Clean Development Mechanism South Africa
Designated National Authority

energy
Department:
Energy
REPUBLIC OF SOUTH AFRICA

Private Bag X 19 , Acardia ,Pretoria, 0007, Tel:012-444 4116, Fax: 012 444 4501
Private Bag X9111, Cape Town, 8000, Tel: 021-469 6412, Fax: 021-465 5980

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 Klawer, South Africa
Date of Submission of PDD	18/06/2011

Project Developer	
Name	G7 Renewable Energies (Pty) Ltd
Organizational Category	*Select most applicable:* *National Government/ Government Agency/ Provincial Government/ Municipality/ Private Company/ Non-Governmental Organisation/ Other (give details)*
Legal Status	*For example: Privately held company/ limited company/ limited partnership etc.*
Street Address	125 Buitengracht Street Cape Town 8001 South Africa
Postal Address (if different from above)	As above
Website Address	www.g7energies.com

Main Activities	*G7 Renewable Energies (Pty) Ltd (henceforth referred to as G7) was established in 2007 for the purpose of developing wind energy projects. G7's current portfolio consists of a number of wind power projects in the Western and Northern Cape which have the potential to generate several hundred MWhs. G7 will take the projects from initial feasibility stage to installation, commissioning and, in some cases, operation. G7's managing directors share an ambition of enabling the South African electric grid to function using up to 20 percent of wind energy by 2020.*
Summary of Financial Performance in last fiscal year	*Not available at present*
Contact Person(s)	Nicolas Rolland
Telephone	Work: +27 (0) 21 409 7024 Cell: +27 (0) 83 631 0383
Fax	+27 (0) 86 514 1735
Email Address	Nicolas@g7energies.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	*Energie Baden Württemberg Kraftwerke AG (henceforth referred to as EnBW*)
Nature of partner	*EnBW is a partner of and shareholder in G7 Renewable Energies (Pty) Ltd. EnBW is a major contributor to the project in terms of capital and skills transfer. In addition EnBW may invest into the projects once they have reached feasibility stage. EnBW is also the carbon credit off taker.*
Organizational Category	*Select most applicable:* *National Government/ Government Agency/ provincial Government/ Municipality/ Private Company/ Non-Governmental Organisation/ Other (give details)*
Legal Status (if private company)	*Publically traded company*
Street Address	EnBW *Energie Baden Württemberg Kraftwerke AG* Durlacher Allee 93 76131 Karlsruhe
Postal Address (if different to Street Address)	As above
Website Address	www.enbw.com
Main Activities	EnBW 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.
Contact Person(s)	Tilo Stein
Telephone	Work: +49 721 63 23105 Cell: +49 175 299 89 67
Fax	+49 721 63 23119
Email Address	Ti.stein@enbw.com

Contractual Arrangements	
Contractual arrangements between various entities involved	*EnBW is the contracted off taker for the generated carbon credits and is currently a shareholder of G7. It is expected that EnBW will invest capital into the wind farm as a way of securing the carbon credits generation.*

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

Technical Summary of the project	
Objective of the Project	*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 onto the South African national electricity grid and displace the generation of traditional coal-based electricity.*

Project Description

The objective of the project is to reduce greenhouse gas emissions through the generation of electricity from a renewable resource.

The project involves the installation of a wind power plant which will produce an estimated 78,319 MWh of electricity per year with an installed capacity of approx. 30 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 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.

The project activity will consist of 12 wind turbines. Each turbine will have a rated capacity of up to 3 MW. The turbines stand 105 metres tall with a blade diameter of between 90 and 100 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.

Project commissioning is scheduled for 2013. Currently, there is a temporary 15m wind measurement mast on site. G7 has erected a permanent 80m wind measurement mast. A year of wind data has been collected. The purpose of this mast is to measure wind velocity in order to finalise the design and size of the power plant.

The project requires 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.

Project Constraints
Are there any constraints affecting project operations or commissioning? (Brief description: 1 paragraph or less)

The constraint affecting project operations and commissioning is the availability of skilled turbine manufacturers and operators in South Africa. G7 will need to source these skills internationally and train the local staff. In addition availability of electricity generation licenses and power purchase agreements constitutes another constraint affecting the project.

