



**CLEAN DEVELOPMENT MECHANISM
PROGRAM ACTIVITY DESIGN DOCUMENT FORM (CDM-CPA-DD)
Version 01**

CONTENTS

- A. General description of CDM programme activity (CPA)
- B. Eligibility of CPA Estimation of Emission Reductions
- C. Environmental Analysis
- D. Stakeholder comments

Annexes

Annex 1: Contact information on entity/individual responsible for the CPA

Annex 2: Information regarding public funding

Annex 3: Baseline information

Annex 4: Monitoring plan

NOTE:

(i) This form is for the submission of CPAs that apply a large scale methodology using provisions of the proposed PoA.

(ii) The coordinating/managing entity shall prepare a CDM Programme Activity Design Document (CDM-CPA-DD)^{1,2} that is specified to the proposed PoA by using the provisions stated in the PoA DD. At the time of requesting registration the PoA DD must be accompanied by a CDM-CPA-DD form that has been specified for the proposed PoA, as well as by one completed CDM-CPA-DD (using a real case). After the first CPA, every CPA that is added over time to the PoA must submit a completed CDM-CPA-DD.

¹ The latest version of the template form CDM-CPA-DD is available on the UNFCCC CDM web site in the reference/document section.

² At the time of requesting validation/registration, the coordinating managing entity is required to submit a completed CDM-POA-DD, the PoA specific CDM-CPA-DD, as well as one of such CDM-CPA-DD completed (using a real case).



SECTION A. General description of CDM programme activity (CPA)

A.1. Title of the CPA:

CPA ‘###’ under PoA ‘South African Grid Connected Wind Farm Programme’

Version number: ‘###’

Date: ‘Date of completion of drafting of a CPA-DD’

A.2. Description of the CPA:

CPA ‘###’ envisages [select appropriate]

1. the installation of a new grid connected wind farm at a site where no wind farm was operated prior to the implementation of the activity; or
2. the installation of multiple grid connected wind farms at various sites where no wind farm has been operated prior to the implementation of the activities; or
3. the capacity addition of an existing grid connected wind farm; or
4. multiple capacity additions of existing grid connected wind farms.

‘Provide a brief description of the CPA and activities under it, including their locations, developers and description how electricity is supplied to the grid, as well as expected capacities, implementation schedule.’

A.3. Entity/individual responsible for CPA:

‘Wind farm developer name(s)’

A.4. Technical description of the CPA:

‘Brief description of all activities under the CPA and the implementation schedule’

The present CPA uses wind power to drive a series of wind turbines thereby generating electricity, resulting in a maximum electricity production of ‘Capacity of CPA’ MW and an annual electricity production of ‘Net electricity production’ MWh. The generated renewable electricity is then distributed to the national grid of the RSA.

A.4.1. Identification of the CPA:

A.4.1.1. Host Party:

The Republic of South Africa (RSA)

A.4.1.2. Geographic reference of other means of identification allowing the unique identification of the CPA (maximum one page):

‘Description of the location(s) of the activity (or activities) under the CPA’



Figure A.4-1: CPA location within the RSA [Indicate location(s) of the activity (or activities) under this CPA with red dots]
[Insert the detailed map(s)]

A.4.2. Duration of the CPA:

A.4.2.1. Starting date of the CPA:

‘CPA starting date: dd/mm/yyyy’

A.4.2.2. Expected operational lifetime of the CPA:

‘CPA lifetime’

A.4.3. Choice of the crediting period and related information:

Fixed crediting period

A.4.3.1. Starting date of the crediting period:

‘Expected starting date of operation of CPA’ or the date of inclusion of the CPA in the PoA; whichever is later

A.4.3.2. Length of the crediting period, first crediting period if the choice is renewable CP:

10 years



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

Years	Annual estimation of emission reductions in tonnes of CO ₂ e
'Year 1' (From 'starting date of CPA' to 31 December)	
'Year 2'	
'Year 3'	
'Year 4'	
'Year 5'	
'Year 6'	
'Year 7'	
'Year 8'	
'Year 9'	
'Year 10'	
'Year 11' (From 1 January to 'end of month preceding month of starting date of crediting period') ³	
Total estimated reductions (tonnes of CO ₂ e)	
Total number of crediting years	10
Annual average over the crediting period of estimated reductions (tonnes of CO ₂ e)	

A.4.5. Public funding of the CPA:

'Specify'

A.4.6. Confirmation that CPA is neither registered as an individual CDM project activity nor is part of another Registered PoA:

CPA '###' is not registered as an individual CDM project activity or as part of another registered PoA.

³ NOTE: In the event that the crediting period starts on 1st of January of 'Year1' there will be no overlap between years. In this case 'Year 11' will be omitted.



