

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	Grid Connected Wind Power Plant in Nelson Mandela Bay, South Africa
Date of Submission of PDD	

Project Developer	
Name	<i>MetroWind (Pty) Ltd</i>
Organizational Category	<i>Select most applicable: National Government/ Government Agency/ Provincial Government/ Municipality/ Private Company/ Non-Governmental Organisation/ Other (give details)</i>
Legal Status	<i>For example: Privately held company/ limited company/ limited partnership etc.</i>
Street Address	<i>Fernlea Building 14 Rose Building Central Port Elizabeth</i>
Postal Address (if different from above)	<i>As above</i>

Website Address	Not applicable
Main Activities	<i>The company currently has four major shareholders, namely Afri-Coast Engineers (Pty) Ltd, the founding developer, Afri-Coast cc, Carbon Cycle Developments (Pty) Ltd and Basil Read Energy (Pty) Ltd. MetroWind has been established as an SPV specifically for the development of this project.</i>
Summary of Financial Performance in last fiscal year	<i>Not available</i>
Contact Person(s)	Donald McGillivray
Telephone	+27 (0)41 - 505 8000
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Email Address	donald@afriacoast.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	<i>EnBW Kraftwerke AG (henceforth referred to as EnBW)</i>
Nature of partner	<i>EnBW is the carbon credit off taker for the project.</i>
Organizational Category	<i>Select most applicable: National Government/ Government Agency/ provincial Government/ Municipality/ Private Company/ Non-Governmental Organisation/ Other (give details)</i>
Legal Status (if private company)	<i>Publically traded company</i>
Street Address	<i>EnBW Kraftwerke AG Durlacher Allee 93 76131 Karlsruhe</i>
Postal Address (if different to Street Address)	<i>As above</i>
Website Address	www.enbw.com
Main Activities	<i>EnBW Kraftwerke AG is an affiliate of and owns and operates the power plants of EnBW Energie Baden-Württemberg AG. EnBW Energie Baden-Württemberg AG is the third largest energy company in Germany focusing on generation and trading of electricity, the electricity grid and sales and energy and environmental services. EnBW operates primarily in Baden-Württemberg and Germany, and is expanding their renewable energy footprint worldwide.</i>
Contact Person(s)	Max Schober
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Email Address	ma.schober@enbw.com

Contractual Arrangements	
Contractual arrangements between various entities involved	<i>EnBW is the contracted offtaker for generated carbon credits</i>

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

Technical Summary of the project	
Objective of the Project	<i>The objective of the project is to reduce greenhouse gas emissions through producing electricity from wind which is a renewable resource. The electricity will be supplied into the South African national electricity grid and displace the generation of traditional coal-based electricity.</i>
<p>Project Description</p> <p><i>The objective of the project is to reduce greenhouse gas emissions through the generation of electricity from a renewable resource.</i></p> <p><i>The project involves the installation of a wind power plant which will produce an estimated 80,000 MWh of electricity per year with an installed capacity of approx. 27 MW. The electricity will be supplied onto the South African national electricity grid and displace the generation of traditional coal-based electricity. The project will reduce greenhouse gas emissions through the displacement of electricity from the national grid. Currently, the South African national grid is predominantly coal-based and, as such, has an associated high greenhouse gas emission factor.</i></p> <p><i>The project activity will consist of 9 wind turbines. Each turbine will have a rated capacity of 3 MW. The turbines will have a hub height of 90 metres. A new substation will be constructed on site to connect the wind power plant to the South African National Electricity Grid via existing transmission lines.</i></p> <p><i>Project commissioning is scheduled for June 2013. Currently, there is a 60.2m wind measurement mast on site. The land on which the wind turbines will be erected has been previously cleared for pastures, and is subject to low levels of grazing by cattle and antelope kept by the landowner. The landowner does not use the site for commercial agricultural purposes.</i></p> <p><i>The project required an Environmental Impact Assessment (EIA) in accordance with the National Environmental Management Act (NEMA). The EIA process assisted in identifying environmental and social impacts of the project and allowed the developers to put in place mitigating and monitoring plans to reduce and manage the anticipated impacts. A positive record of decision has been received for the project.</i></p>	
<p>Project Constraints</p> <p><i>Are there any constraints affecting project operations or commissioning? (Brief description: 1 paragraph or less) Note: these may be due to energy supply, infrastructure, other resources etc.</i></p> <p><i>The constraint affecting project operations and commissioning is the availability of skilled turbine manufacturers and operators in South Africa. MetroWind will need to source these skills internationally and train the local staff.</i></p>	

