

Clean Development Mechanism South Africa
Designated National Authority



energy

Department:
Energy
REPUBLIC OF SOUTH AFRICA

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Programme of Activities (PoA)

Project reference number (office use only)	
Date received (office use only)	
<p>NOTES ON COMPLETING THIS DOCUMENT</p> <ol style="list-style-type: none"> 1. Please provide the Programme of Activities Design Document (PoA-DD) in both hard-copy (one copy) and electronic formats (MSWord) 2. This information submitted to the DNA will remain confidential. 3. Please ensure that all fields are filled in as far as possible to allow for proper consideration of the proposed project. Please indicate if information is not available for any particular item and reasons for the unavailability of information. 	

Part A: Programme of Activities (PoA) Details

Programme of Activities (PoA) title	Solar Energy Programme for South Africa
Coordinating/Managing entity (CME) name	Carbon Protocol of SA
Component Project Activity 1 (CPA1) title	Solar Energy Programme for South Africa CPA1
Date of PoA Submission	03 August 2012

Project Developer	
Coordinating/Managing entity (CME) name	Carbon Protocol of SA
Organizational Category	Not-for-profit organization
Legal Status	Section 21 Company
Street Address	150 West Street Sandton c/o Lloyd Christie Johannesburg Gauteng Province 2196 Republic of South Africa
Postal Address (if different from above)	Same as above.
Website Address	http://www.carbonprotocol.org
Main Activities	<p>The Carbon Protocol of SA is a non-profit collaboration of concerned and interested parties in South Africa that sets consistent and transparent standards to calculate, verify and publicly report greenhouse gas emissions into a single registry. The Registry supports both voluntary and mandatory reporting programs and provides comprehensive, accurate data to reduce greenhouse gas emissions.</p> <p>The Carbon Protocol of SA is hosting a platform for Programmes of Activities (PoA) under the Kyoto Protocol. This is an open platform for which the Carbon Protocol of SA will be the Coordinating/Managing Entity (CME) as specified under the strict Kyoto rules and requirements. Each PoA will be managed separately to ensure that the interest of both the underlying projects and project owners are protected.</p> <p>The Carbon Protocol of SA will, through this open platform, fulfill an integral role in the implementation and sustaining of PoAs in Africa for the duration of 28 years. The Carbon Protocol of SA will ensure that each PoA that joins will be managed in a professional manner that ensures that its specific needs are addressed and that the interests of the PoA and project owners are managed effectively.</p>
Summary of Financial Performance in last fiscal year	N/A
Contact Person(s)	Hildegard Niehaus
Telephone	+27 (0) 723481505
Fax	
Email Address	info@carbonprotocol.org
Project Partners	
Provide the following Information for all project partners (copy and paste relevant sections of the table if information is to be provided on more than one partner organisation)	
Name	
Nature of partner	
Organizational Category	
Legal Status (if private company)	
Street Address	

Postal Address (if different to Street Address)	
Website Address	
Main Activities	
Contact Person(s)	
Telephone	
Fax	
Email Address	
Contractual Arrangements	
Contractual arrangements between various entities involved	N/A

Part B: Project Overview (Technical Summary, Location and Schedule)