SECTION B. Eligibility of CPA and Estimation of emissions reductions

B.1. Title and reference of the Registered PoA to which CPA is added:

South African Grid Connected Wind Farm Programme (hereinafter “the PoA”)

B.2. Justification of the why the CPA is eligible to be included in the Registered PoA :

CPA ‘###’ is eligible to the PoA because it complies with the eligibility criteria as defined in section A.4.2.2 of the PoA-DD:

1. CPA ‘###’ is [select appropriate]
 - a) the installation of a new wind farm at a site where no wind farm was operated prior to the implementation of the activity; or
 - b) the installation of multiple wind farms at various sites where no wind farm has been operated prior to the implementation of the activities; or
 - c) the capacity addition of an existing wind farm; or
 - d) multiple capacity additions of existing wind farms.
2. Each activity under the CPA ‘###’ is connected to the national grid of the RSA.

B.3. Assessment and demonstration of additionality of the CPA, as per eligibility criteria listed in the Registered PoA:

The additionality of the CPA is demonstrated and assessed using the procedures described in the PoA-DD.

Step 1: Identification of alternatives to the project activity⁴ consistent with current laws and regulations

For CPA ‘###’ the following alternatives are considered, which complies with all applicable mandatory legal and regulatory requirements:

Alternative 1	The proposed CPA is undertaken without CDM revenue ‘Provide a brief description’
Alternative 2	The proposed CPA is not undertaken The electricity delivered to the grid by the activities under CPA ‘###’ would have otherwise been generated by the operation of grid-connected Eskom power plants and by the addition of new generation sources. This alternative is a business as usual scenario and corresponds to the baseline scenario.

⁴ The ‘Tool for the demonstration and assessment of additionality’ refers to a “project activity”. In the case of a PoA the “project activity” is referred to as a CDM Programme Activity (CPA).



Step 2: Investment analysis

Sub-step 2a: Determine appropriate analysis method

It has to be determined whether to apply simple cost analysis (Option I), investment comparison analysis (Option II) or benchmark analysis (Option III).

The benchmark analysis (Option III) is chosen.

Sub-step 2b: Apply benchmark analysis (Option III)

For the benchmark analysis, the project Internal Rate of Return (project IRR) before tax is used to determine the project financial viability.

‘Establish the benchmark for activities under the CPA’

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

The activities under CPA ‘###’ will obtain revenue by selling electricity at a contractually determined price according to a [select appropriate]

1. Government PPA
2. Private PPA

[If Government PPA is chosen, describe how activities benefit from national and/or sectoral policies or regulations that give comparative advantages to less emissions-intensive technologies (RE technologies) over more emissions-intensive technologies]

‘Show the input data that is required to calculate the project IRR for each activity under the CPA. Present the result and the calculations (in Annex 3).’

‘Display project IRR of each activity’

Outcome of Sub-step 2c: [Select appropriate and add description if necessary]⁵

Project IRR of the activity \geq Benchmark	The proposed activity under the CPA is economically feasible without the revenue from the sale of CERs. Proceed to Step 3 (Barrier analysis)
Project IRR of the activity $<$ Benchmark	The proposed activity under the CPA is not economically feasible without the revenue from the sale of CERs. This serves as a strong argument in favour of additionality. Proceed to Sub-step 2d (Sensitivity analysis)

Sub-step 2d: Sensitivity analysis

The following variables are included in the sensitivity analysis:

- Income from electricity sale;
- Investment cost; and
- Operations and Maintenance (O&M) costs.

The results of the sensitivity analysis is displayed in Table ‘###’.

‘Insert the Tables and give description if required’

⁵ For each activity



Outcome of Sub-step 2d: [Select appropriate and add description if necessary]⁶

Any one of the IRR values presented in the Table for the activity \geq Benchmark	The investment analysis does not provide a valid argument in favour of additionality. Proceed to Step 3 (Barrier analysis)
All IRR values presented in the Table for the activity $<$ Benchmark	The investment analysis provides a valid argument in favour of additionality. Proceed to Step 4 (Common practice analysis). (Step 3 is optional)

Step 3: Barrier analysis

The barrier analysis is optional. [Include only the chosen option]

Skip Step 3	The barrier analysis is not applied, proceed to Step 4 (Common practice analysis)
Apply Step 3	Apply barrier analysis

[Apply Barrier analysis if needed]

Step 4: Common practice analysis

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

[Analyse other activities similar to the proposed CPA]

Outcome of Sub-step 4a: [Select appropriate and add description if necessary]

There are no activities similar to the activities under the CPA in the RSA	The proposed CPA is additional
There are activities similar to the activities under the proposed CPA in the RSA	Proceed to sub-step 4b

[Carry out Step 4b if needed]

Outcome of Step 4: [Select appropriate and add description if necessary]