Technical Summary of the project	
Technology to be employed	<p><i>The project will make use of 9 wind turbines. Each turbine will have a rated capacity of up to 3 MW. The turbines will each have a hub height of 90 metres. The power plant will produce an estimated 80,000 MWh of electricity per year.</i></p> <p><i>Is the technology one that has been previously tried and tested in South Africa or internationally?</i></p> <p>The technology has been tried and tested internationally. Wind turbines currently generate about 1% of total global electricity. Wind turbines have been used extensively in Europe and Asia. Africa has a number of wind farms, most notably in Egypt and Morocco</p> <p>The technology has not been widely tested in South Africa which has only two small wind farms. These are:</p> <ul style="list-style-type: none"> • Klipheuwel approximately 3 MW wind farm which supplies electricity to the national electricity grid. This small wind farm was erected by Eskom (South Africa's national electricity provider) as an experimental wind farm. • 5 MW Darling wind farm which was South Africa's first commercial wind farm. The 8.6 GWh electricity generated yearly from this project is sold to The City of Cape Town at a negotiated tariff. It will use half for its own needs and sell the remaining power to individuals and companies supporting green electricity generation. <p><i>Have the project operators had any previous experience or expertise with operating the technology?</i></p> <p>MetroWind is made up of companies that have experience with the development of wind power plants. The turbines will be constructed and maintained by the turbine suppliers who have highly-skilled and knowledgeable maintenance and operations teams. Predominantly, the skills to maintain and operate wind turbines must be sourced from overseas. A local team will be appointed to assist with the operation and maintenance. One of the benefits of this project will be to bring turbine specialists to the country and ensure skills transfer to South Africa.</p>
Greenhouse Gases Targeted	<i>The project will target a reduction in CO₂ emissions</i>
Emission reductions	<i>The project is expected to result in an emission reduction of 72,000 tonnes CO₂e per year. Over the full crediting period of 21 years, the project will result in an emission reduction of 1,512,000 tonnes CO₂e</i>
Baseline & Additionality Assessment	<p>Baseline</p> <p><i>The electricity produced will be fed to the South African National Electricity Grid and displace coal-fired grid electricity. Hence, the baseline for the project is the national electricity grid. The baseline will be established using the procedures set out under ACM0002 'Consolidated methodology for grid-connected electricity generation from renewable sources.'</i></p>

Technical Summary of the project	
	<p>Additionality</p> <p><i>There are significant barriers to the implementation of renewable energy in South Africa by Independent Power Producers (IPPs). The lack of renewable energy facilities and IPPs in South Africa is testament to these barriers. On a high-level, these barriers include:</i></p> <ul style="list-style-type: none"> • <i>The lack of a mature market for IPPs and renewable energy in South Africa owing to the fact that the regulatory environment is new and has evolved over time.</i> • <i>The cost of renewable energy compared to existing electricity tariffs.</i> • <i>The current electricity generation and distribution structure in South Africa and the challenges with obtaining a workable Power Purchase Agreement (PPA) with the electricity grid operators.</i> • <i>The lack of local technology providers and local skills in the renewable energy sector in South Africa.</i> <p><i>These barriers constitute significant challenges to implementing renewable energy projects in South Africa. In addition, the project is not financially attractive without the revenue from carbon credits (CERs). As such, the revenue from the carbon credits (CERs) will be used to offset a portion of the costs associated with the project and to increase the attractiveness of investing in the project.</i></p> <p><i>Additionality will be demonstrated in the project using the latest version of the UN-approved 'Tool for the demonstration and assessment of additionality.'</i></p>
Monitoring	<p><i>The source of the data that will be actually used for the proposed project activity will be data recorded from measurements taken by an electricity meter. The electricity meter will measure both the electricity produced and the electricity consumed by the wind farm. The net electricity will be calculated by subtracting the electricity consumed by the wind farm from the electricity produced by the wind farm. Monitoring will be in compliance with the latest version of ACM0002 'Consolidated methodology for grid-connected electricity generation from renewable sources.'</i></p> <p><i>In addition, the parameters required to calculate the grid emission factor will be monitored as per the requirements of the latest version of the 'Tool to calculate the emission factor for an electricity system.'</i></p>
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	<p><i>Select if applicable: Renewable Energy (excluding biomass)/ Biomass/ Cogeneration/ Improving energy efficiency by replacing existing equipment/minimization of transport and distribution/ fuel switch/ other</i></p> <p><i>The project is a wind power plant which uses wind, a renewable resource, to generate electricity. The electricity will be supplied</i></p>

