind farms facilities implemented in Brazil registered either as CDM project activity or as a CPA of another PoA, including:

- A. Name of the PDD or CPA;
- B. Registration date of the PDD or the inclusion date of the CPA under the PoA;
- C. Name of the wind farm facility(ies) that compound the PDD or CPA;
- D. Geographical coordinates of the PDD or CPA and of each wind turbine.

In order to avoid double accounting (e.g. to avoid the case of including a new CPA that had already been registered either as CDM project activity or as a CPA of another or of the proposed PoA), when a new CPA is inserted in the WayCarbon PoA Database (described above in item (i)), its information is compared to information of all other CPAs included in the proposed PoA (i.e. CPAs in the WayCarbon PoA Database) and to information of all other PDDs and CPAs of another PoAs (i.e. activities in the UNFCCC Database). This new CPA shall be included under the proposed PoA only with the confirmation that the related activity is not being already developed under CDM.

The CPA included under the present PoA shall does not participate in another GHG program or participate on a GHG program since it will not request issuance of Certified Emission Reductions (CERs) during the period on which is monitoring the activity under the clean development mechanism, i.e. will not request issuance of credits for the same monitoring year simultaneously in both program

e) Records and documentation control process for each CPA under the PoA:

Each CPA under the PoA shall have all of its information properly recorded and electronically kept by the CME for at least 2 years after the end of the crediting period, for each CPA. Documentation includes evidences of the whole process, from eligibility criteria until registry. The CME shall define an organization standard for all files, which allows the clear identification of type of document, version, date and responsible person.

Also a database will be created by WayCarbon regarding information about each CPA under the present PoA, which includes:

- Name, Reference Number and inclusion date of the CPA;
- Name of the wind power plant(s) considered in the CPA, its location (preferably the GPS coordinates of the plant), a brief technical description (e.g. number of generation units, installed capacity;
- Reference to the formal documentation issued by the Brazilian Electricity Regulatory Agency (ANEEL – Agência Nacional de Energia Elétrica, from the Portuguese) authorizing the plant to operate.

The information reported in the database is saved in an electronic system, and periodic backups of information are done.

f) Measures for continuous improvements of the PoA management system:

Personnel involved in the PoA management system must keep discussion meetings in a minimum quarterly basis, in order to assess current operational problems on the system and define and implement solutions.

Personnel involved in the process of inclusion of CPAs consist in a team of CME employees specially selected and trained for such task. The role of the team is to clearly understand the eligibility criteria of the PoA and apply them to all potential CPAs, including in the PoA only CPAs that meet all requirements. The responsibilities of the team include collecting all data and evidences necessary to the eligibility assessment, assessing eligibility and deciding on the inclusion of the CPA candidates.

A registry shall be created in order to identify the participants involved in training courses so a databank containing names, roles and responsibilities after the training course for all CME employees. It will be recorded by the whole length of the Programme of Activities, and maintained for two years after the last inclusion of a CPA or the last request for credits from a CPA included in the PoA, whichever is more relevant for the evaluation of Eligibility Criteria.

g) Any other relevant information:

Provisions to ensure that those operating the CPA are aware and have agreed that their activity is being subscribed to the PoA:

In order to ensure that CPA operator is aware and have agreed that its activity is being subscribed to the PoA, the CPA operator and the CME shall sign a contract agreeing that (i) the CPA has not



and will not be registered as a CDM project activity by means of a PDD or as a CPA under another PoA and (ii) the CPA operator is aware and have agreed that its activity is being subscribed to the proposed PoA.

SECTION D. Duration of PoA**D.1. Start date of PoA**

01/02/2013

D.2. Length of the PoA

28 years



SECTION E. Environmental impacts

E.1. Level at which environmental analysis is undertaken

Environmental Licensing is the major tool in environmental policies implementation in Brazil, with the main objective of standardizing environmental impacts assessments and establishing control plans for polluting enterprises. The Brazilian Environmental National Council (CONAMA – *Conselho Nacional de Meio Ambiente*) Normative Deliberations numbers 01/86 and 237/97 state that environmental impact assessments, which in Brazil can be either an Environmental Impact Study/Report on Environmental Impact (from the Portuguese: *Estudo de Impacto Ambiental/Relatório de Impacto no Meio Ambiente – EIA/RIMA*) or a Simplified Environmental Report (from the Portuguese: *Relatório Ambiental Simplificado – RAS*), must be undertaken before the installation of new entrepreneurship or before the expansion/modification of existing activities. The construction and operation of these entrepreneurship are not allowed until the issuance of environmental permits. According to Federal Regulation 9.433/1997, article 52nd, the State or Municipal environmental agencies are the authorities in charge to issue Environmental Licenses within each Federative Unit (States or Municipalities), or by the Federal environment agency (*Instituto Brasileiro de Meio Ambiente e dos Recursos Naturais Renováveis – IBAMA – Brazilian Environmental and Renewable Natural Resources Institute*) depending on the scope, scale and boundaries of the activity.

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

Each CPA included in the proposed PoA shall environmentally license its entrepreneurship. For this reason, the environmental analysis is undertaken at level of CPA.

The Environmental Impact Assessment assesses the environmental impacts of the CPA's proposed activity and is required by the environmental agency for the Prior License (LP) granting.

By means of the Prior Licensing, the environmental agency evaluates the entrepreneurship's localization and conception, attesting the environmental viability and establishing the basic requirements to the next phases of licensing.

The Installation License (LI) authorizes the beginning of the entrepreneurship's implementation, in accordance with the plans and projects approved, including the environmental control procedures and other constraints imposed by the environmental agency.

The Operating License (LO) authorizes the entrepreneurship's operation, after prior mandatory supervision by the environmental agency for verification of effective compliance with the terms of the Prior and Installation Licenses, such as environmental control measures and other constraints imposed by the environmental agency to the entrepreneurship's operation.

The CPA shall be in compliance with the Brazilian environmental licensing process.

E.2. Analysis of the environmental impacts

As mentioned in section E.1 above, the analysis of environmental impacts of the entrepreneurship are described in the Environmental Impact Assessment, which is one of the documents to be provided to the competent local environment body in order to obtain the Environmental Licensing.

Environmental pros of wind-based electricity generation recognizably include contribution for atmospheric emissions reduction (including non-GHG gases) by thermoelectric plants, smaller demand for the construction of new large hydropower plants reservoirs, and the reduction of the risk derived from hydrological seasonality, in light of the aforementioned complementary nature of wind-based and hydroelectric electricity generation in Brazil³.

Negative environmental impacts of wind power plants are relatively limited, but might arise from noise generated by the movement of the blades. Also, electromagnetic interference with data transmission systems (radio, television, etc.) is possible. Additionally, possible interference upon bird routes should be considered³.

E.3. Environmental impact assessment

As mentioned in section E.1 above, the documentation necessary to CPA's environmental licensing will be utilized on the analysis of the CPA's environmental impacts, which can include the Environmental Impact Assessment, Prior, Installation or Operation Licenses, depending on the status of the CPA's implementation.

SECTION F. Local stakeholder comments

F.1. Solicitation of comments from local stakeholders

The local stakeholder consultation process is performed at the PoA level.

Stakeholders were communicated about this CDM programme of activities development and invited to comment on the project activity on 16/03/2012 following the Designated National Authority procedures for such purpose, defined by Resolution #09 of the Interministerial Commission for Global Climate Change (CIMGC).

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

The following stakeholders received letters communicating the CDM programme of activities:

- Executive Secretariat of the Interministerial Commission for Global Climate Change (CIMGC);
- Brazilian Forum of NGOs and Social Movements for the Environment and Development (FBOMS);
- Brazilian Clean Energy Generation Association (ABRAGEL);
- Brazilian Wind Energy Association (ABEEÓLICA);
- Brazilian Renewable Energy and Environment Association (ABEAMA);
- Brazilian Environmental Engineering Association (ABES);
- Federal Prosecution Office.

F.2. Summary of comments received

Heretofore no comments have been received.

F.3. Report on consideration of comments received

Not applicable, since no comments have been received yet.

SECTION G. Approval and authorization

As per the Brazilian DNA requirements, the request for a letter of approval shall be done after the PoA-DD is validated by the DOE. Therefore, a letter of approval is not available yet.