There are no activities similar to the activities under the CPA in the RSA as per Sub-step 4a	<i>The proposed CPA undertaken without being registered under this PoA is not a baseline scenario; the proposed activities are additional.</i>
There are similar activities to the activities under the CPA in the RSA, and these projects enjoyed certain benefits that rendered them financial/economically	<i>The proposed CPA undertaken without being registered under this PoA is not a baseline scenario; the proposed activities are</i>

⁶ For each activity



attractive as per <i>Sub-step 4a and 4b</i>	<i>additional.</i>
There are similar project activities to the activities under the CPA in the RSA, and these projects did not enjoy benefits that rendered them more financial/economically attractive as per <i>Sub-step 4b</i>	<i>The proposed activities are not additional.</i>

B.4. Description of the sources and gases included in the project boundary and proof that the CPA is located within the geographical boundary of the registered PoA.

The spatial extent of the CPA boundary includes the proposed renewable energy power plant(s) and all power plants physically connected to the grid of the Republic of South Africa.

The greenhouse gases and emission sources that are included in or excluded from the CPA boundary are shown in Table B.4-1.

Table B.4-1: Emissions sources included in or excluded from the CPA boundary

<u>Source</u>		Gas	Included ?	Justification / Explanation
Baseline	CO ₂ emissions from electricity generation in fossil fuel fired power plants that are displaced due to the CPA	CO ₂	Yes	Main emission source
		CH ₄	No	Minor emission sources, which are not included in the baseline
		N ₂ O	No	
CPA	GHG emissions from the proposed CPA	CO ₂	No	GHG emissions for wind power generation projects are equal to zero.
		CH ₄	No	
		N ₂ O	No	

All activities under CPA '###' are located within the boundaries of the Republic of South Africa as shown in Section A.4.1.2.

B.5. Emission reductions:

B.5.1. Data and parameters that are available at validation:

Data / Parameter:	$P_{i,y}$
Data unit:	MW
Description:	Power capacity of the <i>i</i> activity under the CPA in year <i>y</i>
Source of data used:	'Reference'
Value applied:	'###'
Justification of the choice of data or description of measurement methods and procedures	Evaluated by the wind farm developer



actually applied :	
Any comment:	The value reflects the expected maximum power output of the activity.

Data / Parameter:	LF_i
Data unit:	Ratio
Description:	Load factor of the i activity under the CPA
Source of data used:	'Reference'
Value applied:	'###'
Justification of the choice of data or description of measurement methods and procedures actually applied :	[Specify]
Any comment:	This value will be used for the initial estimation of the amount of electricity that will be delivered to the grid by the CPA.

B.5.2. Ex-ante calculation of emission reductions:

The total emission reductions of the CPA are calculated on the basis of the equations and parameters presented and explained in Section E.6 of the PoA-DD and B.5.1 of this document.

Emission reduction calculation

Emission reductions in year y are calculated as follows:

$$ER_y = EG_{CPA,y} \times EF_{grid,CM} \tag{B.5-1}$$

Where:

- ER_y = Emission reductions in year y (tCO₂e/yr)
- $EG_{CPA,y}$ = 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)
- $EF_{grid,CM}$ = Combined margin CO₂ emission factor for grid connected power generation calculated ex ante (tCO₂/MWh)

Combined margin CO₂ emission factor for grid connected power generation calculated ex ante is fixed for all CPAs of the PoA (see Section E.6 of the PoA-DD) and equal to '###' tCO₂/MWh.

Total quantity of electricity delivered by CPA '###' in year y ($EG_{CPA,y}$) is calculated as follows:

$$EG_{CPA,y} = \sum P_{i,y} \times LF_i \times 365 \left(\frac{days}{year} \right) \times 24 \left(\frac{h}{day} \right) \tag{B.5-2}$$

Where:

- $EG_{CPA,y}$ = 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)



$P_{i,y}$ = Power capacity of the i activity under the CPA in year y (MW)
 LF_i = Load factor of the i activity under the CPA

‘Present results of calculation’

B.5.3. Summary of the ex-ante estimation of emission reductions:

Year	Estimation of project activity emissions (tonnes of CO ₂ e)	Estimation of baseline emissions (tonnes of CO ₂ e)	Estimation of leakage (tonnes of CO ₂ e)	Estimation of overall emission reductions (tonnes of CO ₂ e)
‘Year 1’ (From ‘starting date of CPA’ to 31 December)	0		0	
‘Year 2’	0		0	
‘Year 3’	0		0	
‘Year 4’	0		0	
‘Year 5’	0		0	
‘Year 6’	0		0	
‘Year 7’	0		0	
‘Year 8’	0		0	
‘Year 9’	0		0	
‘Year 10’	0		0	
‘Year 11’ (From 1 January to ‘end of month preceding month of starting date of crediting period’) ⁷	0		0	
Total (tonnes of CO ₂ e)	0		0	

B.6. Application of the monitoring methodology and description of the monitoring plan:

B.6.1. Description of the monitoring plan:

The monitoring plan of CPA ‘###’ is devised as per approved consolidated baseline and monitoring methodology ACM0002 “Consolidated baseline methodology for grid-connected electricity generation from renewable sources”. The following monitoring procedures shall be applied:

1. Monitoring period

The monitoring period starts from the date of commissioning of the first activity under the CPA or the date of registration of the proposed CPA under the PoA (whichever is later). At the end of each reporting year, monitored data shall be aggregated to a monitoring report.