Technical Summary of the project

	<i>to the national electricity grid. Hence, the project is renewable energy supply.</i>
b. Energy Demand	<i>Not applicable</i>
c. Industrial Process	<i>Not applicable</i>
d. Transport	<i>Not applicable</i>
e. Waste Management	<i>Not applicable</i>
f. Forestry/ land use	<i>Not applicable</i>
g. Other	<i>Not applicable</i>
Project Boundary Define the Project Boundary (Approximately 1 paragraph) The project boundary will be drawn around the wind power plant. The national electricity grid will be included for the purposes of determining the grid emission factor as the project will supply electricity to the national electricity grid. The boundary will include the following equipment: <ul style="list-style-type: none">• Wind turbines and associated equipment• Substation and associated equipment• Metering equipment• A site office or facilities may be erected on the project site The emission source in the baseline is the national electricity grid. The emission source in the project is the parasitic/auxiliary load for the wind power plant.	
Indicate Emissions outside the Project Boundary	There are no significant emissions attributable to the project outside of the boundary. Hence, there is no leakage that can be considered.

Location of the Project

Province	Eastern Cape Province
Municipality	Nelson Mandela Bay Metropolitan
Nearest city/large town	Port Elizabeth
Brief description of the location of the project site	The project is located on the western side of the Nelson Mandela Bay Metropolitan on a ridge east of the Van Stadens River mouth in the Eastern Cape. The site is approximately 35 km west of the Port Elizabeth Airport

Project Schedule/Timetable

Earliest Project Start Date	<i>2012/June when the project reaches financial close.</i>
When is the expected first year of CER delivery	2014

Project Schedule/Timetable	
Project Lifetime	<i>The operational lifetime of the project is anticipated to exceed the crediting period of the project. The service life of the wind turbines is 20 years and 0 months. However, it is anticipated that the turbines will continue to operate beyond the service life.</i>
Project End Date	<i>2034/July which exceeds the crediting period of the project</i>
Crediting Period	<i>The crediting period selected is 7 years (renewable twice).</i>
Current Status or phase of the project	<p><i>Select most applicable: Under discussion/ <u>planning/preparation</u>/construction or other actions already commenced/ Other (explain)</i></p> <p><i>The project is currently in the planning/preparation stage. The project has been submitted under round one of the South African Department of Energy's IPP Procurement Programme for renewable energy.</i></p>
DNA Approval	<p><i>Has this project been submitted to the DNA for approval previously?</i></p> <p><i>The project has been submitted to the DNA previously</i></p>
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><i>Apart from obtaining approval from the Civil Aviation Authority for the wind farm, the project has not at this stage been submitted to any other Government departments for approvals</i></p> <p><i>The project was submitted in the first round of bids to the Department of Energy's IPP Procurement Programme, and was shortlisted by the department.</i></p> <p><i>The project has been submitted to Eskom for grid connection quotations.</i></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?