PART II. Generic component project activity (CPA)

SECTION A. General description of a generic CPA

A.1. Purpose and general description of generic CPAs

A typical Component Project Activity (CPA) of the proposed PoA consists in:

- [THE IMPLEMENTATION AND OPERATION OF A GRID CONNECTED WIND ELECTRICITY GENERATION FACILITY (I.E. CONSTITUTED OF ONE OR MORE WIND TURBINE) IN BRAZIL]; i.e. to install a new power plant at a site where no renewable power plant was operated prior to the implementation of the project activity. So, installing a Greenfield power plant.
- [CAPACITY ADDITION TO PLANTS]; i.e. to increase in the installed power generation capacity of an existing power plant through: (i) the installation of a new power plant beside the existing power plant/units, or (ii) the installation of new power units, additional to the existing power plant/units. The existing power plant/units continue to operate after the implementation of the project activity.
- [RETROFIT OR REPLACEMENT OF EXISTING PLANTS]; a retrofit is an investment to repair or modify an existing power plant/unit, with the purpose to increase the efficiency, performance or power generation capacity of the plant, without adding new power plants or units, or to resume the operation of closed (mothballed) power plants. A retrofit restores the installed power generation capacity to or above its original level. Retrofits shall only include measures that involve capital investments and not regular maintenance or housekeeping measures. A replacement is an investment in a new power plant or unit that replaces one or several existing unit(s). The new power plant or unit has the same or a higher power generation capacity than the plant or unit that was replaced. The new power plant(s) unit(s) may be either installed at the same location as the existing power plant(s) or unit(s) or (partially) at a different location.

Wind energy is defined as the kinetic energy contained by moving air masses (wind). Its use for the electricity occurs by means of the conversion of translational kinetic energy in rotational kinetic energy and, then, by means of the conversion of the former form of energy into electricity, by means of the employment of wind turbines.

All the options provided above are considered types of wind power generation. One of the options above shall be chosen in the Real-Case CPA.

SECTION B. Application of a baseline and monitoring methodology

B.1. Reference of the approved baseline and monitoring methodology(ies) selected

Approved consolidated baseline and monitoring methodology ACM0002: “Consolidated baseline methodology for grid-connected electricity generation from renewable sources”, Version 12.3.0.

Furthermore, the latest approved versions of the following tools was available by the time of PoA publication on the Global Stakeholders Consultation, according to the Paragraph 10 of the PoA Standard:

- “Tool to calculate the emission factor for an electricity system”. Latest approved version at the time of conclusion of the PoA: 02.2.1; Link: <http://cdm.unfccc.int/methodologies/PAMethodologies/tools/am-tool-07-v2.2.1.pdf>
- “Tool for the demonstration and assessment of additionality”. Latest approved version at the time of conclusion of the PoA: 06.0.0. Link: <http://cdm.unfccc.int/methodologies/PAMethodologies/tools/am-tool-01-v6.0.0.pdf>
- “Combined tool to identify the baseline scenario and demonstrate additionality” Latest approved version at the time of conclusion of the PoA: 4.0.0. Link: <http://cdm.unfccc.int/methodologies/PAMethodologies/tools/am-tool-02-v4.0.0.pdf>
- “Tool to calculate project or leakage CO₂ emissions from fossil fuel combustion”. Latest approved version at the time of conclusion of the PoA: 02. Link: <http://cdm.unfccc.int/methodologies/PAMethodologies/tools/am-tool-03-v2.pdf>

By the time of inclusion of a new CPA under the PoA, the latest approved versions of the the aforementioned tools will be used.

B.2. Application of methodology(ies)

In accordance with the applicability conditions of ACM0002/Version 12.3.0, a typical CPA of the proposed PoA consists in grid-connected renewable power generation facilities that involve (a) installation of a new power plant at sites where no renewable power plants were operated prior to the implementation of the programme activity (greenfield plant); (b) a capacity addition; (c) a retrofit of (an) existing plant(s); or (d) involve a replacement of (an) existing plant(s).

Furthermore, the CPAs fulfill all the applicability conditions of ACM0002/Version 12.3.0 in the following ways:

- “The project activity is the installation, capacity addition, retrofit or replacement of a power plant/unit of one of the following types: hydro power plant/unit (either with a run-of-river reservoir or an accumulation reservoir), wind power plant/unit, geothermal power plant/unit, solar power plant/unit, wave power plant/unit or tidal power plant/unit”.

Outcome: applicability condition is fulfilled, considering that each CPAs consist of the installation, capacity addition, retrofit or replacement of a “wind power plant/unit”.

- “In case of capacity additions, retrofits or replacements (except for capacity addition projects for which the electricity generation of the existing power plant(s) or unit(s) is not affected): 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 or retrofit of the plant has been undertaken between the start of this minimum historical reference period and the implementation of the project activity”.

Outcome: considering that the proposed programme of activities also apply for capacity addition, retrofits or replacements, this applicability condition is applied and will be considered in the CPA level.

- “In case of hydro power plants:
 - At least one of the following conditions must apply:
 - The project activity is implemented in an existing single or multiple reservoirs, with no change in the volume of any of the reservoirs; or

- The project activity is implemented in an existing single or multiple reservoirs, where the volume of any of reservoirs is increased and the power density of each reservoir, as per the definitions given in the Project Emissions section, is greater than 4 W/m^2 after the implementation of the project activity; or
- The project activity results in new single or multiple reservoirs and the power density of each reservoir, as per the definitions given in the Project Emissions section, is greater than 4 W/m^2 after the implementation of the project activity”.

Outcome: taking into account that the proposed programme activities will be based in wind-based sources, this applicability condition is not applied.

- “In case of hydro power plants using multiple reservoirs where the power density of any of the reservoirs is lower than 4 W/m^2 after the implementation of the project activity all the following conditions must apply:
 - The power density calculated for the entire project activity using equation 5 is greater than 4 W/m^2 ;
 - All reservoirs and hydro power plants are located at the same river and were designed together to function as an integrated project that collectively constitutes the generation capacity of the combined power plant;
 - The water flow between multiple reservoirs is not used by any other hydropower unit which is not a part of the project activity;
 - The total installed capacity of the power units, which are driven using water from the reservoirs with a power density lower than 4 W/m^2 , is lower than 15MW;
 - The total installed capacity of the power units, which are driven using water from reservoirs with a power density lower than 4 W/m^2 , is less than 10% of the total installed capacity of the project activity from multiple reservoirs”.

Outcome: taking into account that the proposed programme activities will be based in wind-based sources, this applicability condition is not applied.

- “The methodology is not applicable to the following:
 - 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 continued use of fossil fuels at the site;
 - Biomass fired power plants;
 - A hydro power plant that results in the creation of a new single reservoir or in the increase in an existing single reservoir where the power density of the reservoir is less than 4 W/m^2 ”.

Outcome: applicability condition fulfilled. The programme activities do not involve fuel switch; biomass fired power plants; and are not hydro power plants.

- “In the case of retrofits, 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, i.e. 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’”.

Outcome: applicability condition fulfilled. Considering that the proposed Programme of Activities also apply for capacity addition, retrofits or replacements, this applicability condition is applied and will be considered in the CPA level.

Therefore, ACM0002/Version 12.3.0 is applicable to the programme of activities.

B.3. Sources and GHGs

The spatial extent of the project boundary includes the project power plant(s) [NAME OF THE PLANT(S)] and all power plants connected physically to the electricity system that the CDM project power plant is connected to, i.e., SIN.

The [NAME OF THE PLANT(S)] Wind farm Facility is located in Brazil. Therefore, it is located within the geographical boundary of the proposed PoA.

Emission sources and gases included in the project boundary, as per ACM0002, are depicted in the following table:

Source		Gas	Included?	Justification/Explanation
Baseline scenario	Power plants supplying energy to SIN (CO ₂ emissions from electricity generation in fossil fuel fired power plants that are displaced due to the project activity)	CO ₂	Yes	Main emission source.
		CH ₄	No	Minor emission source.
		N ₂ O	No	Minor emission source.
Project scenario	For geothermal power plants, fugitive emissions of CH ₄ and CO ₂ from non- condensable gases contained in geothermal steam.	CO ₂	No	Not applicable.
		CH ₄	No	Not applicable.
		N ₂ O	No	Not applicable.
	CO ₂ emissions from combustion of fossil fuels for electricity generation in solar thermal power plants and geothermal power plants.	CO ₂	No	Not applicable.
		CH ₄	No	Not applicable.
		N ₂ O	No	Not applicable.
	For hydro power plants, emissions of CH ₄ from the reservoir.	CO ₂	No	Not applicable.
		CH ₄	No	Not applicable.
		N ₂ O	No	Not applicable.