⁷[NOTE: In the event that the crediting period starts on 1st of January of ‘Year1’ there will be no overlap between years. In this case ‘Year 11’ will be omitted.]



2. Data monitored and sources

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 shall be determined as a sum of the quantities of net electricity generation by each activity under the CPA in year y that are produced and fed into the grid. The quantity of net electricity generation that is produced and fed into the grid by each activity under the CPA in year y shall be determined on the basis of electricity meters. The metering instruments shall be installed in accordance with the requirements of the Grid and the Distribution Metering Codes at the point of supply which defines the commercial boundary between the wind farm owner and the grid. Readings of the electricity meters shall be cross-checked with records for sold electricity. Data on electricity supply shall be digitally archived on a regular basis.

The sources of data for calculation of GHG emission reductions in the course of monitoring shall be the internal reports of the wind farms.

The emission reductions shall be calculated using the Formula (B.5-1).

3. The monitoring team

[Specify]

4. Data storage

All data collected as part of monitoring plan should be archived electronically and be kept at least for 2 years after the end of the crediting period.

5. Instrumentation calibration

[Specify]

6. Emergency situations

If any instrument that is used in the monitoring process fails, 'Name of wind farm developer(s)' shall remedy the situation as soon as possible and if necessary shall replace the instrument. In case of breakdown of any of the wind turbines the electricity generation will go down, and amount of electricity supplied to the grid by the wind farm will be reduced. All accidents that may occur at the wind farm shall be recorded by 'Name of wind farm developer(s)'. Information on major accidents shall be included in the monitoring report.

The parameter to be monitored is:

Data / Parameter:	$EG_{CPA,y}$
Data unit:	MWh
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 to be used:	On-site measurement by electricity meters
Value of data:	'Electricity delivered in respective year by CPA'
Description of measurement methods and procedures to be applied:	Measurement by means of electricity meters installed for each activity at the point of supply which defines the commercial boundary between the national grid and the wind farm owners. Data on electricity supply shall be digitally archived on a regular basis.



QA/QC procedures to be applied:	Electricity meters are regularly calibrated; readings are cross-checked with records for sold electricity.
Any comment:	-

**SECTION C. Environmental analysis**

C.1. Please indicate the level at which environmental analysis as per requirements of the CDM modalities and procedures is undertaken. Justify the choice of level at which the environmental analysis is undertaken:

The environmental analysis is undertaken at the CPA level. The environmental impact of wind farms depends on the particular location, size, how the plant is embedded in its environment as well as its uptake in the local community.

C.2. Documentation on the analysis of the environmental impacts, including transboundary impacts:

‘Provide a summary of the findings of the environmental study⁸’

C.3. Please state whether in accordance with the host Party laws/regulations, an environmental impact assessment is required for a typical CPA, included in the programme of activities (PoA),:

This section is addressed in the PoA-DD.

⁸ Reference the relevant Environmental Assessment document

**SECTION D. Stakeholders' comments****D.1. Please indicate the level at which local stakeholder comments are invited. Justify the choice:**

Stakeholder's comments are invited at CPA level. Project specific information is required for assessing the environmental impact and therefore this process is conducted at CPA level. Since stakeholders comments forms part of the EIA process, it will therefore also be conducted at CPA level in order to include essential project specific information.

D.2. Brief description how comments by local stakeholders have been invited and compiled:

- 'Describe invitation procedure for public participation meeting'
- 'List invitees'
- 'Description of meeting and how comments were compiled'

D.3. Summary of the comments received:

'Provide a summary of comments received'

D.4. Report on how due account was taken of any comments received:

'Provide a description of the assessment and follow up of comments'



Annex 1

CONTACT INFORMATION ON ENTITY/INDIVIDUAL RESPONSIBLE FOR THE CPA

Organization:	
Street/P.O.Box:	
Building:	
City:	
State/Region:	
Postfix/ZIP:	
Country:	
Telephone:	
FAX:	
E-Mail:	
URL:	
Represented by:	
Title:	
Salutation:	
Last Name:	
Middle Name:	
First Name:	
Department:	
Mobile:	
Direct FAX:	
Direct tel:	
Personal E-Mail:	



Annex 2

INFORMATION REGARDING PUBLIC FUNDING



Annex 3

BASELINE INFORMATION



Annex 4

MONITORING INFORMATION
