

Clean Development Mechanism South Africa
Designated National Authority



energy

Department:
Energy
REPUBLIC OF SOUTH AFRICA

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Project Design Document (PDD)

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	Coega IDZ Windfarm
Date of Submission of PDD	13/10/2011

Project Developer	
Name	Electrawinds Africa and Indian Ocean Islands (Pty) Ltd
Organizational Category	Private Company
Legal Status	Limited company
Street Address	P. O. BOX 1171 Umhlanga Rocks 4320 KwaZulu-Natal South Africa
Postal Address (if different from above)	
Website Address	www.electrawinds.be
Main Activities	Green energy via wind turbines, biomass power plants, and solar farms

Summary of Financial Performance in last fiscal year	<i>New company N/A</i>
Contact Person(s)	Emil Unger
Telephone	Work: +2782 4659825 Cell: +2782 4659825
Fax	+2786 6008622
Email Address	emil@megatrade.co.za
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	CO2logic NV/SA
Nature of partner	CDM Consultant
Organizational Category	Private Company
Legal Status (if private company)	Privately held company
Street Address	Rue des Tanneurs 60A 1000 Brussels Belgium
Postal Address (if different to Street Address)	
Website Address	www.co2logic.com
Main Activities	Carbon audit, carbon offset, CDM consulting
Contact Person(s)	Tanguy du Monceau
Telephone	Work: +32 477801141 Cell: +32 477801141
Fax	+32 2 548 70 10
Email Address	tanguy@co2logic.com
Contractual Arrangements	
Contractual arrangements between various entities involved	<i>CO2logic has been contracted as the project CDM consultant and is paid a fixed consultancy fee and receives 2% of the projects CER in the case of validation and registration</i>

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

Technical Summary of the project

Objective of the Project	The project will see Electrawinds Africa and Indian Ocean Islands (Pty) Ltd install 25 wind turbines: one of 1.8 MW and 24 of 3 MW, making a total of 73.8 MW. Together the 25 wind turbines will generate 141.7 GWh annually.
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Project Description

The project is the establishment by the company Electrawinds Africa and Indian Ocean Islands (Pty) Ltd of a commercial wind energy project, comprising a total of 25 turbines with an associated generation capacity of approximately 45 to 75 megawatts (MW) in the Coega Industrial Development Zone (IDZ), near Port Elizabeth in the Eastern Cape Province, South Africa. The exact Project location is Latitude 33° 45.157' Longitude 25° 40.597'.

This project will constitute the first commercial private wind farm in South Africa. The zero GHG (Greenhouse Gas) emissions related to the power production from wind will help abate anthropogenic GHG emissions generated by fossil fuel based thermal power stations. Additionally the project will improve air quality and local livelihoods, and promote sustainable renewable energy industry development.

Project Constraints

Are there any constraints affecting project operations or commissioning?

Technical Summary of the project

The project is waiting for the results to the REFIT tender otherwise there are no constraints and the EIA has been approved

Technology to be employed

Describe in less than 5 lines.

Of the 25 turbines that will be erected, twenty four will use the 3 MW SIEMENS SWT-3.0-101 DD technology and one will use the 1.9 MW Vestas V90-1.8 turbine.

Is the technology one that has been previously tried and tested in South Africa or internationally? If yes, provide details (1 paragraph)

Wind turbines for large-scale energy production have been developed over the past 25-30 years and are the most competitive renewable source of energy compared to fossil fuels. Around the world, 80 countries are now using wind power on a commercial basis.

Siemens has more than 30 years of wind industry experience. The first prototype Siemens SWT-3.0-101 was installed in Denmark in 2009. Since then, 2 other windparks have been installed with the SWT-3.0-101 turbines in the United States.

Vestas has installed more than 1,500 V90-1.8/2.0 MW turbines, since the first one was launched in 2004.

Have the project operators had any previous experience or expertise with operating the technology?