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

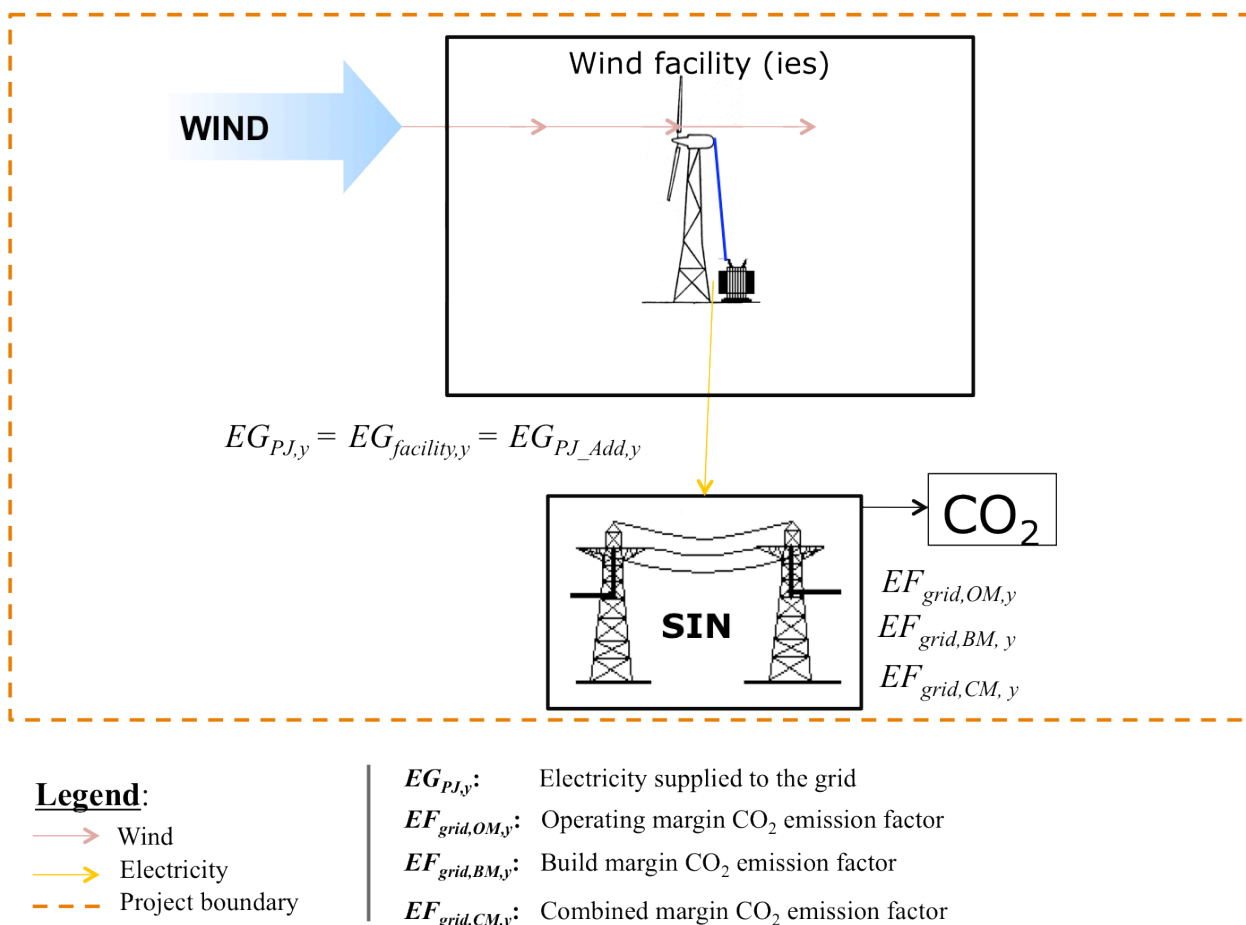


Figure 2: CPA boundary. Monitored variables are depicted. Baseline emissions consist of CO₂ emissions from fossil fuel combustion for the electricity generation by the plants connected to SIN, as reflected in its combined margin.

B.4. Description of baseline scenario

As per ACM0002/Version 12.3.0, the baseline scenario may differ for each condition of the CPA, as follows:

If the CPA is the installation of a new grid-connected renewable power plant/unit, the baseline scenario is the following:

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

If the CPA is a capacity addition to an existing grid-connected renewable power plant/unit, the baseline scenario is the following:

“In the absence of the CDM project activity, the existing facility would continue to supply electricity to the grid at historical levels, until the time at which the generation facility would likely be replaced or

retrofitted ($DATE_{BaselineRetrofit}$). From that point of time onwards, the baseline scenario is assumed to correspond to the project activity, and no emission reductions are assumed to occur”.

If the project activity is the retrofit or replacement of existing grid-connected renewable power plant/unit(s) at the project site, the following step-wise procedure to identify the baseline scenario shall be applied:

“Step 1: Identify realistic and credible alternative baseline scenarios for power generation

Apply Step 1 of the “Combined tool to identify the baseline scenario and demonstrate additionality. The options considered should include:

P1: The project activity not implemented as a CDM project;

P2: The continuation of the current situation, i.e. to use all power generation equipment that was already in use prior to the implementation of the project activity and undertaking business as usual maintenance. The additional power generated under the project would be generated in existing and new grid-connected power plants in the electricity system; and

P3: All other plausible and credible alternatives to the project activity that provide an increase in the power generated at the site, which are technically feasible to implement. This includes, inter alia, different levels of replacement and/or retrofit at the power plant/unit(s). Only alternatives available to project participants should be taken into account.

Step 2: Barrier analysis

Apply Step 2 of the “Combined tool to identify the baseline scenario and demonstrate additionality.

Step 3: Investment analysis

If this option is used, apply the following:

- Apply an investment comparison analysis, as per Step 3 of the “Combined tool to identify the baseline scenario and demonstrate additionality, if more than one alternative is remaining after Step 2 and if the remaining alternatives include scenarios P1 and P3;*
- Apply a benchmark analysis, as per Step 2b of the “Tool for the demonstration and assessment of additionality”, if more than one alternative is remaining after Step 2 and if the remaining alternatives include scenarios P1 and P2.*

B.5. Demonstration of eligibility for a generic CPA

The eligibility criteria for inclusion of a CPA under the PoA are in accordance with the “Standards for demonstration of additionality, development of eligibility criteria and application of multiple methodologies for Programme of Activities” (version 01.0), as follows:

- A. “The geographical boundary of the CPA including any time-induced boundary consistent with the geographical boundary set in the PoA”

Outcome: The [PLANT NAME] Wind Power Plant is located in the [NAME OF THE CITY], [NAME OF THE STATE] state, [REGION OF BRAZIL] region of Brazil and connected to the Brazilian National Interconnected System (*Sistema Interligado Nacional - SIN*).

Verifiable evidence: documents from the Brazilian Electricity Regulatory Agency (Agência Nacional de Energia Elétrica (ANEEL), National System Operator (Operador Nacional do Sistema – ONS), or consistent documents regarding the location of the power plant(s) unit(s) can be presented to ensure the CPA location.

- B. “Conditions that avoid double counting of emission reductions like unique identifications of product and end-user locations (e.g. programme logo)”

Outcome: The [PLANT NAME] Wind Power Plant is located under the geographic coordinates [GEOGRAPHIC COORDINATES] and [DOES NOT PARTICIPATE ON ANOTHER GHG PROGRAM] or [PARTICIPATES ON THE FOLLOWING GHG PROGRAM XXXXXXXX, BUT WILL NOT REQUEST ISSUANCE OF CERTIFIED EMISSION REDUCTIONS (CERs) DURING THE PERIOD ON WHICH IS MONITORING THE ACTIVITY UNDER THE CLEAN DEVELOPMENT MECHANISM, I.E. WILL NOT REQUEST ISSUANCE OF CREDITS FOR THE SAME MONITORING YEAR SIMULTANEOUSLY IN BOTH PROGRAM].

Verifiable evidence: during the validation of each CPA the activity implementer – and the CME, in case it is a Project Participant – shall demonstrate by means of documentary evidences or accessible internet links from the Brazilian Electricity Regulatory Agency (Agência Nacional de Energia Elétrica (ANEEL), National System Operator (Operador Nacional do Sistema – ONS), consistent documents or other GHG Programs databases that the power plant(s) unit(s) is not requesting CER issuance simultaneously with another GHG Program and that is not part of a larger CDM project activity developed under a PDD or another PoA. That demonstration may be performed by means of a declaration according to which the CPA is not registered and will not be registered under another PoA or CDM project activity.

- C. “The specifications of technology/measure including the level and type of service, performance specifications including compliance with testing/certifications”

Outcome: The [PLANT NAME] Wind Power Plant consists of a [TYPE of CPA – GREENFIELD, RETROFIT, REPLACEMENT or CAPACITY ADDITION] that will be connected to the Brazilian Interconnected System.