Technical Summary of the project	
Objective of the Project	The goal of this PoA is to develop grid connected CSP and PV power generation facilities in South Africa. The electricity will be sold to the organ of state designated by the Minister of Energy, which is likely to be Eskom, the national electricity utility in order to decrease power shortage, diversify the local grid and reduce greenhouse gas emissions. 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. This PoA will provide commercial entities with a framework on which to overcome these barriers.
<p>Project Description</p> <p>This programme is specifically for CSP and PV solar power plants that are grid connected. Various types and designs of CSP systems exist, and these are all valid under this programme.</p> <p>A typical CPA consists of a newly-built (greenfields), grid-connected PV or CSP power plant. The PoA will also cover capacity additions to existing grid-connected PV or CSP power plants; however, these will be treated as separate and distinct CPAs.</p> <p>CSP systems use lenses or mirrors and tracking systems to focus a large area of sunlight into a small beam and onto a collection tube filled with a heat transfer fluid. Electrical power is produced when the concentrated light is converted to heat, which drives a heat engine (usually a steam turbine) connected to an electrical power generator, which will be connected to the electricity grid.</p> <p>PV systems convert solar irradiation into electric current using the photoelectric effect. The system will be connected to the electricity grid.</p>	
<p>Project Constraints</p> <p>Are there any constraints affecting project operations or commissioning?</p> <p>No.</p>	
Technology to be employed	This programme is specifically for CSP (CPA1 technology) and PV solar power plants that are grid connected. Various types and designs of CSP systems exist, and these are all valid under this programme.

Technical Summary of the project	
Greenhouse Gases Targeted	CO ₂
Emission reductions	226 440 tons CO ₂ e per annum (CPA1)
Baseline & Additionality Assessment	<p>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”.</p> <p>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 (DATEBaselineRetrofit). 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.</p> <p>CPA1 is a first-of-its-kind project in South Africa, and therefore is additional.</p>
Monitoring	<p>The following data will be monitored:</p> <ul style="list-style-type: none"> • 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; • Amount of fossil fuel type <i>i</i> consumed in the project electricity system in year y; • Net calorific value (energy content) of fossil fuel type <i>i</i> in year y • CO₂ emission factor of fossil fuel type <i>i</i> in year y
Type of project/activities	
a. Energy Supply	Renewable Energy (excluding biomass)
b. Energy Demand	Not applicable
c. Industrial Process	Not applicable
d. Transport	Not applicable
e. Waste Management	Not applicable
f. Forestry/ land use	Not applicable
g. Other	Not applicable
Project Boundary	

Technical Summary of the project

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. This will be demonstrated with a power purchase agreement and GPS co-ordinates of the outline of the project.

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

Indicate Emissions outside the Project Boundary

Not applicable

Location of the Project

Province

All provinces in South Africa (CPA1: Northern Cape Province)

Municipality

All municipalities in South Africa (CPA1: Gamagara Municipality)

Nearest city/large town

N/A (CPA1: Kathu)

Brief description of the location of the project site

CPA1:
The proposed site is located on the farm Kathu 465 which covers an area of 1600 ha. The site is located in the Northern Cape Province approximately 10 km north-northwest of the mining town of Kathu, within the Gamagara Municipality.

GPS co-ordinates as reference points for the delineation of the boundary of the CPA site:

1. NW: 27° 36' 13.08" S + 23° 00' 57.08" E
2. SW: 27° 37' 09.58" S + 23° 00' 54.34" E
3. NE: 27° 36' 24.90" S + 23° 02' 24.76" E
4. SE: 27° 37' 17.95" S + 23° 02' 18.63" E

Project Schedule/Timetable

Earliest Project Start Date

01 January 2013

When is the expected first year of CER delivery

2014

Project Lifetime

25 years (CPA 1)

Project End Date

January 2038

Crediting Period

10 years

Current Status or phase of the project

Feasibility Stage (CPA1)

DNA Approval

No.

Approval by other bodies

No.

Project Schedule/Timetable	

Part C: Performance Against the DNA's Sustainable Development Criteria

South Africa has identified the following sustainable development criteria and indicators against which each CDM project will be assessed. Please provide your interpretation of how this project will address each of these **criteria and indicators** where they are relevant to the project. If the space provided is not sufficient please append additional information as required.

NOTE: For all indicators which are of relevance to the project show how the performance of the project against these indicators can be objectively monitored and measured on an ongoing basis.

1. Economic: Does the project contribute to national economic development?

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. Developing a series of solar energy projects in South Africa will reduce the pressure on the current energy infrastructure, thereby making important contributions the country's economic sustainability.