The project will contribute to national economic development in the following ways:

- The project will contribute to national economic development through the sales of the Certified Emission Reductions (CERs) which will result in an inflow of foreign exchange.
- The success of this project in South Africa will encourage both local and international investment in the power generation sector and a diversification of energy supply.
- The project developers will be applying under the IPP Procurement Programme as established by the South African Department of Energy. The success of this project under this programme will promote investor confidence in the country and will encourage the growth of the renewable energy sector in South Africa.
- The project is a renewable energy power plant that will generate electricity and supply the electricity on to the national electricity grid. Independent power generation represents a significant growth area for South Africa. The success of this project in the South African independent power generation regulatory framework will encourage other project developers to undertake clean power generation. In addition, the success of this project will encourage overseas investors to invest in the development of South Africa's clean energy sector. Encouraging international investment in local projects will contribute significantly towards national economic development.
- The wind power plant will assist in meeting the renewable energy targets on a country level. According to the White Paper on Renewable Energy, South Africa aims to diversify its power supply to include 10,000 GWh of electricity from renewable energy by 2013.
- South Africa committed to a greenhouse gas emission reduction target of 34% by 2020 and 42% by 2025 in the climate change conference in Copenhagen held in December 2009. This commitment was re-iterated in the Integrated Resource Plan (IRP) for 2010. The project will assist in achieving this target by increasing the renewable energy component of the national electricity mix. National Treasury is investigating implementing a carbon tax. In the long term, the growth of clean energy will reduce the carbon tax that the private sector will be required to pay for using grid electricity.

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

The project will contribute to social development in South Africa in a number of ways:

- The project will result in the creation of temporary jobs in the construction phase of the project. A number of local people will be employed during construction for site security, manual labour, transportation of goods and other similar services. Excluding office and administration staff, it is estimated that a local team of up to 7 wind farm maintenance specialists (including trainees) would be employed by the project during the operations phase.
- The project will result in technology transfer from developed countries to South Africa. In addition, a team of locals will be trained to maintain the wind turbines which will ensure the transfers of skills to South Africa.
- The success of the project will encourage the growth of the renewable energy sector in South Africa which may result in the creation of 'green' jobs. The success of the project will also encourage the diversification of South Africa's energy mix and the growth of Independent Power Producers (IPPs) in South Africa.
- The project encourages the use of renewable resources as opposed to fossil fuels and assists towards sustainable energy use.

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

The project developers have conducted an Environmental Impact Assessment (EIA) for the project in accordance with the National Environmental Management Act (NEMA). A record of decision has been received for this project. The project conforms to the NEMA principles of sustainable development in the following ways:

- The project results in a reduction of greenhouse gas emissions by displacing coal-fired grid electricity with electricity generated from a renewable resource. This reduction in greenhouse gas emissions will play a role in assisting South Africa to achieve its emission reduction target of 34% below business-as-usual by 2020.
- The generation of electricity from wind power does not require the use of significant volumes of water. This is in direct contrast to the generation of electricity from coal.

The project will make use of a renewable resource to generate electricity. The electricity will be fed onto the national electricity grid and displace coal-fired electricity. Apart from reducing greenhouse gas emissions, the project will

displace the negative impacts of coal-mining and beneficiation as well as the adverse environmental impacts of combusting coal (particulate and sulphur emissions and water consumption and contamination). The success of the project will assist in encouraging the diversification of South Africa's energy mix and the use of renewable resources.