- The type of CPA, a [GREENFIELD, RETROFIT, REPLACEMENT or CAPACITY ADDITION project], regards the: [THE IMPLEMENTATION AND OPERATION OF A GRID CONNECTED WIND ELECTRICITY GENERATION FACILITY (I.E. CONSTITUTED OF ONE OR MORE WIND TURBINE) IN BRAZIL, WHICH IS TO INSTALL A NEW POWER PLANT AT A SITE WHERE NO RENEWABLE POWER PLANT WAS OPERATED PRIOR TO THE IMPLEMENTATION OF THE PROJECT ACTIVITY. SO, INSTALLING A GREENFIELD POWER PLANT] or [THE CAPACITY ADDITION OF PLANTS IS TO INCREASE THE INSTALLED POWER GENERATION CAPACITY OF AN EXISTING POWER PLANT THROUGH: (I) THE INSTALLATION OF A NEW POWER PLANT BESIDE THE EXISTING POWER PLANT/UNITS, OR (II) THE INSTALLATION OF NEW POWER UNITS, ADDITIONAL TO THE EXISTING POWER PLANT/UNITS. THE EXISTING POWER PLANT/UNITS CONTINUE TO OPERATE AFTER THE IMPLEMENTATION OF THE PROJECT ACTIVITY] or [RETROFIT OR REPLACEMENT OF EXISTING PLANTS, WHICH REPRESENTS RESPECTIVELY AN INVESTMENT TO REPAIR OR MODIFY AN EXISTING POWER PLANT/UNIT, WITH THE PURPOSE TO INCREASE THE EFFICIENCY, PERFORMANCE OR POWER GENERATION CAPACITY OF THE PLANT, WITHOUT ADDING NEW POWER PLANTS OR UNITS, OR TO RESUME THE OPERATION OF CLOSED (MOTHBALLED) POWER PLANTS; AND A RETROFIT RESTORES THE INSTALLED POWER GENERATION CAPACITY TO OR ABOVE ITS

ORIGINAL LEVEL. RETROFITS SHALL ONLY INCLUDE MEASURES THAT INVOLVE CAPITAL INVESTMENTS AND NOT REGULAR MAINTENANCE OR HOUSEKEEPING MEASURES. A REPLACEMENT IS AN INVESTMENT IN A NEW POWER PLANT OR UNIT THAT REPLACES ONE OR SEVERAL EXISTING UNIT(S). THE NEW POWER PLANT OR UNIT HAS THE SAME OR A HIGHER POWER GENERATION CAPACITY THAN THE PLANT OR UNIT THAT WAS REPLACED. THE NEW POWER PLANT(S) UNIT(S) MAY BE EITHER INSTALLED AT THE SAME LOCATION AS THE EXISTING POWER PLANT(S) OR UNIT(S) OR (PARTIALLY) AT A DIFFERENT LOCATION].

The type of the power plant implemented under the CPA is in compliance with all regulations provided by the Brazilian Electricity Regulatory Agency (Agência Nacional de Energia Elétrica – ANEEL) and will implement equipment (Wind Turbine Generators – WTGs) manufactured or retrofitted under best practices of production, certification programs and up-to-date technologies of WTGs. The CPA implementer shall present brochures from the WTGs' manufacture company and certifications on which the equipment would comprises.

Verifiable evidence: during the validation of each CPA the activity implementer – and the CME, in case it is a Project Participant – shall demonstrate by means of documentary evidences (including accessible internet links), from the Brazilian Electricity Regulatory Agency (Agência Nacional de Energia Elétrica (ANEEL), National System Operator (Operador Nacional do Sistema – ONS) and other consistent documents that the power plant(s) unit(s) is under one of the measures described above and accomplishes the specifications of technology/measure including the level and type of service, performance specifications including compliance with testing/certifications and that is in accordance with the applicability conditions of the methodology.

D. “Conditions to check the start date of the CPA through documentary evidence”

Outcome: CPA starting date is [STARTING DATE], which corresponds to the date of [EVENT WHICH DEFINES THE STARTING DATE], and is evidenced by the [DOCUMENTARY EVIDENCE].

The [PLANT NAME] Wind Power Plant consists of a [TYPE of CPA – GREENFIELD, RETROFIT, REPLACEMENT or CAPACITY ADDITION] that will be connected to the Brazilian Interconnected System. The starting date is the earliest date at which either the implementation or construction or real action of a programme activity begins. The starting date of the CPA cannot be prior to the commencement of validation of the programme of activities.

The justification regarding the perspective (expectative) regarding the first relevant milestone conducted (or to be conducted) by a project implementer shall be listed in the CPA, in order to check that the first relevant event, i.e. either the implementation or construction or real action of a programme activity was performed after the commencement of validation of the programme of activities.

Verifiable evidence: during the validation of each CPA the activity implementer – and the CME, in case it is a Project Participant – shall demonstrate by means of documentary evidences (including accessible internet links), information from the Brazilian Electricity Regulatory Agency (Agência Nacional de Energia Elétrica (ANEEL), National System Operator (Operador Nacional do Sistema – ONS) and other consistent documents that the start date of the CPA occurs after the PoA publication for Global Stakeholders Consultation. Such documents can be contracts that have been signed for equipment or construction/operation services, memorandum of understanding between entrepreneurs and others.

- E. “Conditions that ensure compliance with applicability and other requirements of single or multiple methodologies applied by CPAs”

Outcome: The [PLANT NAME] Wind Power Plant consists of a [TYPE of CPA – GREENFIELD, RETROFIT, REPLACEMENT or CAPACITY ADDITION] that will be connected to the Brazilian Interconnected System. All applicability conditions stated in the Section B.2 (according to the methodology ACM0002) of the present Generic CPA-DD shall be addressed by all types of measures [TYPE OF CPA – GREENFIELD, RETROFIT, REPLACEMENT or CAPACITY ADDITION] previewed under the Real-Case CPA level, section D.2.

Verifiable evidence: during the validation of each CPA the activity implementer – and the CME, in case it is a Project Participant – shall demonstrate by means of documentary evidences (including accessible internet links), from the Brazilian Electricity Regulatory Agency (Agência Nacional de Energia Elétrica (ANEEL), National System Operator (Operador Nacional do Sistema – ONS) and other consistent documents that the power plant(s) unit(s) is under one of the measures previewed in the PoA, accomplishes the specifications of technology/measure including the level and type of service, performance specifications including compliance with testing/certifications and that is in accordance with the applicability conditions of the methodology.

- F. “The conditions that ensure that CPAs meet the requirements pertaining to the demonstration of additionality”.

Outcome: The additionality of the CPA of the [PLANT NAME] Wind Power Plant is demonstrated as per the latest version of the “Tool for the demonstration and assessment of additionality”, as follows: [STEPS FOR DEMONSTRATION OF ADDITIONALITY]. All types of measures previewed in the PoA shall address the requirements contained in this eligibility criterion: GREENFIELD, RETROFIT, REPLACEMENT or CAPACITY ADDITION].

Verifiable evidence: the demonstration of additionality shall be demonstrated in each CPA. Documentary evidence shall be provided by each activity in order to have a consistent argumentation. Publicly available evidences, contracts signed by a CPA implementer in other similar activities, commercial proposals for the project or other similar to the objective of the proposed CPA, technical studies provided by reliable third parties or based on entrepreneurs experience and other consistent evidences not limited to the examples provided can be used to demonstrate the additionality of a CPA. The demonstration of additionality is demonstrated after description of all applicability conditions.

- G. “The PoA-specific requirements stipulated by the CME including any conditions related to undertaking local stakeholder consultations and environmental impact analysis”

Outcome: The [PLANT NAME] Wind Power Plant is in accordance to the Brazilian environmental licensing process, since it has developed or is developing the [Environmental Impact Study (either EIA/RIMA – ESTUDO DE IMPACTO AMBIENTAL/RELATÓRIO DE IMPACTO NO MEIO AMBIENTE OR RAS – RELATÓRIO AMBIENTAL SIMPLIFICADO, BOTH TYPES OF ENVIRONMENTAL IMPACT STUDY)] and has requested or issued the [PREVIOUS LICENSE OR INSTALLATION LICENSE OR OPERATIONAL LICENSE].

In the case that none of both Environmental Impact Assessment (EIA/RIMA or a RAS) is available by the time of inclusion of the CPA, the project implementer shall justify in what phase the plant(s) involved is under licensing. Moreover, it shall be emphasized that the Environmental

Impact Study may have another name depending on the Brazilian State the Wind Power Plant is located. Therefore, the CPA can accept such Environmental Impact Study.

In the case that none Environmental Licenses is available by the time of inclusion of the CPA, the project implementer shall justify in what phase the plant(s) involved is under licensing.

The local stakeholders consultation was done in the PoA-DD level according to the Brazilian DNA (named *Comissão Interministerial de Mudança Global do Clima* - Interministerial Commission for Global Climate Change / CIMGC) Resolution number 09, i.e. the local stakeholder consultation shall not be done in the CPA level.