Technology to be employed	*The project will make use of 12 wind turbines. Each turbine will*

Technical Summary of the project	
	have a rated capacity of up to 3 MW. The turbines will each stand 105 metres tall and have a blade diameter of 90 to 100 metres. The power plant will produce an estimated 78,319 MWh of electricity per year. *Is the technology one that has been previously tried and tested in South Africa or internationally?* 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 the 225 MW Zafarranna wind farm in Egypt. The technology has not been widely tested in South Africa which has only two small wind farms. These are: • 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 8.6GWh 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. *Have the project operators had any previous experience or expertise with operating the technology?* The G7 managing directors 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, and this is a major component of EnBW's contribution to the project. 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.
Greenhouse Gases Targeted	*The project will target a reduction in CO_2 emissions.*
Emission reductions	*The project is expected to result in 81,451.76 tonnes CO_2e per year. Over the full crediting period of 21 years, the project will result in an emission reduction of 570,162.32 tonnes CO_2e.*
Baseline & Additionality Assessment	**Baseline** *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 has been established using the procedures set out under ACM0002 'Consolidated methodology for grid-connected electricity generation from renewable sources.'* **Additionality**

Technical Summary of the project	
	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: • *The lack of a regulatory framework in South Africa for IPPs and renewable energy.* • *The cost of renewable energy compared to existing electricity tariffs.* • *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.* • *The lack of local technology providers and local skills in the renewable energy sector in South Africa.* *These barriers constitute significant challenges to implementing renewable energy projects in South Africa. 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. EnBW, a project partner and shareholder in G7 has invested in the renewable energy sector in South Africa in order to access carbon credits.* *Additionality has been demonstrated in the project using the latest version of the UN-approved 'Tool for the demonstration and assessment of additionality.'*
Monitoring	*The electricity fed onto the national electricity grid will be monitored using online electricity meters. The reading on the online electricity meter after the step-up transformer will be used as the net electricity supplied to the national electricity grid. This will be checked against purchase receipts from the responsible system operator (currently Eskom). Monitoring is in compliance with the latest version of ACM0002 'Consolidated methodology for grid-connected electricity generation from renewable sources.'* *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.'*
Type of project/activities	*Identify which type of activity is involved in this project – and for each, provide brief details*
a. Energy Supply	*Select if applicable: <u>Renewable Energy</u> (excluding biomass)/ Biomass/ Cogeneration/ Improving energy efficiency by replacing existing equipment/minimization of transport and distribution/ fuel switch/ other* *The project is a wind power plant which uses wind as a renewable resource to generate electricity. The electricity will be supplied to the national electricity grid. Hence, the project is renewable energy supply.*

Technical Summary of the project	
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 project boundary has been drawn around the wind power plant. The national electricity grid has been included for the purposes of determining the grid emission factor as the project will supply electricity to the national electricity grid.

The boundary includes the following equipment:

- Wind turbines and associated equipment
- Substation and associated equipment
- Metering equipment

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	Western Cape Province
Municipality	Matzikama Local Municipality
Nearest city/large town	Klawer
Brief description of the location of the project site	The proposed project will be located on Klipheuval (Farm 5/390) and Bird Field (Farm 99/306) farms, approximately 6 km south of the town of Klawer in the Western Cape Province in South Africa.

Project Schedule/Timetable	
Earliest Project Start Date	*2013/July*
When is the expected first year of CER delivery	*2014*
Project Lifetime	*Minimum lifespan of 25 years*
Project End Date	*2038/July which exceeds the crediting period of the project.*
Crediting Period	The crediting period selected is 7 years (renewable twice).
Current Status or phase of the project	*Select most applicable:* *Under discussion/ planning/preparation/construction or other actions already commenced/ Other (explain)* *The project design is currently being finalised. A temporary 15m wind measurement mast was installed on site in October 2009. A permanent 80m mast was installed on site in September 2010. The purpose of the mast is to collect site specific wind data. A year of wind data has been collected. Only once the plant design is fixed can the preparation phase commence.*

Project Schedule/Timetable	
DNA Approval	*Has this project been submitted to the DNA for approval previously?* *The project submitted a Project Idea Note (PIN) on the 12/10/2010. A Letter of No Objection (LoA) was received on the 04/11/2010.*
Approval by other bodies	*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.* The project has been submitted to Eskom for a connection quote. It has also been submitted to the Department of Environmental Affairs for EIA approval.

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.
- EnBW, a European energy provider, is a shareholder in G7 and is interested in acquiring the CERs from this wind power project. This, in itself, represents a foreign investment in South Africa.
- 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 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 both a country and a provincial 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. The project will contribute to the Western Cape's target of 15% of its electricity mix from renewable energy by 2014.
- 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. This, in turn, will reduce the negative impact that the carbon tax may have on the economy.