<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><i>The project is located on the western side of the Nelson Mandela Bay Metropolitan on a ridge east of the Van Stadens River mouth in the Eastern Cape. The site is approximately 35 km west of the Port Elizabeth Airport. The land on which the wind turbines will be erected has been previously cleared for pastures, and is subject to low levels of grazing by cattle and antelope kept by the landowner. The landowner does not use the site for commercial agricultural purposes. The turbines have a relatively small footprint and low noise levels and, as such, will not impact on the use of the land for grazing.</i></p> <p><i>The project developers will use existing roads for the transportation of the turbines.</i></p> <p><i>The project will have 9 wind turbines on the site. Each turbine has a hub height of 90 metres above the ground. The construction of the wind farm facility requires that a small concrete foundation of 5 metres by 5 metres is constructed for each of the wind turbines. Apart from the construction of the concrete foundations on the land, the following will have to be constructed:</i></p> <ul style="list-style-type: none"> <i>• An office and storage building with security and ablution facilities may be constructed on the site.</i> <i>• A permanent wind measuring mast of 60.2 metres has been erected to monitor wind speeds.</i> <i>• A substation to connect the facility to the national electricity grid via existing transmission lines.</i> <p><i>Once the facility has reached the end of its life span, the project developers will either refurbish the turbines so that the facility continues to operate or decommission the facility. If the facility is decommissioned then the site will be fully rehabilitated.</i></p> <p><i>In accordance with the National Environmental Management Act, the project developers have conducted an Environmental Impact Assessment (EIA) for the wind power plant. The EIA addressed any potential risks of the disturbance to ecosystems. An Environmental Management Programme (EMP) was developed to minimize and mitigate the risks.</i></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><i>The project will have limited negative environmental impacts. The project makes use of wind which is a renewable resource. The generation of electricity using wind does not result in air pollution and it does not result in the generation of waste.</i></p> <p><i>The project site is currently subject to low levels of grazing. The project activity requires that the following infrastructure is erected:</i></p> <ul style="list-style-type: none"> <i>• 9 concrete foundations (each 5 metres by 5 metres);</i> <i>• Office and storage building with security and ablution facilities may be constructed on site;</i> <i>• A new substation; and</i> <i>• Site fencing.</i> <p><i>A site office or facilities may be erected on the project site.</i></p> <p><i>Once the wind power plant is decommissioned, the land will be completely rehabilitated</i></p>
<p>iii) That the disturbance of landscapes and sites that constitute the nation's cultural heritage is avoided, or where it</p>	<p><i>The land on which the wind turbines will be erected has been previously cleared for pastures, and is subject to low levels of grazing by cattle and antelope kept by the landowner. The landowner does not use the site for</i></p>

<p>cannot be altogether avoided, is minimised and remedied</p>	<p><i>commercial agricultural purposes. The land is not one of the nation's cultural heritage sites. In addition, the landscape will not be significantly disturbed as the project does not require the construction of access roads to the project site but only some road improvement on the project land.</i></p> <p><i>In addition, the project has a small footprint which means that most of the land will remain largely undisturbed.</i></p> <p><i>The land will be fully rehabilitated once the wind power plant is decommissioned.</i></p>
<p>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</p>	<p><i>The wind power plant will not produce any waste. The plant will use a renewable resource to generate electricity. Hence, there will be no waste that needs to be disposed of during the operation of the wind farm.</i></p> <p><i>In construction and decommissioning phases of the project, any waste generated will be disposed of in a responsible manner.</i></p>
<p>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</p>	<p><i>According to The National Energy Regulator of South Africa (NERSA), South Africa's grid electricity is primarily produced from coal (95% coal-based in 2005). The electricity produced in this project will displace coal-based electricity and reduce the exploitation of a non-renewable resource.</i></p>
<p>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.</p>	<p><i>The project is the development of a wind power plant. Wind energy is a renewable resource. The electricity produced by the wind power plant will be fed onto the national grid and reduce the production of coal-based grid electricity. Coal is a fossil fuel and, as such, the project will reduce the use of a non-renewable resource.</i></p>
<p>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</p>	<p><i>A risk averse and cautious approach is applied to the development of this project. The project developers conducted an Environmental Impact Assessment (EIA) for this project in accordance with National Environmental Management Act (NEMA) (Act No. 107 of 1998). A positive record of decision was received for this EIA.</i></p> <p><i>The EIA describes the environmental impacts of the project and the Environmental Management Programme (EMP) that has been developed to limit the impact that the project has on the environment and to ensure that the risks are mitigated and managed effectively.</i></p>
<p>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</p>	<p><i>The project developers conducted an Environmental Impact Assessment (EIA) for the project. A large part of the EIA process involves consultation with relevant stakeholders including the surrounding communities. This rigorous process will ensure that the concerns of the stakeholders are adequately addressed. The process allows the stakeholders to participate in the design of the project and the Environmental Management Programme (EMP).</i></p> <p><i>In addition, the project developers will minimize the impact of the project on the environment. The project has positive impacts on the environment as it uses a renewable resource to generate electricity.</i></p> <p><i>The electricity generated by the project will be fed onto the national grid and displace coal-based electricity. The displacement of coal-based electricity reduces GHG, particulates and sulphur emissions and avoids the negative environmental impacts of coal mining. In addition, wind power plants do not require water during the operations phase to produce electricity. Coal requires a significant amount of water to mine and process.</i></p> <p><i>Once the facility has reached the end of its life span, the project</i></p>