If yes - provide brief details (1-2 lines)

At present, Electrawinds has 22 wind farms, and a total installed capacity of over 200 MW in renewable energy (wind, biomass and solar energies). The wind division of Electrawinds operates in Belgium, Italy, France, Bulgaria, Rumania, Poland, South Africa, and Namibia.

Greenhouse Gases Targeted

Identify which greenhouse gas(es) this project will target.

The greenhouse gas targeted is CO₂.

Emission reductions

Indicate the expected emission reductions that will occur due to the project.

The project will help reduce 1,003,688 tonnes of CO₂e over the chosen 7 year period from 2012 to 2018, as shown in the table below.

Length of the crediting period (year)	Estimate of annual emission reductions in tonnes of CO ₂ equivalent.
2012	4700
2013	166,498
2014	166,498
2015	166,498
2015	166,498

Technical Summary of the project		
	2016	166,498
	2017	166,498
	2018	166,498
	Total estimated reduction over this period (tonnes of CO ₂)	1,003,688
Baseline & Additionality Assessment	<p><i>Provide an indication of the baseline and additionality approach to be used, with a brief explanation of why the project is additional as defined under the Kyoto Protocol.</i></p> <p>The baseline scenario is the following: <i>Electricity delivered to the grid by the project activity would have otherwise been generated by the operation of grid-connected power plants (fossil fuel fired power plants) and by the addition of new generation sources, as reflected in the combined margin (CM) calculations.</i></p> <p>The combined margin consists of the combination of the build margin (BM) and the operating margin (OM) emission factors. The OM emission factor is calculated using the grid data available on the Eskom website. The BM emission factor is calculated from an average emission factor of the set of five power units that have been built most recently.</p> $1.2954 \times 0.5 + 1.0547 \times 0.5$ <p>1.1750 tCO₂/MWh</p> <p>The additionality of the project has been determined by an investment analysis. The result of the analysis shows that the project IRR without CDM revenues (8.82%) is lower than the Equity Return Benchmark in South Africa (13.91%).</p> <p>A barrier analysis has also been conducted. It shows that investment barriers exist in South Africa for renewable energy, due to a monopolistic situation and due to an abundance of local coal. Currently approximately 93% of South Africa's power generation is derived from coal.</p> <p>The project is also a "first of its kind" in South Africa, as there are currently no existing and constructed full scales private commercial wind farms in the country.</p>	
Monitoring	<p><i>Describe the parameters that will be used as performance indicators that will be monitored to verify that emissions reductions are taking place.</i></p> <p>The parameter that will be monitored is the annual quantity of net electricity generation that is produced and fed into the grid as a result of the implementation of the CDM project activity (MWh/yr). The net quantity of electricity generated will be metered on site using the main metering system (SCADA controls and communication), and quantified in generation data. The quantity</p>	

Technical Summary of the project	
	of electricity supplied to the grid will be measured continuously and recorded monthly. To calculate the annual emission reduction, the calibration procedure, QA/QC and data management of the proposed project will also be monitored.
Type of project/activities	<i>Identify which type of activity is involved in this project - and for each, provide brief details</i>
a. Energy Supply	Grid-connected electricity generation from renewable energy sources
b. Energy Demand	<i>Select if applicable: Replacement of existing 'household equipment' / improvement of energy efficiency of existing production equipment / other</i> <i>Provide details (1-2 lines)</i>
c. Industrial Process	<i>Provide details (1-2 lines)</i>
d. Transport	<i>Select if applicable: More efficient engines for transport / modal shift / fuel switch / other</i> <i>Provide details (1-2 lines)</i>
e. Waste Management	<i>Select if applicable: Capture of landfill methane emissions / utilization of waste and waste water emissions / other</i> <i>Provide details (1-2 lines)</i>
f. Forestry / land use	<i>Provide details (1-2 lines)</i>
g. Other	<i>Provide details (1-2 lines)</i>
<p>Project Boundary Define the Project Boundary (Approximately 1 paragraph) <i>Note: a project boundary refers to all emissions which are under the control or directly affected by the project activity. Such a boundary can encompass equipment, processes and process flows.</i></p> <p>As defined in the latest approved version of the “Tool to calculate the emission factor for an electricity system”, the definition of an electricity system is taken as the largest grid definition which is the National South African grid.</p>	
Indicate Emissions outside the Project Boundary	<p><i>Note: Significant and measurable net emissions of GHG that are attributable to the project outside of the project boundary</i></p> <p>There is no fossil fuels used for electricity generation in the project, so there are no CO₂ emissions or leakage from the combustion of fossil fuels. The main emissions potentially giving rise to leakage in the context of electric sector projects are emissions arising due to activities such as power plant construction and upstream emissions from fossil fuel use (e.g. extraction, processing, transport). These emissions sources are however</p>