The requirements contained in this eligibility criterion shall be addressed for all types of measures previewed in the PoA: as a **GREENFIELD, RETROFIT, REPLACEMENT or CAPACITY ADDITION** project.

Verifiable evidence: Archives containing all information regarding the Local Stakeholders Consultation shall be provided to DOEs during all the length of the PoA.

Information regarding the status of the Environmental Licensing Process shall be provided in the CPA level, either concerning the environmental study either EIA/RIMA – *Estudo de Impacto Ambiental/Relatório de Impacto no Meio Ambiente*, or a RAS – *Relatório Ambiental Simplificado*, and information regarding the status of issuance of Previous License or Installation License or Operational License shall be provided to the DOE.

- H. “Conditions to provide an affirmation that funding from Annex I parties, if any, does not result in a diversion of official development assistance”

Outcome: No funding from Annex I parties was provided to the **PLANT NAME** Wind Power Plant.

Verifiable evidence: the CPA implementer shall provide information about the type funding it is the one will be intended to apply for. Information regarding funding can be demonstrated in the level of CPA in the demonstration of additionality.

- I. Where applicable, target group (e.g. domestic/commercial/industrial, rural/urban, grid connected/off-grid) and distribution mechanisms (direct installation);

Outcome: applicable to the present Programme of Activities and to the **[PLANT(S) NAME(S)]**, a **[GREENFIELD, RETROFIT, REPLACEMENT or CAPACITY ADDITION]**, measure type, as part of the Component Project Activity. The present CPA is connected to the National Interconnected System (*Sistema Interligado Nacional*, in Portuguese), grid on which the calculation of the Combined Margin Emission Factor is calculated in the context of the present Programme.

Verifiable evidence: information about the location of the activity, public information from the National Electricity Regulatory Agency (ANEEL) and documents provided to the Energy Research Company (*Empresa de Pesquisa Energética*, in Portuguese), among other type of documents, were presented to DOE.

- J. Where applicable, the conditions related to sampling requirements for a PoA in accordance with the approved guidelines/standard from the Board pertaining to sampling and surveys;

Outcome: not applicable to the present Programme of Activities and to the [PLANT(S) NAME(S)], a [GREENFIELD, RETROFIT, REPLACEMENT or CAPACITY ADDITION], measure type, as part of the Component Project Activity.

Verifiable evidence: evidence is not required considering that this eligibility condition is not applied in the PoA.

- K. Where applicable, the conditions that ensure that every CPA in aggregate meets the small-scale or microscale thresholds throughout the crediting period of the CPA;

Outcome: not applicable to the present Programme of Activities. The present Programme of Activities is a large-scale project so CPAs will not be constrained to any limit.

Verifiable evidence: evidence is not required considering that this eligibility condition is not applied in the PoA.

- L. The determination of the crediting period of a CPA shall correspond to:

Outcome: The crediting period of the CPA will be [A MAXIMUM OF SEVEN YEARS, WHICH MAY BE RENEWED AT MOST TWO TIMES] or [A MAXIMUM OF TEN YEARS WITH NO OPTION OF RENEWAL]. The starting date of the CPA is not before PoA Publication for Global Stakeholders Consultation (April 20, 2012) and the crediting period will not exceed the end of the PoA.

Verifiable evidence: a declaration on each CPA will determine the type of crediting period and the length is either a maximum of seven years, which may be renewed at most two times or a maximum of ten years with no option of renewal. Moreover, each monitoring report of Emission Reductions, performed by the project implementers, shall contain a declaration that monitoring period does not exceed the PoA lifetime.

Evidences to ensure that the Start Date of each CPA is after the publication of the PoA for Global Stakeholders Consultation (April 20, 2012) are provided to DOE.

- M. Awareness and agreement by CPA Project Participants of participating in the PoA and regarding ownership of Certified Emission Reductions (CERs):

Outcome: The CPA operator of the [PLANT NAME] is aware and have agreed that its activity is being subscribed to the PoA.

Verifiable evidence: the CPA operator and the CME shall present a contract agreeing that (i) the CPA has not and will not be registered as a CDM project activity by means of a PDD or as a CPA under another PoA; (ii) the CPA operator is aware and have agreed that its activity is being subscribed to the proposed PoA or declaration by CPA Project Participants regarding the awareness of participating in the PoA; (iii) and showing the ownership of Certified Emission Reductions (CERs) or a similar agreement, such as a Memorandum of Understanding (M.o.U.), but not limited to, on which they are aware about the CERs ownership. A declaration by CPA Project Participants regarding the awareness of participating in the PoA can be used to accomplish this issue.

- N. Verification that the CPA included in the PoA will not comprise activities that involves a fragmentation of a large-scale activity into smaller parts, in order to avoid de-bundling:

Outcome: The [PLANT(s) UNIT(s) NAME] not comprises activities that involve a fragmentation of a large-scale activity into smaller parts, so the CPA is not considered a de-bundling in the context of the present PoA.

Verifiable evidence: during the validation of each CPA the activity implementer – and the CME, in case it is a Project Participant – shall demonstrate by means of documentary evidences or accessible internet links from the Brazilian Electricity Regulatory Agency (Agência Nacional de Energia Elétrica (ANEEL), National System Operator (Operador Nacional do Sistema – ONS), consistent documents or other GHG Programs databases that the power plant(s) unit(s) is not requesting CER issuance simultaneously with another GHG Program and that is not part of a larger CDM project activity developed under a PDD or a another PoA.

O. New CPAs shall be evaluated by the CME before its inclusion under the Programme of Activities. The CME shall verify:

- a. If the Eligibility Criteria defined under the PoA are accomplished by each CPA;
- b. If the type/measure to be implemented under the CPA is in line with the measures comprised in the present PoA and in line with the ACM0002;
- c. If the CPA implementer agrees that its activity will be included under the PoA and that will not include the plant(s) under another PoA or develop a separately/independently PDD;
- d. If the CPA is additional by applying the applicable by the methodology and related tools;
- e. If the methodology is applicable.

Outcome: The [PLANT(s) UNIT(s) NAME], developed as a Component of the Programme Activity comply(ies) with all criteria and conditions determined by the PoA (all Eligibility Criteria described above).

Verifiable evidence: by means of a signed document, the CME approves the inclusion of the [PLANT(s) UNIT(s) NAME] as a CPA under the present PoA.

Demonstration of Additionality

The demonstration of additionality of each CPA shall be performed after the evaluation of the eligibility criteria.

B.6. Estimation of emission reductions of a generic CPA

B.6.1. Explanation of methodological choices

As per ACM0002/Version 12.3.0, since a typical CPA is neither a geothermal, solar nor a hydropower plant, $PE_y = 0$.

Baseline emissions

The baseline emissions are to be calculated as follows:

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

Where:

BE_y Baseline emissions in year y (tCO₂/yr);

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

$EF_{grid,CM,y}$ 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” (tCO₂/MWh).

Calculation of $EG_{PJ,y}$

The calculation of $EG_{PJ,y}$ is different for (a) greenfield plants, (b) retrofits and replacements, and (c) capacity additions. Below is depicted the formulae used to calculate each of these cases.

a) Greenfield power plants

If the CPA is the installation of a new grid-connected renewable power plant at a site where no renewable power plant was operated prior to the implementation of the programme activity (greenfield project), then:

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

Where:

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

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

b) Retrofit or replacement of an existing renewable energy power plant

If the CPA is the retrofit or replacement of an existing grid-connected renewable power plant, the baseline scenario is the continuation of the operation of the existing plant. Thus, in order to conservatively determine the electricity generation in the baseline, historical generation data from the existing plant adjusted by its standard deviation will be used. Therefore, the $EG_{PJ,y}$ is calculated as follows:

$$(3) \quad EG_{PJ,y} = EG_{Facility,y} - (EG_{Historical} + \sigma_{Historical}); \text{ until } DATE_{BaselineRetrofit}$$

and

$$(4) \quad EG_{PJ,y} = 0; \text{ on/after } DATE_{BaselineRetrofit}$$

Where:

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

$EG_{facility,y}$	Quantity of net electricity generation supplied by the project plant/unit to the grid in year y (MWh);
$EG_{historical}$	Annual average historical net electricity generation delivered to the grid by the existing renewable energy plant that was operated at the project site prior to the implementation of the project activity (MWh);
$\sigma_{historical}$	Standard deviation of the Annual average historical net electricity generation delivered to the grid by the existing renewable energy plant that was operated at the project site prior to the implementation of the project activity (MWh) ;
$DATE_{BaselineRetrofit}$	Point in time when the existing equipment would need to be replaced in the absence of the project activity (date) .

