



**13.0.0 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

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- (a) **The title of the proposed PoA;** South African Wind Power Projects
- (b) **The current version number of the PoA-DD;** Version: 02
- (c) **The date the PoA-DD was completed** (17/05/2012)

A.2. Purpose and general description of the PoA

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- (a) **Policy/measure or stated goal that the PoA seeks to promote;**

The goal of this PoA is to promote the installation of grid connected wind energy generation facilities across South Africa. This programme will decrease power shortage, diversify the grid and reduce greenhouse gas emissions. The electricity will be sold to Eskom, the national electricity utility.

The installation of wind power systems delivering electricity to the South African grid will aid in increasing the renewable energy generation fraction to help achieve the country's renewable energy and carbon emission reduction targets¹. In 2005, the South African Department of Energy set a renewable energy target of 4% for 2013². In terms of carbon emissions, South Africa committed to reducing its carbon footprint by 34% by 2020 and by 42% by 2025 at the climate change conference in Copenhagen in 2010.

The historically low cost of electricity also means that carbon intensive electricity is cheaper than any other source of power. This has made it difficult for renewable energy projects to compete with coal based power (Department of Water and Environmental Affairs, 2010). For these reasons there are currently no commercial wind farms in South Africa that are grid-connected.

This PoA will provide commercial entities with a framework on which to overcome these barriers.

The PoA makes a positive contribution to sustainable development. The South African Designated National Authority (DNA) evaluates sustainability in three categories: economic, environmental, and social. The contribution of the programme towards sustainable development is discussed below in terms of these three categories:

Environmental

¹ Integrated Resource Plan for Electricity 2010 – 2030 by the South African Government, 25 March 2011, p.24, available under: http://www.energy.gov.za/IRP/irp%20files/IRP2010_2030_Final_Report_20110325.pdf

² The White Paper on Renewable Energy (2003) has set a target of 10 000GWh of energy to be produced from renewable energy sources (mainly from biomass, wind, solar and small-scale hydro) by 2013.



The project will have a positive environmental impact by displacing coal-based electricity from the South African grid. These positive impacts relate to a reduction in the generation of coal-based electricity and its associated environmental impacts. These impacts include: the utilisation of scarce water resources, SO₂ emissions, particulate emissions, the environmental impacts associated with coal mining, transportation of coal and the disposal of coal ash.

The operation of wind energy farms requires minimal water as an input. This contrasts with conventional coal fired plants, which are a major consumer of water during their cooling processes. As an already water stressed nation, it is critical that South Africa engages in a variety of water conservation measures, particularly as the detrimental effects of climate change on water availability will be experienced in the future.

Economic

South Africa's national electricity provider, Eskom, carried out planned electricity supply interruptions at the beginning of 2008. These interruptions were caused by the demand for electricity exceeding the supply of electricity. During the interruptions, grid electricity was not accessible and led to the country experiencing severe economic losses. Developing a series of wind power projects will lead to more supply and increase the margin on the grid, therefore reducing the probability that such "black-outs" will occur again.

There will be a transfer of knowledge from the countries supplying the wind turbine systems to South Africa, and the project will contribute to foreign reserve earnings for South Africa via carbon credit sales revenue.

Social

The programme will create jobs in the construction and operations phases of the CPAs that will be developed under the umbrella of this programme.

(b) Framework for the implementation of the proposed PoA.

This programme of activities (PoA) aims to overcome the barriers for commercial wind power projects across South Africa. These projects will generate electricity to be supplied to the Southern African grid. Each CDM programme activity (CPA) will either cover a single generation site of varying generation capacity, or a tranche thereof. As wind projects are typically developed in stages, each additional stage will be treated as a capacity addition. Each capacity addition will be a separate CPA.

The non-profit organisation, *The Carbon Protocol of South Africa* will act as the managing entity of the PoA. The installation of the wind power systems will be managed by the owner(s) of each generation site, hence forth referred to as the CPA implementer(s).

The PoA will include any grid connected projects in South Africa. As there are a number of technology suppliers worldwide, the PoA is written in a way so as to not limit the choice of technology provider on condition that the technology is in accordance with section A.4.2.1 of this PoA.