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

2. Social: Does the project contribute to social development in South Africa?

The South African Government's economic policy is defined in the New Growth Path. This document indicates that, the key social development deliverable the policy is aiming to support is the creation of new jobs in South Africa. Unemployment is recognised as key problem in the country that needs to be addressed.

The number of actual workers who would be employed is not known yet, but the project activity will create roughly 50 temporary construction jobs and create the opportunity to employ a local workforce and to make use of the services of local contractors. Roughly 5 permanent jobs will be created for the operation of the plant.

3. Environmental: Does the project conform to the National Environmental Management Act principles of sustainable development?

Please provide **brief** comment for each of these below.

i) That the **disturbance of ecosystems and loss of biological diversity** are avoided, or where they cannot be avoided, are minimised and remedied

There is no disturbance of ecosystems and loss of biological diversity in this project.

ii) That **pollution and degradation of the environment** are avoided, or where they cannot be altogether avoided, are minimised and remedied

There are no pollution and degradation of the environment in this project. The project has a positive impact on the local environmental quality when compared to the baseline technology.

iii) That the **disturbance of landscapes and sites that constitute the nation's cultural heritage** is avoided, or where it cannot be altogether avoided, is minimised and remedied

There will be no disturbance of landscapes and sites that constitute the nation's cultural heritage in this project.

iv) That **waste is avoided**, or where it cannot be altogether avoided, minimised and reused or recycled where

Waste is avoided in the implementation of this project

possible and otherwise disposed of in a responsible manner	
v) That the use and exploitation of non-renewable resources is responsible and equitable , and takes into account the consequences of the depletion of the resource	There is no direct use of non-renewable resources in this project. The project will indirectly reduce coal utilisation, seeing as electricity production in South Africa is largely coal based.
vi) That the development, use and exploitation of renewable resources are responsible and equitable , and take into account the consequences of the depletion of the resource.	There is no use of renewable resources in this project.
vii) That a risk averse and cautious approach is applied, which takes into account the limits of current knowledge about the consequences of decisions and actions	This project is carried out in a risk averse and cautious manner.
vii) That negative impacts on the environment and on people's environmental rights be anticipated and prevented, and where they cannot be altogether prevented, are minimised and remedied	No negative impacts on the environment and on people's environmental rights are anticipated. However, in order to ensure that all aspects have been covered, a consultative process will be followed to inform the local community about the project through a number of newspaper articles. Should any feedback be received from the local community, such feedback will be addressed in a responsible manner.
Other comments Please provide any other comments on how this project contributes to sustainable development in South Africa none	

Indicators in Support of the Project Approval Criteria

Category	Indicator	Comment	
Environmental	Impact on local environmental quality	<ul style="list-style-type: none"> • Impact of the project on air quality • Impact of the project on water pollution • Impact of the project on the generation or disposal of solid waste • Any other positive or negative environmental impacts of the project (such as impacts on noise, safety, visual impacts, or traffic) 	<ul style="list-style-type: none"> • The project will improve air quality over the baseline technology. • The implementation of this project will have no impact on water pollution. • The implementation of this project will have no impact on the disposal of solid waste. • The overall impact of this project on the local environmental quality is positive. The project will reduce emissions.
	Change in usage of natural resources	<ul style="list-style-type: none"> • Impact of the project on community access to natural resources • Impact of the project on the sustainability of use of water, minerals or other non renewable natural resources • Impact of the project on the efficiency of resource utilisation 	<ul style="list-style-type: none"> • The project has no impact on community access to natural resources. • The project will consume water in a sustainable manner, and will use water that is pumped from the nearby Kumba mine. • This project will have no impact on the efficiency of resource utilisation.
	Impacts on biodiversity and ecosystems	<ul style="list-style-type: none"> • Changes in local or regional biodiversity arising from the project 	<ul style="list-style-type: none"> • This project has no significant influence on the local or regional biodiversity. A full EIA was conducted to assess the impacts on biodiversity and ecosystems.