$EG_{historical}$ is the annual average of historical net electricity generation, delivered to the grid by the existing renewable energy plant that was operated at the project site prior to the implementation of the CPA. To determine $EG_{historical}$, project participants may choose between two historical periods as follows:

- (a) The five last calendar years prior to the implementation of the CPA; or
- (b) The time period from the calendar year following $DATE_{hist}$, up to the last calendar year prior to the implementation of the CPA, as long as this time span includes at least five calendar years, where $DATE_{hist}$ is latest point in time between:
 - (i) The commercial commissioning of the plant/unit;
 - (ii) If applicable: the last capacity addition to the plant/unit; or
 - (iii) If applicable: the last retrofit of the plant/unit.

(c) Capacity addition to an existing renewable energy power plant

In the case of the addition **of new capacity could affect the electricity generated by the existing plant (s) or unit (s)**, The project participants shall use the approach applied to retrofits and replacements above set out in section (b). $EG_{facility,y}$ corresponds to the total electricity generation of the existing plant(s) or unit(s) and the added plant(s) or unit(s). A separate metering of electricity fed into the grid by the added plant(s) or unit(s) is not necessary under this option.

In the case where the addition **of new capacity does not affect the electricity generated by the existing plant (s) or unit (s)** the following approach can be used provided that the electricity fed into the grid by the added power plant(s) or unit(s) addition is separately metered:

$$(5) \quad EG_{PJ,y} = EG_{PJ_Add,y}$$

Where:

$EG_{PJ,y}$	Quantity of net electricity generation that is produced and fed into the grid as a result of the implementation of the CDM project activity in year y (MWh);
$EG_{PJ_Add,y}$	Quantity of net electricity generation supplied to the grid in year y by the project plant/unit that has been added under the project activity (MWh).

Calculation of $DATE_{BaselineRetrofit}$

In order to estimate the point in time when the existing equipment would need to be replaced/retrofitted in the absence of the project activity ($DATE_{BaselineRetrofit}$), project participants will take one of the following approaches into account:

- (a) The typical average technical lifetime of the type equipment may be determined and documented, taking into account common practices in the sector and country, e.g. based on industry surveys, statistics, technical literature, etc.;
- (b) The common practices of the responsible company regarding replacement/retrofitting schedules may be evaluated and documented, e.g. based on historical replacement/retrofitting records for similar equipment.

The point in time when the existing equipment would need to be replaced/retrofitted in the absence of the CPA should be chosen in a conservative manner, i.e. if a range is identified, the earliest date should be chosen.

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

The project plants will serve Brazilian Interconnected System (SIN). The Brazilian DNA has published the delineation of SIN to be adopted for the purposes of CDM projects. As per Resolution n° 8 of the Brazilian DNA, the electric grid considered in this project activity is considered as a single system consisted by the sub-markets of SIN as the definition of the electric system of the project. Off-grid plants will not be included in the calculation of $EF_{grid,CM,y}$.

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

$$(6) \quad EF_{grid,CM,y} = EF_{grid,OM,y} \cdot w_{OM} + EF_{grid,BM,y} \cdot w_{BM}$$

Where:

$EF_{grid,CM,y}$ Combined margin CO₂ emission factor in year y (tCO₂/MWh);

$EF_{grid,BM,y}$ Build margin CO₂ emission factor in year y (tCO₂/MWh);

$EF_{grid,OM,y}$ Operating margin CO₂ emission factor in year y (tCO₂/MWh);

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

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

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

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

The parameters $EF_{grid,OM,y}$ and $EF_{grid,BM,y}$ are calculated and published by the Brazilian Inter-ministerial Commission for Global Climate Change, the Brazilian Designated National Authority, according to the most recent version of the “Tool to calculate the emission factor for an electricity system”. By using these published values and the yearly electricity generating ($EF_{PJ,y}$) it will be possible to calculate the associated baseline emissions (BE_y).

Leakage

According to ACM0002, version 12.3.0, “no leakage emissions are considered. The main emissions potentially giving rise to leakage in the context of electric sector projects are emissions arising due to activities such as power plant construction and upstream emissions from fossil fuel use (e.g. extraction, processing, transport). These emissions sources are neglected.”

Emission reductions

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

$$(7) \quad ER_y = BE_y - PE_y$$

Where:

ER_y Emission reductions in year y (tCO₂e)

BE_y Baseline emissions in year y (tCO₂e)

PE_y Project emissions in year y (tCO₂e)

B.6.2. Data and parameters that are to be reported ex-ante

Data / Parameter	$EG_{historical}$
Unit	MWh
Description	Annual average historical net electricity generation delivered to the grid by the existing renewable energy plant that was operated at the project site prior to the implementation of the project activity.
Source of data	Project activity site
Value(s) applied	-
Choice of data or Measurement methods and procedures	Electricity meters.
Purpose of data	Calculation of baseline emissions.
Additional comment	Applied in the case of retrofit or replacement of existing baseline plants/units.

Data / Parameter	$\sigma_{historical}$
Unit	MWh
Description	Standard deviation of the annual average historical net electricity generation delivered to the grid by the existing renewable energy plant that was operated at the project site prior to the implementation of the project activity.
Source of data	Calculated from data used to establish $EG_{historical}$.
Value(s) applied	-
Choice of data or Measurement methods and procedures	Parameter to be calculated as the standard deviation of the annual generation data used to calculate $EG_{historical}$ for retrofit or replacement project activities.
Purpose of data	Calculation of baseline emissions.
Additional comment	Applied in the case of retrofit or replacement of existing baseline plants/units.

Data / Parameter	$DATE_{BaselineRetrofit}$
Unit	Date
Description	Point in time when the existing equipment would need to be replaced in the absence of the project activity.
Source of data	Project activity site
Value(s) applied	-
Choice of data or Measurement methods and procedures	<p>The CPA project participants can choose one of the following options:</p> <p>(a) The typical average technical lifetime of the type equipment may be determined and documented, taking into account common practices in the sector and country, e.g. based on industry surveys, statistics, technical literature, etc.;</p> <p>(b) The common practices of the responsible company regarding replacement/retrofitting schedules may be evaluated and documented, e.g. based on historical replacement/retrofitting records for similar equipment.</p> <p>The point in time when the existing equipment would need to be replaced/retrofitted in the absence of the CPA should be chosen in a conservative manner, i.e. if a range is identified, the earliest date should be chosen.</p>
Purpose of data	Calculation of baseline emissions.
Additional comment	Applied in the case of retrofit or replacement of existing baseline plants/units.

Data / Parameter	DATE _{hist}
Unit	Date
Description	Point in time from which the time span of historical data for retrofit or replacement project activities may start.
Source of data	Project activity site
Value(s) applied	-
Choice of data or Measurement methods and procedures	DATE _{hist} is the latest point in time between: (i) The commercial commissioning of the plant/unit; (ii) If applicable: the last capacity addition to the plant/unit; or (iii) If applicable: the last retrofit of the plant.
Purpose of data	Calculation of baseline emissions.
Additional comment	Applied in the case of retrofit or replacement of existing baseline plants/units.

B.6.3. Ex-ante calculations of emission reductions

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

As per ACM0002/Version 12.3.0, since a typical CPA is neither a geothermal, solar nor a hydropower plant, $PE_y = 0$.

Baseline emissions

The baseline emissions are to be calculated as follows:

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

Where:

$$BE_y = [\text{QUANTITY OF NET ELECTRICITY FROM PROJECT ACTIVITY}] \text{ (MWh)} * [\text{COMBINED MARGIN CO}_2 \text{ EMISSION FACTOR}] \text{ (tCO}_2\text{/MWh)} = [\text{BASELINE EMISSIONS IN YEAR Y}] \text{ (tCO}_2\text{/yr)}$$

Calculation of $EG_{PJ,y}$

The calculation of $EG_{PJ,y}$ is different for (a) greenfield plants, (b) retrofits and replacements, and (c) capacity additions.

a) Greenfield power plants

If the CPA is the installation of a new grid-connected renewable power plant at a site where no renewable power plant was operated prior to the implementation of the programme activity (greenfield project), then:

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

Where:

$$EG_{PJ,y} = \frac{[\text{QUANTITY OF NET ELECTRICITY}]}{(\text{MWh})} = \frac{[\text{QUANTITY OF NET ELECTRICITY}]}{(\text{MWh})}$$

b) Retrofit or replacement of an existing renewable energy power plant

If the CPA is the retrofit or replacement of an existing grid-connected renewable power plant, the baseline scenario is the continuation of the operation of the existing plant. Thus, in order to conservatively determine the electricity generation in the baseline, historical generation data from the existing plant adjusted by its standard deviation will be used. Therefore, the $EG_{PJ,y}$ is calculated as follows:

$$(3) \quad EG_{PJ,y} = EG_{\text{Facility},y} - (EG_{\text{Historical}} + \sigma_{\text{Historical}}); \text{ until } \text{DATE}_{\text{BaselineRetrofit}}$$

Where:

$$EG_{PJ,y} = \frac{[\text{QUANTITY OF NET}]}{(\text{MWh})} - \frac{([\text{QUANTITY OF NET ELECTRICITY HISTORICAL}]}{(\text{MWh})} + \frac{[\text{STANDARD DEVIATION}]}{(\text{MWh})} = \frac{[\text{QUANTITY OF NET}]}{(\text{MWh})}$$

and

$$(4) \quad EG_{PJ,y} = 0; \text{ on/after } \text{DATE}_{\text{BaselineRetrofit}}$$

c) Capacity addition to an existing renewable energy power plant

In the case where the addition of **new capacity could affect the electricity generated by the existing plant (s) or unit (s)**, the project participants shall use the approach applied to retrofits and replacements above set out in section (b). $EG_{\text{facility},y}$ corresponds to the total electricity generation of the existing plant(s) or unit(s) and the added plant(s) or unit(s). A separate metering of electricity fed into the grid by the added plant(s) or unit(s) is not necessary under this option.