Include a confirmation that the PoA is a voluntary action by the CME.

South Africa has no mandatory requirements to implement grid connected wind electricity generation sites. The PoA is a voluntary action by the CME. The CPA implementer(s) will voluntarily install the new renewable technology.

A.3. CMEs and participants of PoA

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(a) Identity of the CME of the proposed PoA, as the entity which communicates with the Board;

The Carbon Protocol of South Africa as the CME will be the entity that communicates with the board.

(b) Project participants to the PoA (project participants may or may not be involved in one of the component project activities (CPAs) related to the PoA).

The Carbon Protocol of South Africa is a project participant to the 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)
Republic of South Africa (host)	The Carbon Protocol of South Africa (Private entity)	No

A.5. Physical/ Geographical boundary of the PoA

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The PoA is located within the geographical boundaries of South Africa.



Figure 1: Geographical boundary of the PoA – South Africa³

A.6. Technologies/measures

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Even though the detailed technical characteristics might differ per CPA the following general conditions will apply to all CPAs.

- CPAs are wind energy generation facilities which utilise wind which is converted with large wind turbine generators (WTG) into electricity which is supplied to the national grid.
- The PoA will be open to all technology providers and projects that meet the eligibility criteria of this PoA.
- A CPA under this PoA may be a single generation facility or a cluster of such facilities employing the same technology undertaken by the same CPA developer.
- According to the applicable methodology (ACM0002), capacity additions may however occur at the same site, as might be the case with subsequent stages for wind farm development. Each capacity addition will be handled as a separate CPA.

A.7. Public funding of PoA

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No public funding will be used in the development or implementation of this PoA.

SECTION B. Demonstration of additionality and development of eligibility criteria

B.1. Demonstration of additionality for PoA

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Additionality will be demonstrated at a CPA level.

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

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The criteria developed are based on the requirements in the “*Standard for the development of eligibility criteria for the inclusion of a project activity as a CPA under the PoA*” (Version 01.0, EB65 Annex 3).

The criteria for demonstrating additionality of a CPA shall be described in section E.5.

The CPA will be assessed against this list of criteria by the CME at the time when the CPA applies to enrol in the POA. Some additional eligibility criteria to be imposed by the CME are contained in sections g(4) – g(7) below.

The potential CPA will be evaluated upon their placing of an equipment order. However, the CPA will only be eligible for inclusion in the PoA once the site becomes operational.

Criteria as per “<i>Standard for the development of eligibility criteria for the inclusion of a project activity as a CPA under the PoA</i>”, Version 01.0, EB63 Annex 3 plus additional criteria to be imposed by the CME	Demonstration of how PoA complies or imposes additional criteria
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³ Retrieved from http://www.nationsonline.org/oneworld/map/south_africa_map.htm



(a)	<i>The geographical boundary of the CPA including any time-induced boundary consistent with the geographical boundary set in the PoA;</i>	The CPA must be grid connected to the South African national electricity grid and fall within the boundaries of the Republic of South Africa as they may exist at the time of CPA inclusion.
(b)	<i>Conditions that avoid double counting of emission reductions like unique identifications of product and end-user locations (e.g. programme logo);</i>	Each CPA will follow the procedures established by the CME and described in Section C of the PoA to avoid double accounting and comply therewith. Each CPA shall be uniquely identified and defined in an unambiguous manner by amongst other aspects providing geographic information (GPS coordinates of the project outline), the installed capacity of the plant and the exact start date/ end date of the crediting period.
(c)	<i>The specifications of technology/ measure including the level and type of service, performance specifications including compliance with testing/ certifications;</i>	This programme is specifically for wind power plants that are grid connected. Each CPA will demonstrate that the wind equipment complies with the relevant quality standards for grid connectivity to the national grid. Each CPA will submit documentation to the CME in this regard and the CME will record and store the information.
(d)	<i>Conditions to check the start date of the CPA through documentary evidence;</i>	For the purpose of this PoA, the start date of the CPA will be when the first expenditure is made towards the CPA's electricity generation equipment. The CPA operator will provide documentary proof that the expenditure was made for the equipment to the CME and the CME will record the start date of the CPA and confirm that a document check has been done. The start date must be after the date of GSC of the PoA.
(e)	<i>Conditions that ensure compliance with applicability and other requirements of single or multiple methodology/ies applied by CPAs;</i>	Each CPA must meet the applicability criteria for methodology ACM0002 version 13.0.0. (as elaborated in the CPA-DD). No other methodologies will be used.
(f)	<i>The conditions that ensure that CPAs meet the requirements pertaining to the demonstration of additionality;</i>	ACM0002 (Version 13.0.0) directs that the additionality of the project activity (in this case a CPA) shall be demonstrated and assessed using the “ <i>Tool for the demonstration and assessment of additionality</i> ” (Version 6.0.0). Additionality will be demonstrated at the CPA level.