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 15 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.
- A portion of the proceeds from the sale of the electricity will be used to supplement the income of marginal farms as the Landowners will receive payment for the use of their land during the operational phase.
- The project acts to stabilise and support the grid as the electricity produced will be fed onto the grid at the end of the feeding line. This will assist in securing the supply of electricity to the local community and reducing supply interruptions.

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

The project developers are in the process of conducting an Environmental Impact Assessment (EIA) for the project in accordance with the National Environmental Management Act (NEMA). 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 water. This is in direct contrast to the generation of electricity from coal.
- The footprint of the turbines is relatively small and this will allow for the day-to-day farming activities to continue undisturbed. The placement of wind turbines and associated infrastructure will take existing site activities into account to limit disruption to agricultural activities.
- 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.

An environmental and social screening study was completed which identified potential noise, visual and landscape impacts and flora, fauna and bird life impacts. These impacts were assessed through a number of specialist studies during the EIA process and mitigating actions were put in place to ensure that the impacts are managed and reduced where possible. The final EIA has been submitted to the Department of Environmental Affairs for approval.

i) That the **disturbance of ecosystems and loss of biological diversity** are avoided, or where they cannot be avoided, are minimised and remedied	*The proposed project will be located on Klipheuvel (Farm 5/390) and Bird Field (Farm 99/306) farms, approximately 6 km south of the town of Klawer in the Western Cape Province. The site has existing roads or farm tracks that will be upgraded as part of this project. Apart from the existing roads, the land is largely undisturbed farm land.* *The project will have 12 wind turbines on the site. Each turbine stands 105 metres off 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 farm, the following will have to be constructed:*

	• *Upgrade of existing public roads and upgrade and construction of farm roads.* • *An office and storage building with security and ablution facilities will be constructed on the site.* • *A permanent wind measuring mast of up to 80 metres will be erected to monitor wind speeds.* • *A substation to connect the facility to the national electricity grid via existing transmission lines.* *The plant will be operated remotely and the daily farm activities will not be affected by the project activity as the turbines have a relatively small footprint and low noise levels.* *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 by fully rehabilitated.* *In accordance with the National Environmental Management Act, the project developers have undertaken 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 put in place to minimize and mitigate the risks. Final submission of the EIA has been made to Department of the Environmental Affairs.*
ii) That **pollution and degradation of the environment** are avoided, or where they cannot be altogether avoided, are minimised and remedied	*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.* *The project site is currently farm lands. The project activity requires that the following infrastructure is erected:* • *12 concrete foundations (each 5 metres by 5 metres);* • *Upgrade of public roads and upgrade and construction of new farm roads;* • *Office and storage building with security and ablution facilities;* • *A new substation;* • *An 80 metre high wind measuring mast; and* • *Site fencing.* *Once the wind power plant is decommissioned, the land will be completely rehabilitated.* *The daily activities of the farm will continue once the power plant is operational. The footprint of the power plant is so small that it will not interfere with the farming activities.*
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	*The wind power plant will be constructed on farm land. This farm 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 a great deal of infrastructure.* *In addition, the project has a small footprint which means that most of the land on the farms will remain largely undisturbed. The farmers can continue their daily farming operations whilst the wind farm continues to operate.* *The land will be fully rehabilitated once the wind power plant is decommissioned.*

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	*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.* *In construction and decommissioning phases of the project, any waste generated will be disposed of in a responsible manner.*
v) That **the use and exploitation of non-renewable resources is responsible and equitable**, and takes into account the consequences of the depletion of the resource	*The project will use wind energy to produce electricity. Wind is a renewable resource. The electricity produced by the project will be fed onto the South African national electricity grid.* *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.*
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 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.*
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 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).* *The EIA described 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.*
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 project developers conducted an Environmental Impact Assessment (EIA) for the project. A large part of the EIA process involved consultation with relevant stakeholders including the surrounding communities. This rigorous process ensured that the concerns of the stakeholders were adequately addressed. The process allowed the stakeholders to participate in the design of the project and the Environmental Management Programme (EMP).* *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.* *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 to produce electricity. Coal requires a significant amount of water to mine and process.* *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 by 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. Currently, many project developers are experiencing challenges securing electricity from the national grid for their future developments. This project will contribute to the grid capacity and allow for these developments to proceed.