Technical Summary of the project

	negligible.
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Location of the Project

Province	Eastern Cape
Municipality	Nelson Mandela Bay
Nearest city/large town	Port Elizabeth
Brief description of the location of the project site	The Project wind park is located in the Coega Industrial Development Zone near Port Elizabeth. The exact Project location is Latitude 33o 45.157' Longitude 25o 40.597'

Project Schedule/Timetable

Earliest Project Start Date	2010/06
When is the expected first year of CER delivery	2010 (or the date of registration, whichever is later)
Project Lifetime	20 Years
Project End Date	2032
Crediting Period	A renewable crediting period of 3 time 7 years is adopted for the project activity. The baseline will be updated at the start of the second and third crediting period. Project participants will assess and incorporate the impact of new regulations on baseline emissions.
Current Status or phase of the project	<i>Select most applicable: Under discussion/ planning/preparation/construction or other actions already commenced/ Other (explain)</i> Under construction <i>Please provide brief details (1-2 lines)</i> Construction with the terrain being prepared and one wind farm already being tested as a wind mast
DNA Approval	<i>Has this project been submitted to the DNA for approval previously?</i> No <i>If yes - provide date of last submission and brief details of the response from the DNA (1 paragraph)</i>

Project Schedule/Timetable	
	<i>Provide details of any other official response by the DNA regarding this project</i>
Approval by other bodies	<p><i>Has this project (or any elements of the project) been submitted to any other national, provincial or local government departments or agencies for regulatory or legal approval (excluding EIA process - see Part C). If so - provide brief details.</i></p> <p>No</p>

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?

As stated in the project EIA <http://publicprocess.co.za> South Africa set the target to reach 15% of renewable energy by 2020. The Coega IDZ Windfarm project offers the possibility to make an additional step in that direction, by supplying between 43 and 72 MW into the national grid of South Africa. This project represents the first full scale commercial wind farm of the country. While representing an opportunity to further develop the Coega IDZ, an industrial zone next to the port of Ngqura, the project will contribute to make the economy CO₂ neutral. The project will create approximately 100 direct temporary employment opportunities. Such initiatives are particularly important since unemployment reaches 42.9%, and 39% of people live in conditions of poverty in the Eastern Cap province. Finally the project, planned to last for at least 20 years, will create 5 to 10 during its operational phase this includes training these employs in the renewable energy wind sector.

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

As stated in the project EIA <http://publicprocess.co.za> the project aims to contribute to a sustainable social environment and this, mainly by trying to minimize its impact on the environment. This windfarm is a sustainable, economical and ecological project that aims a positive social impact. On the whole, clean energies have been

developed to improve the quality of life of the people, impacting less on the environment than other energies. From another perspective, the project being confined in an industrial zone does not have a direct link with the population living outside the concerned area.

Following the wish made by Electrawinds to positively contribute to skill development, the company set up a college scholarship for four students. In this light, a scholarship program has been developed in partnership with the CDC (Coega Development Corporation) to offer the possibility for three students to study at the Nelson Mandela Bay University and to another student to make post-graduate studies at the University of Leuven in Belgium. The program will last for five years or more.