In the case where the addition of **new capacity does not affect the electricity generated by the existing plant (s) or unit (s)** the following approach can be used provided that the electricity fed into the grid by the added power plant(s) or unit(s) addition is separately metered:

$$(5) \quad EG_{PJ,y} = EG_{PJ_Add,y}$$

Where:

$$EG_{PJ,y} = \frac{[\text{QUANTITY OF NET ELECTRICITY}]}{(\text{MWh})} = \frac{[\text{QUANTITY OF NET ELECTRICITY ADD}]}{(\text{MWh})}$$

Calculation of $\text{DATE}_{\text{BaselineRetrofit}}$

In order to estimate the point in time when the existing equipment would need to be replaced/retrofitted in the absence of the project activity ($\text{DATE}_{\text{BaselineRetrofit}}$), project participants will take one of the following approaches into account:

- (a) The typical average technical lifetime of the type equipment may be determined and documented, taking into account common practices in the sector and country, e.g. based on industry surveys, statistics, technical literature, etc.;

- (b) The common practices of the responsible company regarding replacement/retrofitting schedules may be evaluated and documented, e.g. based on historical replacement/retrofitting records for similar equipment.

The point in time when the existing equipment would need to be replaced/retrofitted in the absence of the CPA should be chosen in a conservative manner, i.e. if a range is identified, the earliest date should be chosen.

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

The project plants will serve Brazilian Interconnected System (SIN). The Brazilian DNA has published the delineation of SIN to be adopted for the purposes of CDM projects. As per Resolution n° 8 of the Brazilian DNA, the electric grid considered in this project activity is considered as a single system consisted by the sub-markets of SIN as the definition of the electric system of the project. Off-grid plants will not be included in the calculation of $EF_{grid,CM,y}$.

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

$$(6) \quad EF_{grid,CM,y} = EF_{grid,OM,y} \cdot w_{OM} + EF_{grid,BM} \cdot w_{BM}$$

Where:

$$EF_{grid,CM,y} = [\text{Operating margin CO}_2 \text{ emission factor in year y}] (\text{tCO}_2/\text{MWh}) * [75\%] + [\text{BUILD MARGIN CO}_2 \text{ EMISSION FACTOR IN YEAR Y}] (\text{tCO}_2/\text{MWh}) * [25\%] = [\text{COMBINED MARGIN CO}_2 \text{ EMISSION FACTOR IN THE YEAR Y}]$$

Leakage

According to ACM0002, version 12.3.0, “no leakage emissions are considered. The main emissions potentially giving rise to leakage in the context of electric sector projects are emissions arising due to activities such as power plant construction and upstream emissions from fossil fuel use (e.g. extraction, processing, transport). These emissions sources are neglected.”

Emission reductions

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

$$(7) \quad ER_y = BE_y - PE_y$$

Where:

$$ER_y = [\text{BASELINE EMISSIONS IN YEAR Y}] (\text{tCO}_2\text{e}) - [\text{PROJECT EMISSIONS IN YEAR Y}] (\text{tCO}_2\text{e}) \\ = [\text{EMISSION REDUCTIONS IN YEAR Y}] (\text{tCO}_2\text{e})$$

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

B.7.1. Data and parameters to be monitored by each generic CPA



Data / Parameter	$EG_{PJ,y} = EG_{Facility,y} = EG_{PJ_Add,y}$
Unit	MWh
Description	<p>$EG_{PJ,y}$: Quantity of net electricity generation that is produced and fed into the grid as a result of the implementation of the CDM project activity in year y (MWh);</p> <p>$EG_{Facility,y}$: Quantity of net electricity generation supplied by the project plant/unit to the grid in year y (MWh);</p> <p>$EG_{PJ_Add,y}$: Quantity of net electricity generation supplied to the grid in year y by the project plant/unit that has been added under the project activity (MWh).</p>
Source of data	Measurements at project activity site.
Value(s) applied	-
Measurement methods and procedures	This parameter will be measured in bi-directional electricity meters (two meters: main and backup).
Monitoring frequency	This parameter will be continuously measured and hourly recorded. Values will be aggregated monthly and yearly.
QA/QC procedures	Measurement obtained in the interconnection point with the Brazilian national grid will be crosschecked with the data provided by the Brazilian Electric Energy Commercialization Chamber (CCEE – <i>Câmara de Comercialização de Energia Elétrica</i>). This data is a third party and reliable information, since CCEE is the official Brazilian agency responsible for the activities and operations of the national electricity market.
Purpose of data	Calculation of baseline emissions.
Additional comments	<p>The <i>ex-ante</i> estimate corresponds to the predicted average annual net electricity generation by the CPA.</p> <p>In a typical CPA, no net electricity import will occur; therefore, this parameter does not have to be taken into consideration in the calculation of the emissions reductions of each programme activity (ER_y).</p> <p>In the case of connection of more than one wind power plant in the point of connection to the grid, the total amount dispatched to the SIN measured by these meters will be prorated between each project facility according to the proportional amount of electricity generation measured in the electrical substation for each facility. The prorating is processed by CCEE and has no participation of the CPA implementer.</p>

Data / Parameter	$EF_{grid,CM,y}$
Unit	tCO ₂ /MWh
Description	Combined margin CO ₂ emission factor in year y
Source of data	Calculated by the project participants.
Value(s) applied	-
Measurement methods and procedures	Calculated as per the most recent version “Tool to calculate the emission factor for an electricity system”.
Monitoring frequency	Annually.
QA/QC procedures	-
Purpose of data	Calculation of baseline emissions.
Additional comments	Calculated accordingly formula (6) in section B.6.1 of this DD, as stated in the “Tool to calculate the emission factor for an electricity system”, version 02.2.1 in step 6 a (Calculate the combined margin emissions factor – Weighted average CM”).

Data / Parameter	$EF_{grid,OM,y}$
Unit	tCO ₂ /MWh
Description	Operating margin CO ₂ emission factor in year y
Source of data	Brazilian Interministerial Commission on Global Climate Change
Value(s) applied	-
Measurement methods and procedures	As per the most recent version “Tool to calculate the emission factor for an electricity system”.
Monitoring frequency	Annually.
QA/QC procedures	As per the most recent version “Tool to calculate the emission factor for an electricity system”.
Purpose of data	Calculation of baseline emissions.
Additional comments	-

Data / Parameter	$EF_{grid,BM,y}$
Unit	tCO ₂ /MWh
Description	Build margin CO ₂ emission factor in year y
Source of data	Brazilian Interministerial Commission on Global Climate Change
Value(s) applied	-
Measurement methods and procedures	As per the most recent version “Tool to calculate the emission factor for an electricity system”.
Monitoring frequency	Annually.
QA/QC procedures	As per the most recent version “Tool to calculate the emission factor for an electricity system”.
Purpose of data	Calculation of baseline emissions.
Additional comments	

B.7.2. Description of the monitoring plan for a generic CPA

The objective of the monitoring plan is to ensure the complete, consistent, clear, and accurate monitoring and calculation of the emissions reductions achieved by the project activity during the whole crediting period. The entrepreneurs (that are the project developer and operator) will be responsible for the implementation of the monitoring plan, which is based in monitoring the net electricity dispatched to the grid and the emission factor of the electricity grid.

