Clean Development Mechanism South Africa
Designated National Authority

energy
Department:
Energy
REPUBLIC OF SOUTH AFRICA

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

NOTES ON COMPLETING THIS PROJECT DESIGN DOCUMENT

1. Please provide this PDD in both hard-copy

Part A: Project Proponent Details

Project Name	Cogeneration and/or trigeneration at commercial sites
Date of Submission of PDD	12 January 2012

Project Developer	
Name	*Mobile Telephone Networks (Pty) Ltd*
Organizational Category	Private Company
Legal Status	Limited company
Street Address	216 14th Ave, Fairland Phase 1 Innovation centre Johannesburg Gauteng 2118 South Africa
Postal Address (if different from above)	
Website Address	http://www.mtn.co.za
Main Activities	Information - Telecommunications - Wireless Telecommunications Carriers (except Satellite)

Summary of Financial Performance in last fiscal year	*Year over year, MTN Group Limited has seen little change in their bottom line. Please see MTN's financial statements, which can be found in MTN's annual reports on* http://www.mtn.com/Investors/Financials/Pages/annualreports.aspx.
Contact Person(s)	Pierre Lombard
Telephone	+27 11 912 3000
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Email Address	lombar_p@mtn.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	
Nature of partner	
Organizational Category	
Legal Status (if private company)	
Street Address	
Postal Address (if different to Street Address)	
Website Address	
Main Activities	
Contact Person(s)	
Telephone	
Fax	
Email Address	
Contractual Arrangements	
Contractual arrangements between various entities involved	

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

Technical Summary of the project	
Objective of the Project	The objective of the project is to reduce greenhouse gas emissions by reducing electricity imported from the grid by replacing it with cogeneration and/or trigeneration projects. These projects will see the simultaneous production of electricity and cooling and/or heating, from a single fuel source – methane-rich natural gas. Each small-scale CDM programme activity (CPA) will cover a single commercial site, and will result in energy savings up to 60 GWh per year.

Technical Summary of the project

Project Description

The project activity (part of project site) involves installation and operation of a new 2.136 MWe Natural Gas based tri-generation unit to meet the captive requirement of power, cooling and heating at the project site of MTN. The project activity is installation of the tri-generation unit at an existing site of MTN.

Project Constraints

Are there any constraints affecting project operations or commissioning?

No.

Technology to be employed	Due to the nature of the project, i.e. it is not a technology specific PoA, the particular technology providers are not specified. However examples of potential technology providers are listed below. This is the technology that will be employed in CPA1. *Power generation* The electricity at the trigeneration plant will be generated by two internal combustion engines. The internal combustion engines are spark ignition engines operating on the same principles as normal petrol engines. The engines are sourced from GE Jenbacher in Austria, an annex-1 country. Therefore, there will be a technology transfer from an industrial country in Europe to a developing country in Africa. *Cooling* The waste heat from the engines will be used to generate cooling at the trigeneration plant. The waste heat will be passed through three absorption chillers (which make use of a thermal-chemical process) to generate chilled water. The absorption chillers use lithium bromide, a refrigerant with no global warming potential (GWP). Therefore, the project activity complies with applicability criterion 9 in methodology AMS II.K. *Heating* A heat exchanger will be used to generate hating at the trigeneration plant. The cooling and heating at the trigeneration plant will be automatically controlled to provide the required supply-water temperature conditions during summer or winter.