(g)	<i>The PoA-specific requirements stipulated by the CMEs including any conditions related to undertaking local stakeholder consultations and environmental impact analysis;</i>	<p>Local stakeholder participation will be conducted on a CPA level.</p> <p>All projects in South Africa with an installed capacity of 20 MW or larger will be expected to carry out a full environmental impact assessment (“EIA”) as envisioned by the National Environment Management Act (“NEMA”) and to follow the public participation requirements set therein; Projects smaller than 20 MW installed capacity will need to conduct an environmental analysis and the local stakeholder participation process independently. The minimum requirements are to invite comments from the local stakeholders by publishing newspaper articles in the local papers in both English and the local language, describing the project and informing stakeholders of the registration of the project under the CDM.</p> <p>A contract must be signed between the CME and the CPA implementer. Additional requirements from the CME may be stipulated in the contract.</p>
(l)	<i>Conditions to provide an affirmation that funding from Annex I Parties, if any, does not result in a diversion of official development assistance.</i>	The CME will investigate the facts in each CPA and in each CPA PDD include a confirmation that no Official Development Aid will be involved or diverted.

B.3. Application of methodologies

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Even though the detailed technical characteristics might differ per CPA the following general conditions will apply to all CPAs.

- CPAs are wind turbine farms which use wind energy converted with large wind turbine generators (WTG) into electricity which is supplied to the national grid.
- The PoA will be open to all technology providers and projects that meet the eligibility criteria of this PoA.
- A CPA under this PoA may be a single plant or a cluster of such plants employing the same technology undertaken by the same CPA developer.
- According to the applicable methodology (ACM0002), capacity additions may however occur at the same site, as might be the case with subsequent stages for wind farm development. Each capacity addition will be handled as a separate CPA.

The project involves technology transfer, as no large wind turbines are currently produced in South Africa.

The PoA implementing wind energy projects is applying the monitoring methodology ACM0002 that does not use statistical sampling. All CPAs will be monitored and verified.



SECTION C. Management system

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All the details regarding a management system are contained in the CME contract that will be signed by each CPA. The contract includes:

- A clear definition of roles and responsibilities of personnel involved in the process of inclusion of CPAs, including a review of their competencies;
- Records of arrangements for training and capacity development for personnel;
- Procedures for technical review of inclusion of CPAs; and
- Measures for continuous improvements of the PoA management system.

Procedure to avoid double counting

The database ensures that each CPA is uniquely defined and is included in one PoA only, thereby avoiding double counting of emissions reductions generated by the CPA. However, prior to the registration of each CPA under the PoA, the managing entity will confirm that the proposed CPA is not registered, or in the process of being registered, as a CDM project activity.

Unique identification code(s) for the site and the CPA meter(s) that record the amount of electricity exported to the South African national grid will also be provided, as well as GPS co-ordinates as reference points for the delineation of the boundary of the CPA site. The meter(s) must be situated within the site boundary.

According to the applicable methodology (ACM0002), capacity additions may occur at the same site. Each capacity addition will however be handled as a separate CPA to avoid double counting. Capacity additions will have to have separate meters with a unique identification code, which will fall within the specific capacity addition CPA boundary. This boundary will also require GPS co-ordinates as reference points for the delineation of the boundary of the CPA site.

Record keeping system for each CPA under the PoA

A database will be set up by the managing entity of the PoA. It will include the following information for each CPA:

- 1) The name of the CPA implementer(s);
- 2) The name of the site where the wind facility is implemented;
- 3) The CPA site details, including street address (if available), meter numbers, and GPS co-ordinates as reference points for the delineation of the boundary of the CPA site;
- 4) The start date of the project and the start date of the crediting period; and
- 5) The monitoring period for each CPA.