1. Data and Parameters monitored

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

Monitoring consists of metering, compiling and archiving the data that refers to the net electricity generated by the project activity and delivered to the Brazilian national grid (SIN). The net electricity dispatched to the grid ($EG_{facility,y} = EG_{PJ,y} = EG_{PJ_Add,y}$) will be measured in bi-directional meters localized in the interconnection point with the Brazilian national grid (SIN). In the case of a wind complex (a wind power complex will be considered a group of wind power plants designed as that and connected to the same point of connection), the total amount dispatched to the SIN measured by these meters will be prorated between each project facility according to the proportional amount of electricity generation measured in the electrical substation for each facility. This data will be crosschecked with the data provided by the Brazilian Electric Energy Commercialization Chamber (CCEE – *Câmara de Comercialização de Energia Elétrica*). This data is a third party and reliable information, since CCEE is the official Brazilian agency responsible for the activities and operations of the national electricity market. Project operator will monitor this parameter continuously and data will be consolidated hourly and monthly. Monthly values will be used for crosschecking electricity dispatched in the interconnection point with the Brazilian national grid and the data provided by CCEE. Records pertaining to the meters used in the project activity (type, model and calibration reports) will be kept accordingly.

The National Operator of the Electric System (*Operador Nacional do Sistema Elétrico - ONS*) regulates, by means of its Grid Procedures⁹ (*Procedimentos de Rede*), *inter alia*, the measurements of electricity production for invoicing (12nd module). For information related to this module, it is necessary to maintain the Measurement for Invoicing System (*Sistema de Medição para Faturamento – SMF*) according to the standard specified in the document Technical Specifications of Measurement for Invoicing (*Especificação Técnica das Medições para Faturamento*) to assure not only the control of energy accounting process by CCEE, but also the determination of demands by ONS¹⁰.

Generally, SMF is a system composed of the main and backup measurers, by the potential and current transformers, the channels of communication between energy agent/project participant and CCEE, and the system for data collection and measurement for invoicing¹¹.

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

⁹ National Operator of the Electric System (*Operador Nacional do Sistema Elétrico - ONS*). Grid Procedures (*Procedimentos de Rede*). www.ons.org.br/procedimentos/index.aspx. Accessed on 14/07/2010.

¹⁰ National Operator of the Electric System (*Operador Nacional do Sistema Elétrico - ONS*). Grid Procedures (*Procedimentos de Rede*). Module 12 – Submodule 12.1 (*Módulo 12 - Submódulo 12.1*). www.ons.org.br/download/procedimentos/modulos/Modulo_12/Submodulo%2012.1_Rev_1.1.pdf.

¹¹ National Operator of the Electric System (*Operador Nacional do Sistema Elétrico - ONS*). Grid Procedures (*Procedimentos de Rede*). Module 12 – Submodule 12.2 (*Módulo 12 - Submódulo 12.2*). www.ons.org.br/download/procedimentos/modulos/Modulo_12/Submodulo%2012.2_Rev_1.1.pdf.

Data stored on the meters is collected by the System of Energy Data Collection (*Sistema de Coleta de Dados de Energia – SCDE*) of CCEE, remotely and automatically through direct access to the meters of the project participant. These collected data are processed in SCDE for electricity accounting by CCEE and are available to all energy market participants to control their respective incomes¹¹.

The energy meters shall be: multi-phase, 3 elements, 4 wire (for 4 wire systems), of system rated frequency, rated current according to the secondary of current transformer, nominal voltage according to the secondary of potential transformer. The meters shall have independence of elements and sequence of phases, ensuring the same performance in monophasic and three-phasic testing¹¹.

The measurement systems are designed and implemented in accordance with the standards of the Brazilian Association of Technical Standards (*Associação Brasileira de Normas Técnicas – ABNT*) or International Electrotechnical Commission - IEC, ensuring the quality of the system. In addition, the meters will have certificate of conformity of design approved and issued by the National Institute of Metrology Standardization and Industrial Quality (*Instituto Nacional de Metrologia, Normalização e Qualidade Industrial – INMETRO*)¹¹.

Regarding the class of accuracy of energy meters, they will meet all relevant metrological requirements prescribed in Metrological Technical Regulation (*Regulamento Técnico Metrológico – RMT*) for Class 0.2 of energy meters, approved by INMETRO. Class 0.2 of energy meter, also identified as index D energy meters admits error in measurements of up to $\pm 0.2\%$ ¹¹.

The energy meters possess mass memory capable of storing the data of active, reactive and demand energy in a bidirectional manner, voltages and currents at intervals of integration programmable from 5 to 60 minutes during the minimum period of 32 days. These meters will also be equipped with a system of preservation and salvage of records in case of power loss, storing data in non-volatile memory for at least 100 hours. In addition, they possess at least two independent communication ports with concurrent access or that allow the prioritization of one of them. One will be for the exclusive use of the CCEE and the other for access of agents involved in the measurement point. The CCEE communication port will be coupled to a stable and good performance internet channel, which will be established under a VPN tunnel (Virtual Private Network) between the meter and the CCEE. The meters will be able to manage concurrent access to its communications ports in order to allow full time access to mass memory records of meters via CCEE communication port¹¹.

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

Backup meters are equal or equivalent to the main meters, installed on the same panel, with the same information for current and voltage and under the same technical standards.

In order to ensure the effectiveness operation of SMF, preventive maintenance must be carried out and, where necessary, also corrective maintenance. Inspections are also conducted in order to verify the correct operation of meters¹¹.

The frequency for preventive maintenance of the SMF is a maximum of two years. This schedule may be changed based on the historical occurrence observed in all plants, considering the schedule of stops. The meter that after calibration displays errors outside the range specified by the standard must be replaced¹².

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

All the meters installed will be tested and calibrated in accordance with regulations provided by CCEE. Moreover if any errors are detected in the measuring device, it will be immediately replaced by the backup meter, which will be previously calibrated. The damaged measuring device will be repaired, recalibrated and will return to the monitoring system.

In the case of any changes occurred in the ONS Grid Procedures and related documents, the project owners shall follow the rules from the relevant sector organizations (e.g. ONS, ANEEL, CCEE, etc) in the net electricity dispatched to the grid ($EG_{facility,y}$) monitoring. The monitoring procedure described above reflects what is demanded today by ONS. In case of changes of these requirements, the new procedures will supersede what is described here.

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

The monitoring plan also includes parameters such as the operating margin CO₂ emission factor for power units in the top of the dispatch order ($EF_{grid,OM,y}$), the build margin CO₂ emission factor ($EF_{grid,BM,y}$) of SIN and the combined margin CO₂ emission factor ($EF_{grid,CM,y}$). These parameters will be obtained from the Brazilian Interministerial Commission for Climate Change (Brazilian DNA), which calculates and publishes $EF_{grid,OM,y}$ and $EF_{grid,BM,y}$ according to the most recent version of the "Tool to calculate the emission factor for an electricity system". These published parameters will be used for the calculation of the yearly combined margin ($EF_{grid,CM,y}$) and, ultimately, for the calculation of the emission reductions achieved by the project activity. In case the DNA ceases to publicize $EF_{grid,OM,y}$, $EF_{grid,BM,y}$ and/or $EF_{grid,CM,y}$, project proponents may choose to use its own or third-party calculated Emission Factors, which follow the "Tool to calculate the emission factor for an electricity system."

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

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¹² National Operator of the Electric System (*Operador Nacional do Sistema Elétrico* - ONS). Grid Procedures (*Procedimentos de Rede*). Module 12 – Submodule 12.3 (*Módulo 12 - Submódulo 12.3*). http://www.ons.org.br/download/procedimentos/modulos/Modulo_12/Submodulo%2012.3_Rev_1.1.pdf.

**Appendix 1: Contact information on entity/individual responsible for the PoA**

Organization	WayCarbon Soluções Ambientais e Projetos de Carbono Ltda.
Street/P.O. Box	Av. Paulista, 37, 10 th floor
Building	-
City	São Paulo
State/Region	SP
Postcode	01311-902
Country	Brazil
Telephone	55 11 3372 9595
Fax	55 11 3372 9577
E-mail	contato@waycarbon.com
Website	www.waycarbon.com.br
Contact person	Carlos Henrique Delpupo
Title	Director
Salutation	Mr.
Last name	Delpupo
Middle name	Henrique
First name	Carlos
Department	-
Mobile	-
Direct fax	-
Direct tel.	55 11 3372 9595
Personal e-mail	cdelpupo@waycarbon.com

Appendix 2: Affirmation regarding public funding

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

Appendix 3: Application of methodology(ies)

All pertinent information is provided throughout the text.

Appendix 4: Further background information on ex ante calculation of emission reductions

All pertinent information is provided throughout the text.

Appendix 5: Further background information on the monitoring plan

All pertinent information is provided throughout the text.



History of the document

Version	Date	Nature of revision(s)
02.0	EB 66 13 March 2012	Revision required to ensure consistency with the "Guidelines for completing the programme design document form for CDM programmes of activities" (EB 66, Annex 12).
01	EB33, Annex 41 27 July 2007	Initial adoption.
Decision Class: Regulatory Document Type: Form Business Function: Registration		