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.

<p>i) That the disturbance of ecosystems and loss of biological diversity are avoided, or where they cannot be avoided, are minimised and remedied</p>	<p>As stated in the project EIA http://publicprocess.co.za there is no major environmental loss expected throughout the construction and operation of the project. Concerning the flora and the terrestrial fauna, it states that the impact will be negative, but of low level of significance. It concludes that no negative impacts have been identified that can be considered as “fatal flaws” from an environmental perspective, and thereby necessitate substantial re-design or determination of the project. The potential negative effects are reduced as far as possible, thanks to mitigation measures that have been included in the project.</p>
<p>ii) That pollution and degradation of the environment are avoided, or where they cannot be altogether avoided, are minimised and remedied</p>	<p>Wind power is a clean energy sector and represents an opportunity concerning the avoidance of pollution. Further, this type of technology does not release any liquid or gas in relevant quantities on the site of operation. The EIA studied the possibility of all the major risks of environmental degradation that could happen. Measures are foreseen for to prevent soil and groundwater contamination, i.e. rapid removal, cleaning and replacement of any soil contaminated by fuel, oil or grease on the site during the construction period.</p>
<p>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</p>	<p>The area of location for the wind turbines and associated facilities represents 22ha of a surface as large as 12 000ha. The Coega IDZ is considered as an industrial zone, and the turbines are situated in areas of reduced ecological sensitivity. Concerning the soil, the construction of the multiple basis will be an opportunity to discover (and carefully monitor) possible archaeological findings. Careful works will be undertaken with the help of an archeologist who shall spot any cultural heritage present in the soil before undertaking the construction. The turbines will not be placed in the Open Space Areas, respecting the OSMP (Open Space Management Plan) approved by the National Department of Environmental Affairs. (Revision 10, 23/08/2006)</p>
<p>iv) That waste is avoided, or where it cannot be altogether avoided, minimised and re-used or recycled where possible and otherwise disposed of in a responsible manner</p>	<p>The construction and operation of a wind farm does not produce any important quantity of waste and a Waste Management Strategy has been set up to avoid any risk. In the case of waste production, the EIA indicates that any of it should be removed to an appropriate place. (i.e.: any spill or contaminated soil would be removed to a waste site by the contractor</p>

	under the observation of ECO.) The overall target is to produce zero impact of construction wastes on the environment.
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	The use and exploitation of non-renewable resources is not relevant to 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 adheres to the Environmental Conservation Act (No. 73 of 1989) and Regulations GN154 and therefore has been developed in a responsible way with regard the use and exploitation of renewable resources.
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	Despite no existing commercial windfarm projects in South Africa, good knowledge has been acquired over time thanks to a number of other projects developed in other countries by Electrawinds. Much has now been published about the various impacts of windfarms on the environmental, social and economic fields. Electrawinds has therefore a high level of confidence that there is no significant negative impact, when developing the Coega IDZ project, together with the support of local authorities (CSIR) and independent assessment offices which help adapt the project to the local situation.
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 <u>approved</u> EIA as found on the website http://publicprocess.co.za includes all the aspects of the project that could have an influence on the environment and on the humans. For each of them, the national laws were used as baseline when applying. (i.e. noise: SANS10103).
<p>Other comments Please provide any other comments on how this project contributes to sustainable development in South Africa</p> <p>The Coega IDZ Windfarm project would impact the region and the country in multiple ways while offering some important solutions to several issues. In the frame of the fight against global warming, such a windfarm represents an opportunity for the country, helping to achieve its objectives and reduce its dependence on oil. Producing renewable energy for a minimal period of 20 years, it will supply energy to a region that usually needs to import the energy resources from abroad. While having a small impact on the surrounding environment, it is an opportunity to support the socio-economic targets of the Nelson Mandela Bay Municipality (NMBM), which especially aim at developing the Coega IDZ with all-size projects. In this light, the project initiates a new type of activity while creating new jobs.</p>	