Technical Summary of the project	
Greenhouse Gases Targeted	CO_2
Emission reductions	15,284 tons CO_2e per annum
Baseline & Additionality Assessment	The baseline is the continuation of the business as usual scenario which is importing electricity from the grid. Barriers to the project that prove additionality include: • Investment barrier The cost of the project activity is significantly higher than the continuation of the current situation (which is importing electricity from the grid, and sourcing the building's heating and cooling requirements from conventional electric heaters and chillers). Although it is associated with higher emissions, importing electricity from the national grid is a viable alternative. The capital expenditure of this project activity is approximately R56 million. • Technological barrier Importing electricity from the national grid (the business as usual practice) is the least technologically advanced option with little risk as the electricity generation is spread over nine entities in the Southern African Power Pool. The distribution of natural gas, however, is only through SASOL. • Barrier due to prevailing practice It is standard practice in South Africa for commercial sites to use grid electricity for base load supply. There are no policies or schemes which supports cogeneration and/or trigeneration at commercial sites in South Africa. • Other barriers A telecommunications business such as MTN does not typically have the capacity to implement, operate and maintain electricity generating equipment. This CPA enables MTN to opt for an onsite trigeneration system. In the absence of the CDM, the proposed voluntary measure would not have been implemented.
Monitoring	The following data will be monitored at MTN: • Amount of grid electricity displaced by the project in year *y*. • Cooling output of baseline scenario chillers in year *y (ex-ante)* • The chilled water mass flow rate for chiller(s) i produced by the project in hour *h* of year *y*. • Differential temperature of inlet and outlet chilled water for chiller(s) *i* in hour *h* of year *y* of incoming and outgoing water from project • The water mass flow rate from heater(s) during hour *h* in

Technical Summary of the project	
	year *y*. • Differential temperature of inlet and outlet hot water from heater(s) during hour *h* • Quantity of fuel consumed by the project activity in year *y* • Net calorific value of natural gas in year *y* • Emission factor of natural gas in year *y* • Quantity of electricity consumed by the project electricity consumption source *j* in year *y*
Type of project/activities	
a. Energy Supply	The chilled water/cooling; steam/hot water/heat; and electricity produced by the cogeneration and/or trigeneration system will be used on-site to meet all or part of the building's energy demand.
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 encompasses the following: • The MTN site (20 Watershed Close, Louwlardia), • The electricity grid for the purpose of calculating the grid emission factor.	
Indicate Emissions outside the Project Boundary	Not applicable

Location of the Project	
Province	Gauteng
Municipality	Centurion
Nearest city/large town	20 Watershed Close, Louwlardia
Brief description of the location of the project site	The GPS co-ordinates for the site are: S 25^0 54' 57.8" E 28^0 10' 20.2"

Project Schedule/Timetable	
Earliest Project Start Date	July 2011
When is the expected first year of CER delivery	January 2013

Project Schedule/Timetable	
Project Lifetime	The life time of the facility exceeds the 10 year period of this project activity.
Project End Date	October 2021
Crediting Period	10
Current Status or phase of the project	Actions already commenced. The project is being implemented.
DNA Approval	No.
Approval by other bodies	No.

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

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

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

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

South Africa's national electricity provider, Eskom, carried out planned electricity supply interruptions at the beginning of 2008. These interruptions were caused by the demand for electricity exceeding the supply of electricity. During the interruptions, grid electricity was not accessible. Developing a trigeneration project at MTN Centurion will reduce the pressure on energy infrastructure, thereby making important contributions the country's economic sustainability.

There will also be a transfer of knowledge from the country's supplying the technology to South Africa.

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

The programme will create jobs in the construction and operations phases of the programme. The project will create approximately 13 jobs in the operations phase. The number of temporary jobs created in the construction phase has not been estimated, but similar projects estimate that the number of temporary jobs created is around 100 jobs.

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

Please provide **brief** comment for each of these below.	
i) That the **disturbance of ecosystems and loss of biological diversity** are avoided, or where they cannot be avoided, are minimised and remedied	There is no disturbance of ecosystems and loss of biological diversity in this project.
ii) That **pollution and degradation of the environment** are avoided, or where they cannot be altogether avoided, are minimised and remedied	There are no pollution and degradation of the environment in this project.
iii) That the **disturbance of landscapes and sites that constitute the nation's cultural heritage** is avoided, or where it cannot be altogether avoided, is minimised and remedied	There will be no disturbance of landscapes and sites that constitute the nation's cultural heritage in this project.
iv) That **waste is avoided**, or where it cannot be altogether avoided, minimised and reused or recycled where possible and otherwise disposed of in a responsible manner	There is no waste in this project.
v) That **the use and exploitation of non-renewable resources is responsible and equitable**, and takes into account the consequences of the depletion of the resource	The project will reduce electricity consumption from a predominantly coal-fired grid. The use of this natural gas resource is responsible and equitable.
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.	There is no use of renewables in this project.
vii) That **a risk averse and cautious approach** is applied, which takes into account the limits of current knowledge about the consequences of decisions and actions	A reputable electrical engineering firm is being used for project implementation.
vii) That **negative impacts on the environment and on people's environmental rights** be anticipated and prevented, and where they cannot be altogether prevented, are minimised and remedied	The impacts on the environment are improved by implementing this project.
Other comments **Please provide any other comments on how this project contributes to sustainable development in South Africa (**optional)	