developers will either refurbish the turbines so that the facility continues to operate or decommission the facility. If the facility is decommissioned then the site will be fully rehabilitated.

This project will provide electricity to the national grid and, as such, it will assist in restoring the reserve margin of the national grid. The project will reduce the risk of experiencing electricity black-outs when demand for electricity is greater than electricity supply. The project will provide electricity to the national grid and this will allow for growth and development.

Other comments

Please provide any other comments on how this project contributes to sustainable development in South Africa (optional)

The project will assist South Africa in meeting its emission reduction target of 34% below business-as-usual by 2020. In addition, the project will contribute to both national renewable energy targets in terms of: The White Paper on Renewable Energy Policy which motivates for 10,000 GWh of renewable energy on the electricity grid by 2013.

The project will be applying to the South African Department of Energy for inclusion in the IPP Procurement Programme for renewable energy. The success of this project under this programme will encourage investment in the power sector in South Africa, the uptake of renewable energy power generation and the rise of a number of Independent Power Producers (IPPs) in South Africa.

Indicators in Support of the Project Approval Criteria

Category	Indicator	Comment
Environmental	Impact on local environmental quality	<p>The project has positive impacts on local environmental quality. These impacts are listed below:</p> <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 project will reduce GHG emissions by generating electricity from a renewable resource. On a national level, the electricity will be fed onto the South African national electricity grid and displace coal-based electricity. The displacement of coal-based electricity will reduce the amount of coal mined and combusted. This reduces GHG, particulate and sulphur emissions in South Africa.</p> <p>Wind power plants do not require water to generate electricity. Hence, there is no water pollution in the project activity. In addition, the project displaces coal-based electricity which uses significant water volumes and results in water pollution. On a national level, the project reduces water pollution.</p> <p>The project does not generate any solid waste during operation. During construction and decommissioning, all solid waste will be disposed of in a responsible manner and the site will be rehabilitated.</p> <p>The project will not have any major noise, safety or traffic impacts. However, as the wind turbines will have a hub height of 90 metres, they will be visible. The project will comply with all environmental requirements in terms of visibility for a wind power plant.</p>
	Change in usage of natural resources	<p>The project encourages the use of renewable resources and has the following benefits in terms of sustainable usage of natural resources:</p> <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 project does not hinder the local community's access to natural resources. In fact, the project will have positive impacts on the local community such as the increase of investment in the area and the creation of jobs during the construction and operation phase of the project.</p> <p>Wind power plants do not require water in order to generate electricity. This is unlike coal-fired power plants that consume large volumes of water to mine and combust coal that is used to produce power. In addition, South Africa's coal-fired power stations are water-cooled and, as such, consume large volumes of water.</p> <p>The project will utilise a renewable resource and encourage the generation of renewable energy in South Africa.</p>

Indicators in Support of the Project Approval Criteria

Category	Indicator	Indicator	Comment
	Impacts on biodiversity and ecosystems	<ul style="list-style-type: none">Changes in local or regional biodiversity arising from the project	There is unlikely to be changes in local or regional biodiversity as a result of this project. As a confirmation of this bat monitoring equipment has been installed in the wind measurement mast currently on site. This shall continue in the operations phase. Bats are specifically monitored as they are more vulnerable than other flying animals. Further the project land has already been cleared for farming activities and thus little land clearing is necessary for the wind farm. Thus there will not be impacts or the impacts will be minimal on the plant life of the project site.