The signed contract between with the managing entity and the CPA implementers will be recorded and stored by the CME.

The database capturing points 1 to 5 above will be setup in a way that allows extraction of information for the purposes of emission reduction monitoring and reporting. Data will be archived for a minimum of two years after the 28 year crediting period of the programme has lapsed. Relevant data capture, verification and storage procedures will be followed in maintaining the data to ensure its accuracy, validity and completeness.

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

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The date of Global Stakeholder Consultation (GSC) is the start date of the PoA. (17/05/12)

D.2. Length of the PoA

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28 years 0 months

SECTION E. Environmental impacts**E.1. Level at which environmental analysis is undertaken**

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Environmental Analysis is done at CPA level.

This is due to the fact that local conditions in which the CPAs are situated will vary. This requires site specific environmental analysis and mitigation measures to be conducted. This will ensure that the PoA supports sustainable development appropriately in the CPA locality.

E.2. Analysis of the environmental impacts

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No analysis was done at PoA level as environmental analysis will be done at the CPA level.

E.3. Environmental impact assessment

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In terms of South African law with regard to Environmental Impact Assessments (the Environmental Impact Assessment Regulations in terms of the National Environmental Management Act, NEMA, No. 107 of 1998), CPAs that fall under this PoA will require formal environmental analysis to be done on them if the installed capacity is equal to, or larger than, 20 MW.

No analysis was done at PoA level as environmental analysis will be done at the CPA level.

SECTION F. Local stakeholder comments**F.1. Solicitation of comments from local stakeholders**

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Local stakeholder consultation is done at CPA level.

This is due to the fact that there will be different sets of stakeholders involved with each CPA, as a result of the different geographical locations within South Africa that the CPAs will be located.

As detailed in section E.1 above in terms of South African law with regard to Environmental Impact Assessments (the Environmental Impact Assessment Regulations in terms of the National Environmental Management Act, NEMA, No. 107 of 1998), CPAs that fall under this PoA will require formal environmental analysis to be done on them if the installed capacity is equal to, or larger than, 20 MW. Part of the environmental assessment process involves formal consultation with stakeholders.

**F.2. Summary of comments received**

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Not applicable.

This will be conducted at CPA level.

F.3. Report on consideration of comments received

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Not applicable.

This will be conducted at CPA level.

SECTION G. Approval and authorization

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A letter of approval from the South African DNA not available at the time of validation.

PART II. Generic component project activity (CPA)**SECTION A. General description of a generic CPA****A.1. Purpose and general description of generic CPAs**

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The CPA is a grid-connected renewable electricity generating facility utilising **wind technology**. The purpose of the CPA is to generate renewable electricity to displace the CO₂ emissions associated with fossil fuel generated electricity that dominates the South African national grid.

SECTION B. Application of a baseline and monitoring methodology**B.1. Reference of the approved baseline and monitoring methodology(ies) selected**

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The selected methodology:

ACM0002: Consolidated baseline methodology for grid-connected electricity generation from renewable sources (Version 13.0.0, Sectoral Scope: 01, EB 58)

Other tools and guidance used:

Tool for the demonstration and assessment of additionality (Version 06.0.1)

Tool to calculate the emission factor for an electricity system (Version 02.2.1)

B.2. Application of methodology(ies)

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Each CPA complies with the applicability criteria as set out in the selected methodology (ACM0002: Consolidated baseline methodology for grid-connected electricity generation from renewable sources (Version 13.0.0)). The applicability conditions are described below.