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) <p>The building of the windfarm does not have a noticeable impact on the quality of the air except that the electricity produced from these facilities off-sets the power produced from coal, a highly polluting energy resource.</p> <p>The impact on water is irrelevant for this project.</p> <p>A Waste Management Strategy has been built to avoid any effect during the construction period. The project does not produce any waste during the operation period.</p> <p>The EIA analysed the six main risks of environmental degradation for this project, of which 2 of them (visual impact and noise pollution) were extensively described. Whereas the visual impact of a windfarm cannot be minimized, the fact that it is built in an industrial zone seems to encounter a positive impression by the people. The noise it produces stays, after investigation, within the limits set for industrial zones. The wind turbines will be removed, together with their basis, at the end of the 20 years of operation.</p>
	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 <p>The wind farm will be located in the Coega IDZ, an industrial zone. The impact on the community of the region is for this reason very limited. Furthermore, the windturbines will be located outside the Open Spaces, in accordance with the OSMP. The project only uses wind, a non-exclusive source of energy.</p> <p>Coega IDZ Windfarm is not relevant concerning the use of water. Still, rules have been put in place to avoid any liquid or solid waste to contaminate water surfaces or groundwaters.</p>
	Impacts on biodiversity and ecosystems	<ul style="list-style-type: none"> • Changes in local or regional biodiversity arising from the project <p>The EIA report draws the following conclusion from its investigation: The overall impact on biodiversity is predicted to be negative and of low of significance (with mitigation measures). No critically endangered vegetation type is directly impacted. The terrestrial fauna will be most affected during the construction phase, therefore, mitigation measures have been decided to lower the impact. The impact on birds is not considered to be high. The impact on bats will be monitored and measures will be taken depending on the recorded results. On the whole, no serious concern has been revealed by the study for the entire project; this is partly due to the fact that the turbine layout will utilize already impacted sites, in areas of reduced ecological sensitivity.</p>

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 <p>From the findings of the EIA process for the proposed Electrawinds project at Coega, the project benefits outweigh the costs, and the project will make a positive contribution to steering South Africa on a pathway towards sustainable development. In effect, looking at energy security, the need exists for improved energy supply and security for the Eastern Cape. The project therefore presents economic benefits for the local area and the Eastern Cape. It also represents other potential benefits for the region. The project will not be large enough to influence the price of energy on the grid. Nevertheless, if the price of the energy produced on the windfarm is lower than the market, it might attract other companies on the site to get cheaper power. When considering the international scene, a good experience for the company could attract other foreign investments at the Coega IDZ. The project will have no negative effects on foreign exchange requirements.</p>
	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 <p>According to the 2010 UNFCCC study “The contribution of the clean development mechanism under the Kyoto Protocol to technology transfer”, wind projects are more likely than most other CDM projects to involve technology transfer. In this case, the project will allow a technology transfer from Electrawinds to South Africa. As it represents the first full scale commercial wind farm of the country, it will also attract investors for similar projects. The jobs created will also offer the possibility for the workers to familiarize with the technology used in the project. Furthermore, several people will receive scholarships to study and get educated in fields related to the project. This education program will last for 5 years.</p> <p>Wind power generation shows an important growth rate. Global wind capacity increased by approximately 37,500 MW worldwide in 2009. In this context, the project has a credible replication potential.</p>