Indicators in Support of the Project Approval Criteria			
Category		**Indicator**	**Comment**
Environmental	Impact on local environmental quality	• Impact of the project on air quality • Impact of the project on water pollution • Impact of the project on the generation or disposal of solid waste • Any other positive or negative environmental impacts of the project (such as impacts on noise, safety, visual impacts, or traffic)	• The project will improve air quality by reducing greenhouse gas emissions. • There will be no water pollution in this project • There will be no generation of solid waste, or disposal thereof in this project • The overall impact of this project on the local environmental quality is positive.
	Change in usage of natural resources	• Impact of the project on community access to natural resources • Impact of the project on the sustainability of use of water, minerals or other non renewable natural resources • Impact of the project on the efficiency of resource utilisation	• The project will reduce coal usage in South Africa and as a non-industrial user has little impact on the use of natural gas.
	Impacts on biodiversity and ecosystems	• Changes in local or regional biodiversity arising from the project	• This project has no influence on the local or regional biodiversity.

Indicators in Support of the Project Approval Criteria			
Category		**Indicator**	**Comment**
Economic	Economic impacts	• Impact of the project on foreign exchange requirements • Impact of the project on existing economic activity in the area • Impact of the project on the cost of energy • Impact of the project on foreign direct investment	• The project will contribute to foreign reserve earnings for South Africa via the carbon credit sales revenue. • The project will increase the cost of energy at MTN. Carbon credits revenue will however offset the increased cost.
	Appropriate technology transfer	• Positive or negative implications for the transfer of technology to South Africa arising from the project • Impacts of the project on local skills development • Demonstration and replication potential of the project	• The project is replicable and interest has been received from other commercial institutions, hospitals and an airport.

Indicators in Support of the Project Approval Criteria			
Category		**Indicator**	**Comment**
Social	Alignment with national provincial and local development priorities	• How the project is aligned with provincial and national government objectives • How the project is aligned with local developmental objectives • Impact of the project on the provision of, or access to, basic services to the area • Impact of the project on the relocation of communities if applicable • Contribution of the project to a any specific sectoral objectives (for example, renewable energy targets)	• The project will increase the use of renewable energy and reduce greenhouse gas emissions. This will help reach the target the South African government committed to; the reduction of the country's emissions by 34% from business as usual.

Indicators in Support of the Project Approval Criteria			
Category		**Indicator**	**Comment**
	Social equity and poverty alleviation	• Impact of the project on employment levels? (specify the number of jobs created/lost; the duration of time employed, distribution of employment opportunities, types of employment, categories of employment changes in terms of skill levels and gender and racial equity) • Impact of the project on community social structures • Impact of the project on social heritage • Impact of the project on the provision of social amenities to the community in which the project is situated • Contribution of the project to the development of previously underdeveloped areas or specially designated development nodes	The programme will create jobs in the construction and operations phases of the programme.

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

Part D: Finance

Project Costs	
Development Costs (R's)	Not available
Installed Costs (R's)	Not available
Other Costs (R's)	Not available
Total Project Costs (R's)	Not available
Sources of Finance	
Equity	Not available
Debt (long term)	Not available
Debt (short term)	Not available
Amount not identified (R's)	Not available
Total CDM Contribution sought	Not available
Expected Price of CER in case of a contract to purchase for: A period of 7 years A period of 10 years A period of 14 years (2x7 years)	Not available
Indicate the **projected Internal Rate of Return** for the project with and without CER revenues.	Not available
Constraints on tradability of carbon credits	*Have any commercial arrangements been made that may impact the tradability of the carbon emission reductions? If yes, please define.Note. Examples would be subjection to a mortgage, government tax etc.* *None*
Preliminary discussions with potential purchasers	*Have you had any preliminary discussions with any potential purchasers of the carbon credits (CERs)* *If yes, please give brief details.* This is confidential, however only preliminary discussions were undertaken.