Applicability conditions as per ACM0002	Applicability to the CPA
<i>This methodology is applicable to grid-connected renewable power generation project activities that</i> <i>(a) install a new power plant at a site where no</i>	Each CPA project activity is either a greenfield plant or a capacity addition. The CPA is either the construction of a wind power plant at a site where no renewable power plant was operated



<p><i>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).</i></p>	<p>prior to the implementation of the project activity or the subsequent tranches of a wind farm being implanted in stages.</p>
<p><i>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.</i></p>	<p>The CPA project activity is the installation or capacity addition of a wind power facility.</p>
<p><i>In the case of capacity additions, retrofits or replacements (except for wind, solar, wave or tidal power capacity addition projects which use Option 2: on page 10 to calculate the parameter EGPJ,y): 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.</i></p>	<p>The CPA project activity is a greenfield wind power plant, or a wind power capacity addition to an existing wind power plant. Option 2 in the methodology will be used.</p>
<p><i>In case of hydro power plants, one of the following conditions must apply:</i></p> <ul style="list-style-type: none"> <i>• The project activity is implemented in an existing reservoir, with no change in the volume of reservoir; or</i> <i>• The project activity is implemented in an existing reservoir, where the volume of reservoir is increased and the power density of the project activity, as per definitions given in the Project Emissions section, is greater than 4 W/m²; or</i> <i>• The project activity results in new reservoirs and the power density of the power plant, as per definitions given in the Project Emissions section, is greater than 4 W/m².</i> 	<p>This is not a hydro power programme. Therefore this applicability criterion is not relevant.</p>
<p><i>The methodology is not applicable to the following:</i></p> <ul style="list-style-type: none"> <i>• Project activities that involve switching from fossil fuels to renewable energy sources at the site of the project activity, since in this case the baseline may be the continued use of fossil fuels at the site;</i> <i>• Biomass fired power plants;</i> <i>• Hydro power plants that result in new reservoirs or in the increase in existing reservoirs where the power density of the power plant is less than 4 W/m².</i> 	<p>This programme does not involve switching from fossil fuels to renewable energy at the site of the project activity. The CPA is not a biomass fired power plant or a hydro power plant. Therefore these applicability criteria are not relevant.</p>
<p><i>In the case of retrofits, replacements, or capacity</i></p>	<p>“The continuation of the current situation” is the</p>

<p><i>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”.</i></p>	<p>most plausible baseline scenario (see section A.4.3).</p>
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B.3. Sources and GHGs

The spatial extent of the project boundary includes the project power plant and all power plants connected physically to the electricity system that the CDM project power plant is connected to.

As per the approved methodology, ACM0002, the greenhouse gases and emission sources included in or excluded from the project boundary are shown in the Table below.

Source		Gas	Included?	Justification / Explanation
Baseline scenario	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	It is conservative. Minor emission source.
		N ₂ O	No	It is conservative. Minor emission source.
Project scenario	Proposed activity – greenfield wind power plant	CO ₂	No	For start –up. However seeing as it is minor; it can be taken to be negligible. This is excluded in accordance with the methodology.
		CH ₄	No	Zero-emissions grid-connected electricity generation from wind power renewable energy

B.4. Description of baseline scenario

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The PoA covers the installation of new grid-connected renewable power plants and capacity additions.

According to ACM0002 (Version 13.0.0) the baseline scenarios can be one of the following:

1. If the project activity is the **installation of a new grid-connected renewable power plant/unit**, the baseline scenario is:

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”.

2. If the project activity is a **capacity addition** to existing grid-connected renewable power plant/unit, the baseline scenario is:

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.

B.5. Demonstration of eligibility for a generic CPA

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The description of general criteria for enrolling the CPA is described in the table in section A.4.2.2. in the PoA-DD (also shown below). The criteria developed are based on the requirements in the “Standard for the development of eligibility criteria for the inclusion of a project activity as a CPA under the PoA” (Version 01.0, EB63 Annex 3). The list covers the applicability criteria of the methodology ACM0002 (Version 13.0.0).

