Clean Development Mechanism South Africa
Designated National Authority

energy
Department:
Energy
REPUBLIC OF SOUTH AFRICA

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Project reference number (office	
Date received (office use only)	

NOTES ON COMPLETING THIS PROJECT DESIGN DOCUMENT

1. Please provide this PDD in both hard-copy

Part A: Project Proponent Details

Project Name	Hopefield wind energy facility in South Africa
Date of Submission of PDD	07 February 2012

Project Developer	
Name	*Umoya Energy (Pty) Ltd*
Organizational Category	Private Company
Legal Status	Limited company
Street Address	Colinton House, The Oval Newlands Cape Town 7700 South Africa
Postal Address (if different from above)	Oakdale Road PO Box 23791, Claremont 7735, Cape Town
Website Address	
Main Activities	Umoya Energy (Pty) Ltd was established by African Infrastructure Investment Managers (Pty) Ltd ("AIIM") as a SPV to develop the Hopefield Wind Farm in 2008
Summary of Financial Performance in last fiscal year	*AIIM is an Infrastructure Equity Fund Manager established in 2000 by*

	Old Mutual and Macquarie. AIIM & Kagiso have also established an Empowerment Fund ▫ *AIIM has circa R 8.7 billion (US $ 1 billion) of Equity funds under management through 4 investment funds* ▫ *Funds are deployed as equity in core infrastructure projects across Africa covering Toll Roads, Telecoms and Power* ▫ *In RSA AIIM is the largest equity investor in private infrastructure* *projects - principally the three major Toll Roads and Kelvin Power Station*
Contact Person(s)	Helen Tregurtha
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Email Address	Helen.tregurtha@umoyaenergy.com
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	Not applicable
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	

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

Technical Summary of the project	
Objective of the Project	The purpose of the project activity is to generate power from wind energy in the Western Cape, South Africa. The electricity will be sold to Eskom, the national electricity utility, in order to increase the reserve margin, diversify the grid generation mix and reduce greenhouse gas emissions.

Technical Summary of the project	
Project Description The proposed wind energy facility is expected to have the capacity of 66.6 MW and will comprise of thirty-seven 1.8 MW wind turbines. Associated infrastructure will include 132kV distribution lines, a new substation, an access road to the site and internal access roads to each wind turbine on site. The project activity will also support the South African Government's objective of fostering, facilitating and encouraging the development of new renewable energy sources[1].	
Project Constraints Are there any constraints affecting project operations or commissioning? No.	
Technology to be employed	Wind turbines will be used to produce electricity by using the kinetic energy of the wind to drive a generator. When kinetic energy passes over the blades of the wind turbines, it is converted into mechanical energy and rotates the blades. This in turn rotates the generator, thereby producing electricity. The proposed wind energy facility will have an installed capacity of 66.6 MW and envisages the installation of thirty-seven 1.8MW wind turbines. A further option of increasing the hub height from 80 meters to 95 meters on approximately 50% of the turbines is still under review.
Greenhouse Gases Targeted	CO_2
Emission reductions	153,608 tons CO_2e per annum
Baseline & Additionality Assessment	**Baseline scenario** The baseline scenario is for the Southern African Power Pool to generate the same electricity as the proposed project activity. **Additionality Assessment** The following barriers have been identified: **(a) Barriers due to prevailing practice, *inter alia*:**

[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

Technical Summary of the project	
	In accordance with "Guidelines on additionality of first-of-its-kind project activities", Annex 11 EB 63, (Version 01.0), paragraph 5: *"A proposed project activity is the First-of-its-kind in the applicable geographical area if:* *a) The project is the first in the applicable geographical area that applies a technology that is different from any other technologies able to deliver the same output and that have started commercial operation in the applicable geographical area before the start date of the project; and* *b) Project participants selected a crediting period for the project activity that is a maximum of 10 years with no option of renewal."* The proposed wind energy facility project is the first of its kind, because there is no commercially operational wind project of this capacity that contributes to the South African Power Pool at this stage. Currently there are only two demonstration wind energy facilities in operation in South Africa: 1.) **Klipheuwel Wind Farm**: 2.) **Darling National Demonstration Wind Farm:** Other wind projects under development also require CDM funding. The project participants have also selected a crediting period for the project activity that is a maximum of 10 years with no option of renewal. **(b) Other barriers: Resource uncertainty:** Wind energy involves relatively high risks compared with fossil fuel forms of energy or hydro energy because it is an intermittent source of energy. The estimated output is based on wind measuring data and assumptions made. There is no wind energy facility operational and projects are therefore designed on generic and test data. An Energy Assessment performed for a 12 month period concluding in June 2011 for the wind energy facility near Hopefield, showed reduced wind capacity and speed to what was predicted by a 12 month Energy Assessment concluding in May 2010. CDM income is expected to offset, to some extent, the risk concurrent with wind availability. **(c) Technological barriers** The existence of a technical barrier is linked to the required infrastructure for renewable energy, including wind. In South Africa this renewable energy sector is marginal. Wind energy contributes to less than 10% of South Africa's electricity. The