Indicators in Support of the Project Approval Criteria

	Category	Indicator	Comment
Economic	Economic impacts	<ul style="list-style-type: none"> • Impact of the project on foreign exchange requirements • Impact of the project on existing economic activity in the area • Impact of the project on the cost of energy • Impact of the project on foreign direct investment 	<ul style="list-style-type: none"> • The project will contribute to foreign reserve earnings for South Africa via the carbon credit sales revenue. • The project will increase the economic activity in the area. • The project will have no impact on the cost of energy seeing as the grid electricity prices are fixed by NERSA. • The project will enhance foreign direct investment in the solar power generation technologies.
	Appropriate technology transfer	<ul style="list-style-type: none"> • Positive or negative implications for the transfer of technology to South Africa arising from the project • Impacts of the project on local skills development • Demonstration and replication potential of the project 	<ul style="list-style-type: none"> • There is a transfer of international technology to South Africa seeing as this is a first-of-its-kind project in South Africa. This is a positive impact seeing as this will help build a skill base in South Africa to operate this type of equipment. • The project will have a positive impact on skills development. • This project can easily be replicated in South Africa.

Indicators in Support of the Project Approval Criteria

	Category	Indicator	Comment
Social	Alignment with national provincial and local development priorities	<ul style="list-style-type: none"> • How the project is aligned with provincial and national government objectives • How the project is aligned with local developmental objectives • Impact of the project on the provision of, or access to, basic services to the area • Impact of the project on the relocation of communities if applicable • Contribution of the project to a any specific sectoral objectives (for example, renewable energy targets) 	<ul style="list-style-type: none"> • This project is aligned with the renewable energy targets of South Africa. • The project has no impact on the provision of, or access to, basic services to the area • The project has no impact on the relocation of communities • The project will reduce greenhouse gas emissions. This will help reach the target the South African government committed to; the reduction of the country's emissions by 34% from business as usual.

Indicators in Support of the Project Approval Criteria		
Category	Indicator	Comment
Social equity and poverty alleviation	<ul style="list-style-type: none"> Impact of the project on employment levels? (specify the number of jobs created/lost; the duration of time employed, distribution of employment opportunities, types of employment, categories of employment changes in terms of skill levels and gender and racial equity) Impact of the project on community social structures Impact of the project on social heritage Impact of the project on the provision of social amenities to the community in which the project is situated Contribution of the project to the development of previously underdeveloped areas or specially designated development nodes 	<ul style="list-style-type: none"> The number of actual workers who would be employed is not known yet, but the project activity will create roughly 50 temporary construction jobs and create the opportunity to employ a local workforce and to make use of the services of local contractors. Roughly 5 permanent jobs will be created for the operation of the plant.

Indicators in Support of the Project Approval Criteria		
Category	Indicator	Comment
General	<ul style="list-style-type: none"> Are the distribution of project benefits deemed to be reasonable and fair? 	<ul style="list-style-type: none"> The project are generally acceptable, seeing as there are many benefits such as local job and skills development, as well as aligning with national renewable energy and emission reduction targets. Distribution of the project's benefits is deemed to be reasonable and fair.

Part D: Finance

Project Costs	
Development Costs (R's)	Not available
Installed Costs (R's)	Not available
Other Costs (R's)	Not available
Total Project Costs (R's)	Not available
Sources of Finance	
Equity	Not available
Debt (long term)	Not available
Debt (short term)	Not available
Amount not identified (R's)	Not available
Total CDM Contribution sought	Not available
Expected Price of CER in case of a contract to purchase for: A period of 7 years A period of 10 years A period of 14 years (2x7 years)	Not available
Indicate the projected Internal Rate of Return for the project with and without CER revenues.	Not available
Constraints on tradability of carbon credits	Not available
Preliminary discussions with potential purchasers	Not available