Criteria as per “Standard for the development of eligibility criteria for the inclusion of a project activity as a CPA under the PoA”, Version 01.0, EB63 Annex 3 plus additional criteria to be imposed by the CME	Demonstration of how PoA complies or imposes additional criteria	Support documentation /evidence provided by the CPA/CME to demonstrate and confirm that the CPA is eligible to be incorporated in the PoA
(a) <i>The geographical boundary of the CPA including any time-induced boundary consistent with the geographical boundary set in the PoA;</i>	The CPA must be grid connected to the South African national electricity grid and fall within the boundaries of the Republic of South Africa as they may exist at the time of CPA inclusion.	The GPS co-ordinates for the project activity must be checked and confirmed by the CME that it falls within the boundaries of South Africa. It must be confirmed by the CME that the project activity is connected to the South African national electricity grid.
(b) <i>Conditions that avoid double counting of emission reductions like unique identifications of product and end-user locations (e.g. programme logo);</i>	Each CPA will follow the procedures established by the CME and described in Section C of the PoA to avoid double accounting and comply therewith. Each CPA shall be uniquely identified and defined in an unambiguous manner by amongst other aspects providing geographic information (GPS coordinates of the project outline), the installed capacity of the plant and the exact start date/ end date of the crediting period.	<ol style="list-style-type: none"> 1. The CPA operator must provide the GPS co-ordinates of the proposed CPA site to the CME. 2. CME must confirm that the CPA is not part of another PoA or a CDM individual project activity. 3. The CME must record the installed capacity and confirm this with supporting documents. 4. The CME must confirm that there are no other CPAs existing or under development in the same region as this project activity.



(c)	<i>The specifications of technology/ measure including the level and type of service, performance specifications including compliance with testing/ certifications;</i>	This programme is specifically for wind power plants that are grid connected. Each CPA will demonstrate that the wind equipment complies with the relevant quality standards for grid connectivity to the national grid. Each CPA will submit documentation to the CME in this regard and the CME will record and store the information.	This CPA is for a wind energy facility. The equipment must conform to the Eskom grid code as per the power purchase agreement, and this documentation must be provided to the CME.
(d)	<i>Conditions to check the start date of the CPA through documentary evidence;</i>	For the purpose of this PoA, the start date of the CPA will be when the first expenditure is made towards the CPA's electricity generation equipment. The CPA operator will provide documentary proof that the expenditure was made for the equipment to the CME and the CME will record the start date of the CPA and confirm that a document check has been done. The start date must be after the date of GSC.	The start date must after the date of GSC, and be in accordance with the definition. The CPA operator will supply proof of the deposit made to the equipment supplier to the CME when it has been paid. CME will record the start date of the CPA and confirm that a document check has been done.
(e)	<i>Conditions that ensure compliance with applicability and other requirements of single or multiple methodology/ies applied by CPAs;</i>	Each CPA must meet the applicability criteria for methodology ACM002 version 13.0.0. (as elaborated in the CPA-DD). No other methodologies will be used.	The proposed CPA must comply with the applicability criteria for methodology ACM002 version 13.0.0. This must be checked by the CME and the relevant supporting documents stored.
(f)	<i>The conditions that ensure that CPAs meet the requirements pertaining to the demonstration of additionality;</i>	ACM0002 (Version 13.0.0) directs that the additionality of the project activity (in this case a CPA) shall be demonstrated and assessed using the “ <i>Tool for the demonstration and assessment of additionality</i> ” (Version 6.0.0). Additionality will be demonstrated at the CPA level.	Additionality must be assessed by the CME and relevant supporting documents provided by the CPA to the CME.
(g)	<i>The PoA-specific requirements stipulated by the CMEs including any conditions related to undertaking local</i>	Local stakeholder participation will be conducted on a CPA level. All CPAs with an installed capacity of 20 MW or larger	Supporting documentation for the EIA, approved by local authorities, and local stakeholder participation must be provided to the CME if the

	<p><i>stakeholder consultations and environmental impact analysis;</i></p>	<p>will be expected to carry out a full environmental impact assessment (“EIA”) as envisioned by the National Environment Management Act (“NEMA”) and to follow the public participation requirements set therein; Projects smaller than 20 MW installed capacity will need to conduct a environmental analysis and the local stakeholder participation process independently. The minimum requirements are to invite comments from the local stakeholders by publishing newspaper articles in the local papers in both English and the native language, describing the project and informing stakeholders of the registration of the project under the CDM.</p> <p>Additional requirements from the CME will be stipulated in the contract that must be signed by the CPA implementer.</p>	<p>project has an installed capacity larger than, or equal to, 20 MW.</p> <p>Local stakeholder participation comments will be documented in the CPA, and proof of newspaper articles and comments received will be provided to the CME.</p> <p>The CPA must sign an agreement with the CME that indicates that they intend to comply with the code of conduct of the CME.</p>
(1)	<p><i>Conditions to provide an affirmation that funding from Annex I Parties, if any, does not result in a diversion of official development assistance.</i></p>	<p>The CME will investigate the facts in each CPA and in each CPA PDD include a confirmation that no Official Development Aid will be involved or diverted.</p>	<p>A written declaration must be submitted to the CME, which states that no ODA is used to implement the CPA. This will be stored in the CME database.</p>