Technical Summary of the project	
	tender from the Department of Energy in South Africa, request for qualification and proposals for new generation capacity under the IPP procurement programme, highlights the need for increased localisation of manufacturing, which further proves the existence of a technological barrier. Umoya Energy is a start-up company which is proposing to bring new technology into South Africa. The continuation of current practices (Alternative 2) does not pose any technological barriers as it does not require any additional technology (it is the business as usual scenario). **(d) Investment barriers** Currently there are only two non-commercial wind energy facilities in operation in South Africa. The first is the Darling National Demonstration Wind Energy Facility with a capacity of 5.2MW and Klipheuwel Wind Energy Facility with a capacity of 3.2MW. There are currently no wind energy facilities on the same scale as the proposed project activity (66.6MW) in South Africa. Due to the regulatory uncertainty around both REFIT and Power Purchase Agreement risks[2], little private capital is available from both domestic and international markets due to risks associated with investment in new wind energy facilities in South Africa at this stage[3]. Investing in new renewable technologies, taking into account the risk premiums associated with the South African finance sector, means that this would act as a barrier for Umoya Energy to attract investors[4]. The CDM alleviates this barrier by attracting financiers that would normally not finance this project without CDM. The potential of securing carbon credit revenue will make the project more attractive to financiers, since a better return on investment would be realised.
Monitoring	**Management Structure** A CDM Monitoring Team will be established responsible for data recording, data management and QA/QC. The Team Leader's role is to ensure that the data to be monitored is accurately recorded, properly archived, QA/QC procedures are carried out and the entire monitoring process is strictly in line with the CDM verification requirements.

[2] IDC 2010, Presentation on Green Industries & Technology. Available at

http://www.pmg.org.za/files/docs/100824idc-edit.pdf

[3] South Africa's Designated National Authority for Clean Development Mechanism, p.11, available under: http://www.ccs-africa.org/fileadmin/ccs-africa/user/docs/Gabarone_10_9/Gaborone_Matooane_10sept07_panel.pdf

[4] South African Wind Energy Association Response to the NERSA Consultation Paper, "Review of Renewable Energy FEED – IN Tariffs", April 2011 p.3.

Technical Summary of the project	
	Monitoring Training All the relevant staff will be trained before operation of the wind energy facility. The training consists of CDM knowledge, operational regulations, quality control (QC), data monitoring requirements and data management regulation. **Data sources** The following data sources will be used in monitoring the project: • Eskom • Operations & Maintenance contractor • Umoya Energy A centralised database will be used to store and archive the data from the different sources. Emission reduction data monitoring and management procedures will be put in place prior to the starting date of the crediting period. **Metering** Electricity supplied by the project activity to the grid will be measured by Umoya Energy. Metering will be conducted in accordance with the power purchase agreement requirements. Meter data will be recorded and stored by onsite devices as well as in the centralised database. **Data management** The data received, analysed and used for monitoring purposes will be stored for at least two years following the end of the project activity crediting period as per ACM0002 (Version 12.1.0). The dispatch data will be stored in a centralised database. **Quality Assurance and Quality Control** The data from the meters installed at the substation will be crosschecked with sales invoices. In the case of inconsistencies, the more conservative of the two values will be used. In order to ensure conservativeness, deemed generated energy (electrical energy generated but not delivered to the grid due to Eskom system interruption or Eskom dispatch instruction) will not be included in emission reduction calculations. If problems occur that may affect the quality of data, corrective action will be taken. In the case where data quality problems result in uncertainty issues, the more conservative value from an energy generation or emission factor standpoint will be used in the calculations and monitoring data for verification.
Type of project/activities	
a. Energy Supply	*The proposed project activity is the construction of a greenfield*

Technical Summary of the project	
	wind power plant.
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 Define the Project Boundary (Approximately 1 paragraph) 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. The wind energy facility (project activity) has a distinctive physical demarcated boundary.	
Indicate Emissions outside the Project Boundary	Not applicable

Location of the Project	
Province	Western Cape Province
Municipality	West Coast District Municipality and the Saldanha Bay Municipal Administrative Area
Nearest city/large town	Hopefield
Brief description of the location of the project site	The site itself covers approximately 2400 hectares (of which some 1000 hectares will be an environmental offset) roughly around the area of these coordinates:- 1) 33° 5'27.57"S 18° 25'34.69"E 2) 33° 4'51.08"S 18° 24'44.07"E 3) 33° 4'53.55"S 18° 22'40.27"E 4) 33° 5'51.57"S 18° 21'17.03"E 5) 33° 6'42.79"S 18° 23'10.36"E The site covers the portions of land: Koperfontein 346/25 Kerschbosch Dam 347/0 Coeratenberg 307/3

Project Schedule/Timetable	
Earliest Project Start Date	30/06/2012 (the date when the turbine orders is expected to be placed)
When is the expected first year of CER delivery	30/09/2013 or the date of registration, whichever occurs latest.