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) 	<p>In order to reverse the negative trends of unemployment and poverty, stimulate and support socio-economic development, a number of initiatives are currently underway in the NMBM and surrounding areas. Key amongst these are the establishment of the Coega IDZ and the development of the Port of Ngqura, support services for the development of small-, medium- and micro- enterprises (SMMEs) and corporate social investment program. Within this frame, the Coega IDZ Windfarm project is perfectly in line with the governments' objectives. Concerning deliveries of services to the area, no other service is foreseen apart from jobs, education through scholarships and the supply of clean energy to the national grid.</p> <p>The problematic of relocation of communities is not relevant to this project. Finally, the project brings the country a step further towards its 15% target of renewable energies by 2020.</p>
	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 	<p>Unemployment is an important aspect of the Eastern Cap Provinces' economy. It reaches 42.9%, with 39% of its population living in conditions of poverty. The project will create approximately 100 direct temporary employment opportunities for the construction phase and 5 to 10 positions for the operation phase that will last for a minimum of 20 years. Electrawinds is committed to use local workers as much as possible.</p> <p>The social heritage will not be impacted by the project.</p> <p>The Coega IDZ project will take place in a zone that has been especially designated for the development of the economy (Industries) in the region. The project is recognized to have the potential of a positive impact for the surrounding communities much in need of further economical development since the level of poverty and unemployment is high.</p>

Indicators in Support of the Project Approval Criteria

Category	Indicator	Comment
General	General Project Acceptability <ul style="list-style-type: none"> <li data-bbox="506 456 898 537">• Are the distribution of project benefits deemed to be reasonable and fair? 	From the findings of the EIA process for the proposed Electrawinds project at Coega, the project benefits outweigh the costs, and the project will make a positive contribution to steering South Africa on a pathway towards sustainable development. The region will economically and socially benefit from the project. The energy sold will represent an alternative for the people and, in case of success, certainly represents an incentive for other investors to participate to the development of Coega IDZ, as wished by the government of the Eastern Cap province. In addition, this investment represents a potential return on investment for Electrawinds. On the whole, the project will be beneficial for the local people, the region's development and the country's environmental objectives. We can conclude by saying that the benefits of the project are multiple, spread in different areas of interest and among several parties, at all levels.

Part D: Finance

Project Costs	
Development Costs (R's)	0.148 billion
Installed Costs (R's)	1.0 billion
Other Costs (R's)	0.218 billion
Total Project Costs (R's)	1.43 billion
Sources of Finance	
Equity	<i>0.57 billion (R's) 60% from Electrawinds Seweco (Pty) Ltd S.A 35,00% from a local South African investment partner Lereko Renewable Investments (Pty) Ltd 5,00% from a local community fund Kurisani Coega Investments (Pty) Ltd. (of wich 74% is from DBSA loan Development bank of South Africa)</i>
Debt (long term)	<i>0.86 billion (R's) ABSA bank (local South African bank)</i>
Debt (short term)	N/A
Amount not identified (R's)	<i>Amount (R's) and a brief summary of the needs and any outstanding issues (1 paragraph or less)</i>
Total CDM Contribution sought	<i>Amount (R's) and a brief summary of the needs and any outstanding issues (1 paragraph or less) Estimated 7Eur per CER thus total revenue of 107,889,168 R's</i>
Expected Price of CER in case of a contract to purchase for: A period of 7 years	<i>No contract signed yet Price expected 7 EUR thus 68.99 R's per</i>

<p>A period of 10 years A period of 14 years (2x7 years)</p>	<p><i>CER for 21 years</i></p>
<p>Indicate the projected Internal Rate of Return for the project with and without CER revenues.</p>	<p><i>Note: Please indicate assumed price of CER as used in your calculation</i> Assumed Price per CER : 7 EUR Project IRR with CDM : 11.07% Project IRR without CDM : 10.55%</p>
<p>Constraints on tradability of carbon credits</p>	<p><i>Have any commercial arrangements been made that may impact the tradability of the carbon emission reductions? If yes, please define.</i></p> <p><i>No</i></p>
<p>Preliminary discussions with potential purchasers</p>	<p><i>Have you had any preliminary discussions with any potential purchasers of the carbon credits (CERs) If yes, please give brief details.</i></p> <p><i>Yes</i></p> <p><i>Non Disclosure Agreements were signed in 2009 with three potential buyers</i></p>