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

B.6.1. Explanation of methodological choices

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Project emissions

According to the chosen baseline methodology ACM0002 Version 13.0.0, for wind energy based renewable energy project activities, $PE_y = 0$.

Baseline emissions

Baseline emissions include only CO₂ emissions from electricity generation in fossil fuel fired power plants that are displaced due to the project activity. The methodology assumes that all project electricity generation above baseline levels would have been generated by existing grid-connected power plants and the addition of new grid-connected power plants. The baseline emissions are to be calculated as follows:

$$BE_y = EG_{P,y} \cdot EF_{grid,CME,y} \tag{1}$$

Where:

BE_y	= Baseline emissions in year y (tCO ₂ /yr)
$EG_{PJ,y}$	= Quantity of net electricity generation that is produced and fed into the grid as a result of the implementation of the CDM project activity in year y (MWh/yr)
$EF_{grid,CM,y}$	= Combined margin CO ₂ emission factor for grid connected power generation in year y calculated using the latest version of the “Tool to calculate the emission factor for an electricity system” (tCO ₂ /MWh)

Calculation of $EG_{PJ,y}$

The project activity is the installation of a new grid-connected renewable power plant at a site where no renewable power plant was operated prior to the implementation of the project activity, so method (a) Greenfield renewable energy power plants is used.

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

Where:

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

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

The project activity will displace grid electricity.

It will be the responsibility of the CME to provide the CPA with the latest combined margin CO₂ emission factor for grid connected power generation in year y ($EF_{grid,CM,y}$), which will be calculated using the “Tool to calculate the emission factor for an electricity system”.

The methodological choices made regarding the “Tool to calculate the emission factor for an electricity system” (Version 02.2.1, EB 61, Section B.6.4), are:

- In terms of data vintages, the ex ante option were chosen to calculate the simple OM. In this option a 3 year generation-weighted average is used for the grid power plants. Using this option also means that the emission factor is determined only once at the validation stage, thus no monitoring and recalculation is required during the crediting period.
- The simple operating margin emission factor ($EF_{grid,OMsimple,y}$) is chosen for the calculation method, seeing as low-cost/must-run resources constitute less than 50%⁴ of total grid generation in average of the five most recent years.
- For calculation of the combined margin emission factor that involve wind and solar power generation project activities: $w_{OM} = 0.75$ and $w_{BM} = 0.25$ (owing to their intermittent and non-dispatchable nature).

Leakage

No leakage emissions are considered, according to ACM0002 (version 13.0.0). 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 and transport). These emissions sources are neglected.

⁴ The precise value of low-cost/ must-run resources are valued at nil in the calculation, because these values are not publically available on the Eskom website at the time of calculation.

Emission reductions

Emission reductions are calculated as follows:

$$ER_y = BE_y - PE_y \tag{6}$$

Where:

ER _y	= Emission reductions in year y (t CO ₂ e/yr)
BE _y	= Baseline emissions in year y (t CO ₂ /yr)
PE _y	= Project emissions in year y (t CO ₂ e/yr)

Since there are no project emissions this becomes:

$$ER_y = BE_y = EG_{facility,y} \cdot EF_{grid,CM,y} \tag{7}$$

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

Data / Parameter	EF _{grid,CM,y}
Unit	tCO ₂ /MWh
Description	Combined margin CO ₂ emission factor for the SAPP
Source of data	The combined margin emission factor, determined according to the latest approved version of the “Tool to calculate emission factor for an electricity system”.
Value(s) applied	1.02
Choice of data or Measurement methods and procedures	This figure is calculated using the “Tool to calculate emission factor for an electricity system” (version 02.2.1) at the beginning of the project and kept constant for the life of the PoA.
Purpose of data	EF _{grid,CM,y}
Additional comment	tCO ₂ /MWh

B.6.3. Ex-ante calculations of emission reductions

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Baseline Emissions

$$\begin{aligned} BE_y &= EG_{PJ,y} \times EF_{grid,CM,y} \\ &= 100\,000 \times 1.02 \\ &= 102\,000 \end{aligned}$$

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 CPA in year y (MWh/yr)
- EF_{grid,CM,y} = Combined margin CO₂ emission factor for grid connected power generation in year y calculated using the “*Tool to calculate the emission factor for an electricity system*” (tCO₂/MWh).