Other comments

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

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 and local 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; and
- The Western Cape Provincial renewable energy target of 15% by 2014.

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 has positive impacts on local environmental quality. These impacts are listed below: • 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. • 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. • 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. • The project will not have any major noise, safety or traffic impacts. However, as the wind turbines stand 105 metres tall, they will be visible. The project will comply with all environmental requirements in terms of visibility for a wind power plant.
	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 encourages the use of renewable resources and has the following benefits in terms of sustainable usage of natural resources: • 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. • 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. • The project will utilise a renewable resource and encourage the generation of renewable energy in South Africa.

Indicators in Support of the Project Approval Criteria			
Category		**Indicator**	**Comment**
	Impacts on biodiversity and ecosystems	• Changes in local or regional biodiversity arising from the project	According to the results of an initial environmental screening, the project may have the following impacts on biodiversity and ecosystems: • The proposed site is an existing farm and is zoned for agricultural use. The project developers will take the existing activities and operations of the farm into account when designing the wind power plant. In addition, the footprint of the wind turbines is small so it should not impact on farm activities. • There are several vegetation types that may be affected by the installation of the wind power plant and associated infrastructure. The wind power plant may impact on birdlife and other fauna. Specialist studies were completed as part of the EIA process. These studies identified the extent of the impact and measures were put in place to mitigate and manage the impacts.

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 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. A portion of the revenue from the sale of the electricity will be used to pay the landowner. This will supplement the income of marginal farms. A portion of the revenue has also been allocated to initiating and promoting community development programmes. • The project has already attracted foreign direct investment in the form of EnBW's investment in local project developer, G7. EnBW is a shareholder in G7. • 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.
	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 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 15 people will be employed in the project. These people will be trained to maintain the wind power plant. The project can be replicated in areas where significant wind resources have been identified such as the Western and Northern Cape. In fact, G7 have identified four other potential sites where they will be developing wind power plants.

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 contribute to development and is in line with national and provincial development policies in the areas of renewable energy and carbon emissions. The project contributes to the following policies:
			  • 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 Western Cape Provincial Target of sourcing 15% of its electricity from renewable energy by 2014.
			• The project will assist in stabilizing the national grid which in turn will improve security of supply to the local community and reduce outages.
			• 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).

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 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. In the operational phase of the project, approximately 15 permanent jobs will be created for maintenance. This workforce will receive the training required to maintain the wind turbines.
			• The project should not impact significantly on community social structures. The project will impact on the community in the following ways:
			  • Creation of jobs will assist with poverty alleviation;
			  • A portion of the revenue from the sale of electricity will be used to fund community development programmes and a portion of the revenue will be given to the landowner; and
			  • The stabilization of the national grid will assist in reducing outages and increasing security of supply to the local community.
			• The project will assist with security of electricity supply to the local community and reduce electricity outages by stabilizing the national electricity grid.

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?	The distributions of the project benefits are reasonable and fair. A portion of the revenue from the sale of the electricity will go to the landowner (farmers) and will assist in supplementing the income of marginal income farms.

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. The project design is being finalised.
Installed Costs (R's)	
Other Costs (R's)	
Total Project Costs (R's)	
Sources of Finance	
Equity	*Name of Organisation(s) and amount (R's) contributed by each*
Debt (long term)	*Name of organization(s) and amount (R's) for each*
Debt (short term)	N*ame of organization(s) and amount (R's) for each*
Amount not identified (R's)	*Amount (R's) and a brief summary of the needs and any outstanding issues* *(1 paragraph or less)*
Total CDM Contribution sought	*Amount (R's) and a brief summary of the needs and any outstanding issues* *(1 paragraph or less)*
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)	 *Price? (R's)* *Price? (R's)* *Price? (R's)*
Indicate the **projected Internal Rate of Return** for the project with and without CER revenues.	*Note: Please indicate assumed price of CER as used in your calculation*

Constraints on tradability of carbon credits	*Have any commercial arrangements been made that may impact the tradability of the carbon emission reductions?* *EnBW, a leading European energy provider, has invested in G7 for the purpose of acquiring the carbon credits and co-developing the project.*
Preliminary discussions with potential purchasers	*Have you had any preliminary discussions with any potential purchasers of the carbon credits (CERs)* *The project developers have not had any preliminary discussions with carbon credit (CER) buyers. EnBW, a leading European energy provider, has invested in G7 for the purpose of acquiring the carbon credits after having co-developed the project.*