Indicators in Support of the Project Approval Criteria

Category	Indicator	Comment
Economic	<p style="text-align: center;">Economic impacts</p> <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 generate foreign exchange through the sale of the carbon credits (CERs). The success of the project will encourage foreign investment in the renewable energy sector. The project will create a number of jobs during the construction and operations phase of the project. These jobs will be available to residents in the area. The project will be applying for the South African Department of Energy's IPP Procurement Programme. The success of the project under this programme will encourage the development of renewable energy projects and investment in renewable technologies. As the technology develops and is more widely used, the cost may decrease. This will result in a decrease in the cost of generating wind energy. <p>The success of the project will encourage investment in the power generation sector in South Africa and increase investor confidence in electricity supply in South Africa</p>
	<p style="text-align: center;">Appropriate technology transfer</p> <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>The project will result in technology and skills transfer to South Africa. The wind generation technology is sourced from overseas. This technology is expensive and the revenue from the carbon credits will assist in funding the technology transfer. During the operations phase, approximately 7 people will be employed in the project. These people will be trained to maintain the wind power plant.</p> <p>The success of this project in accessing the IPP Procurement Programme and in obtaining a Power Purchase Agreement (PPA) with Eskom will encourage the roll-out of similar plants.</p>

Indicators in Support of the Project Approval Criteria

Category	Indicator	Comment
Social	<p style="text-align: center;">Alignment with national provincial and local development priorities</p> <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"> • The project will contribute to development and is in line with national development policies in the areas of renewable energy and carbon emissions. The project contributes to the following policies: <ul style="list-style-type: none"> • South Africa’s White Paper on Renewable Energy which calls for 10,000 GWh of renewable electricity on the national electricity grid by 2013. • The Presidential commitment at the climate change conference in Copenhagen in 2009 to reduce greenhouse gas emissions by 34% below business-as-usual by 2020 and 42% by 2025. • The Integrated Resource Plan (IRP) 2010 which re-iterates South Africa’s commitment towards a 34% reduction in greenhouse gas emissions below business-as-usual by 2020. Renewable energy will play a major role in the achievement of this target. • The project will not result in the relocation of any communities. • The project makes significant contribution to renewable energy targets and emission reduction targets (see above). In addition, the project will be applying for the IPP Procurement Programme under the Department of Energy. The success of this project under this programme will assist in encouraging similar developments in South Africa.

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 project will not result in job losses. The project will create a number of jobs during the construction phase of the project. People from the local community will be employed for site security, manual labour, transportation of goods and other similar services during the construction phase. The amount of work that will be needed in the construction phase of the project is 1600 person months over a construction period of 13 months, which translates to 123 temporary jobs. In the operational phase of the project 1700 person months of employment will be created over 20 years of the project. This is 7 permanent jobs that will be created. This workforce will receive the training required to maintain the wind turbines. The project will have no negative impacts on community social structures.

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? 	<p>The distributions of the project benefits are reasonable and fair.</p> <p>The project developers have pledged funds from the electricity sales revenue for education, environmental preservation and sustainable enterprises. Further a small portion of the MetroWind project will be owned in a community trust from which dividends will be directly invested back in to the community.</p>

Part D: Finance

Project Costs	
Development Costs (R's)	The project costs and financials have not been finalized and as such are not available at present.
Installed Costs (R's)	
Other Costs (R's)	
Total Project Costs (R's)	
Sources of Finance	
Equity	<i>Name of Organisation(s) and amount (R's) contributed by each</i>
Debt (long term)	<i>Name of organization(s) and amount (R's) for each</i>
Debt (short term)	<i>Name of organization(s) and amount (R's) for each</i>
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)</i>
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)	<i>Price? (R's) Price? (R's) Price? (R's)</i>
Indicate the projected Internal Rate of Return for the project with and without CER revenues.	<i>Note: Please indicate assumed price of CER as used in your calculation</i>

<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>EnBW, a leading European energy provider, will be the carbon credit offtaker for this project</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)</i></p> <p><i>EnBW, a leading European energy provider, will be the carbon credit offtaker for this project.</i></p>