Project Schedule/Timetable	
Project Lifetime	The life time of the facility exceeds the 10 year period of this project activity.
Project End Date	September 2023
Crediting Period	10
Current Status or phase of the project	Actions already commenced. The project is being implemented.
DNA Approval	No.
Approval by other bodies	No.

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?

This renewable energy project will create new jobs and generate new income streams within the Western Cape Province, West Coast District Municipality and the Saldanha Bay Municipality administrative area. A study on the Growth Potential of Towns in the Western Cape (2004) undertaken by the Western Cape Department of Environmental Affairs and Development Planning to provide the Department with a better understanding of the potential and challenges of the Western Cape identified Hopefield as a rural town and a town with a low growth potential / medium need . In the study Hopefield is identified as a town that qualifies for both social and economic investment.

The current electricity crisis in South Africa highlights the significant role that renewable energy can play in terms of supplementing the power available and reducing the possibility of "black-outs".

The project will also 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?

Creation of employment and business opportunities. The establishment of the proposed wind energy facility will create local job opportunities during the construction and operational phases. During construction it is estimated that up to 100 workers with various skill levels will be required and during operations up to 20 people will be employed. These workers will be predominantly employed by the construction and operation and maintenance contractors and sourced locally as far as possible.

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.
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 possible and otherwise disposed of in a responsible manner	There is no waste in this project.
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 use of non-renewables in this project.
vi) That the **development, use and exploitation of renewable resources is responsible and equitable**, and takes into account the consequences of the depletion of the resource.	The project will reduce electricity consumption from a predominantly coal-fired grid. The use of the wind resource is responsible and equitable.
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	A reputable electrical engineering firm is being used for project implementation.
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	The impacts on the environment are improved by implementing this project.
Other comments **Please provide any other comments on how this project contributes to sustainable development in South Africa (**optional)	

Indicators in Support of the Project Approval Criteria			
Category		**Indicator**	**Comment**
Environmental	Impact on local environmental quality	• 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)	• The project will improve air quality by reducing greenhouse gas emissions. • There will be negligible water pollution associated with this project • There will be no generation of solid waste, or disposal thereof in this project • The overall impact of this project on the local environmental quality is positive.
	Change in usage of natural resources	• 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	• The project will reduce coal usage in South Africa.
	Impacts on biodiversity and ecosystems	• Changes in local or regional biodiversity arising from the project	• This project has no influence on the local or regional biodiversity.

Indicators in Support of the Project Approval Criteria			
Category		**Indicator**	**Comment**
Economic	Economic impacts	• 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	• The project will contribute to foreign reserve earnings for South Africa via the carbon credit sales revenue. • The project will increase the cost of energy production. Carbon credits revenue will however offset the increased cost.
	Appropriate technology transfer	• 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	• The project is replicable. • The development of renewable energy offers the opportunity to establish a new industry within the South African economy.

Indicators in Support of the Project Approval Criteria			
Category		**Indicator**	**Comment**
Social	Alignment with national provincial and local development priorities	• 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)	• The project will increase the use of renewable energy and 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	• 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	The programme will create jobs in the construction and operations phases of the programme. The project is located in an area with minimal job alternatives.

Indicators in Support of the Project Approval Criteria			
Category		**Indicator**	**Comment**
General	General Project Acceptability	• Are the distribution of project benefits deemed to be reasonable and fair?	• This is a green initiative by business and the distribution of benefits are deemed to be fair and reasonable.

Part D: Finance

Project Costs	
Development Costs (R's)	Not currently available
Installed Costs (R's)	Not currently available
Other Costs (R's)	Not currently available
Total Project Costs (R's)	Not currently available
Sources of Finance	
Equity	Not currently available
Debt (long term)	Not currently available
Debt (short term)	Not currently available
Amount not identified (R's)	Not currently available
Total CDM Contribution sought	Not currently 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)	Credits not sold yet.
Indicate the **projected Internal Rate of Return** for the project with and without CER revenues.	Not currently available
Constraints on tradability of carbon credits	*Have any commercial arrangements been made that may impact the tradability of the carbon emission reductions? If yes, please define.Note. Examples would be subjection to a mortgage, government tax etc.* *None*
Preliminary discussions with potential purchasers	*Have you had any preliminary discussions with any potential purchasers of the carbon credits (CERs)* *If yes, please give brief details.* This is confidential, however only preliminary discussions were undertaken.