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

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

Where:

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

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

Project Emissions

According to the chosen baseline methodology ACM0002 Version 13.0.0, for wind energy based renewable energy project activities, $PE_y = 0$.

Leakage

As per methodology ACM0002, no leakage emissions are considered.

Emission Reductions

The Emission Reductions for a CPA would be calculated as follows:

$$\begin{aligned} ER_y &= BE_y - PE_y \\ &= 102\,000 - 0 \\ &= 102\,000 \end{aligned}$$

Where:

ER_y = Emission Reductions in year y (tCO₂e/yr)

BE_y = Baseline Emissions in year y (tCO₂e/yr)

PE_y = Project Emissions in year y (tCO₂e/yr)

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**

(Copy this table for each data and parameter).

Data / Parameter	$EG_{PJ,y}$
Unit	MWh/yr
Description	Quantity of net electricity generation that is produced and fed into the grid as a result of the implementation of the CPA in year y
Source of data	Data measured and recorded from the electricity meters installed at the project site.
Value(s) applied	100 000
Measurement methods and procedures	Electricity meters separately measure each CPA, at the boundary between the CPA and the South African electricity grid. The equipment (and its associated accuracy) will be in line with the Metering Code of the South African Grid Code.
Monitoring frequency	The parameter will be monitored continuously and the data aggregated monthly for reporting purposes.
QA/QC procedures	Cross check measurement results with records for sold electricity. Calibration will be done according to manufacturer specifications or UN meter calibration guidance (every 3 years), whichever comes first.
Purpose of data	Calculation of baseline emissions.
Additional comments	

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

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1. Monitoring Period

The monitoring period will start from the date of commissioning of the CPA. An annual monitoring report will be produced.

2. Monitoring Plan Management

The CPA facility manager is responsible for the effective implementation of the monitoring management plan elements with regard to metering. All elements of the monitoring plan will be supported by formal procedures and regular training of delegated personnel, as appropriate.

The CME is responsible for managing and monitoring the data set that generates the grid emission factor.

3. Data Monitored and Sources

All parameters depicted above in Section B.7.1 will be monitored by the implementing entity of the CPA and recorded electronically. The CPA owners will provide data on monitored parameters included in the above tables to the CME. The CME will document and store all data related to parameters provided by CPA implementing entities in an electronic database, while primary data will be stored by each CPA implementing entity.

4. Storage of Data



All data collected will be archived electronically in two places for security purposes. Data will be consolidated and submitted to the CME database on a monthly basis. All data will be kept by the CPA and the CME for at least two years after the end of the crediting period.

5. Meter Calibration

Meters will be calibrated in accordance with the manufacturer's requirements or UN meter calibration guidance (every 3 years), whichever comes first. Calibration certificates will be submitted as part of the monitoring report.

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

Organization	Carbon Protocol of S.A.
Street/P.O. Box	150 West Street Sandton c/o Lloyd Christie
Building	
City	Johannesburg
State/Region	Gauteng Province
Postcode	2196
Country	Republic of South Africa
Telephone	
Fax	
E-mail	info@carbonprotocol.org
Website	
Contact person	
Title	General Manager
Salutation	Ms
Last name	Niehaus
Middle name	
First name	Hildegard
Department	
Mobile	+27 (0) 723481505
Direct fax	
Direct tel.	
Personal e-mail	

Appendix 2: Affirmation regarding public funding

Not applicable



Appendix 3: Application of methodology(ies)

Not applicable.



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

Not Applicable.

**Appendix 5: Further background information on the monitoring plan**

Not Applicable.

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		