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	The Consteel energy efficiency project at Cape Gate, South Africa
Date of Submission of PDD	31 January 2012

Project Developer	
Name	*Cape Gate (Pty) Ltd*
Organizational Category	Private Company
Legal Status	Limited company
Street Address	3 Nobel Blvd, NE3 Vanderbijlpark 1911
Postal Address (if different from above)	P.O. Box 54 Vanderbijlpark 1900
Website Address	http://www.capegate.co.za/
Main Activities	Produce steel.
Summary of Financial Performance in last fiscal year	*Not available.*

Contact Person(s)	Geoff Holmes
Telephone	+27 16 980 2342
Fax	
Email Address	HolmesG@capegate.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	Nedbank Capital
Nature of partner	*Carbon credit buyer*
Organizational Category	*Private company*
Legal Status (if private company)	*Limited company*
Street Address	135 Rivonia Road, Sandton, Johannesburg
Postal Address (if different to Street Address)	
Website Address	www.nedbank.co.za
Main Activities	Banking
Contact Person(s)	Nelis Engelbrecht
Telephone	Work:021 416 6000 Cell: 0828824593
Fax	
Email Address	NelisE@Nedbank.co.za
Contractual Arrangements	
Contractual arrangements between various entities involved	*Nedbank is the buyer of the CERS*

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

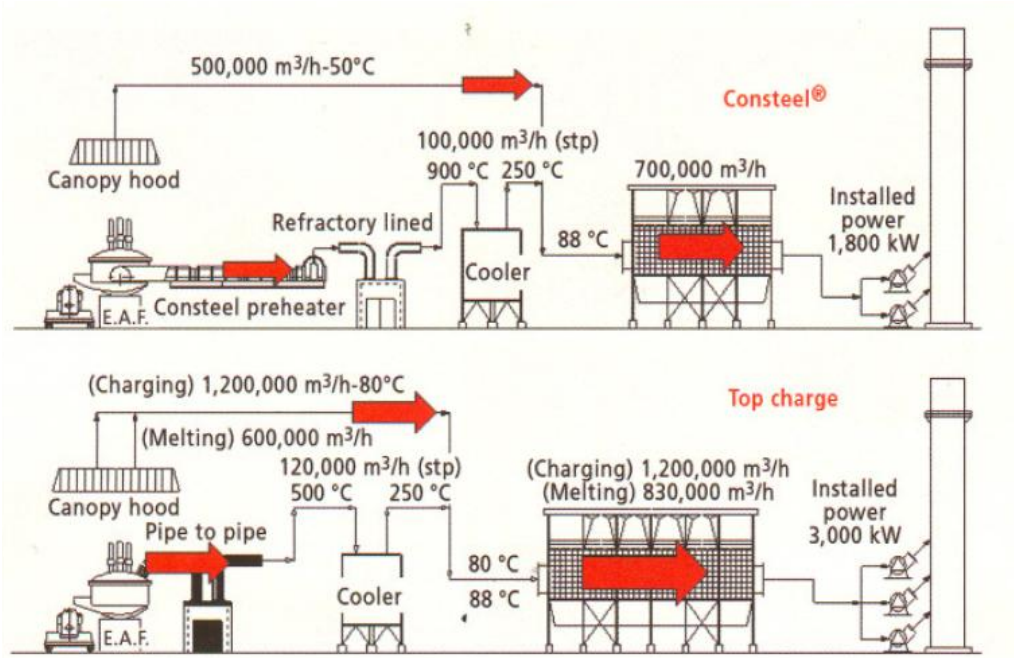
Technical Summary of the project	
Objective of the Project	This project reduces the energy intensity of steel production, which leads to a reduction of Green House Gas (GHG) emissions from the baseline, which is the business as usual steel production.

Project Description

For the project activity, all the pre-project scenario equipment is still intact and working. The only difference is the addition of the energy efficient Consteel system.

Energy efficiency in the Consteel system is achieved by using the hot exhaust gasses of the furnace to pre-heat the feed going into the furnace. The system is supplied by Tenova Melt Shops. It is the only commercial process that continuously feeds and preheats the charge to the EAF while simultaneously controlling the gaseous emissions (Tenova Melt Shops, 2009). The Consteel system is a retrofit/modification to the existing EAF at Cape Gate and was commissioned in January 2010.

In general, the Consteel process consists of a conveyor belt which carries the scrap steel used as raw material in the steel making process through a tunnel, down to the EAF through a hot heel. The conveyor belt continuously transports the scrap steel charge to the EAF, while the charge is preheated by off gases leaving the furnace. The preheating of the raw material to the EAF is one of the main differing characteristics with other steel production methods. After the hot gasses was used to preheat the scrap steel, it is sent to a fume-cleaning plant where carbon monoxide and pollutants are burned in a combustion chamber without consuming fuel (Tenova Melt Shops, 2009).



Off-gas treatment in a Consteel plant, compare to a conventional EAF plant (Memoli & Ferri, 2008).

Technical Summary of the project	
Project Constraints Are there any constraints affecting project operations or commissioning? No.	
Technology to be employed	Consteel technology provided by Tenova.
Greenhouse Gases Targeted	CO_2
Emission reductions	30,066 tons CO_2e per annum
Baseline & Additionality Assessment	The baseline is the continuation of the business as usual scenario. This is a first-of-its-kind project in South Africa, and therefore is additional.
Monitoring	The following data will be monitored at Cape Gate: • Electricity consumption of the Melt Shop • Steel Billet production of the Melt Shop
Type of project/activities	
a. Energy Supply	Not applicable
b. Energy Demand	This is an energy efficiency project and will reduce the requirement of electricity per ton of steel produced.
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 The project boundary encompasses the following: • The Melt Shop on the Davsteel site at Cape Gate. • 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 Province
Municipality	Emfuleni
Nearest city/large town	Vanderbijlpark
Brief description of the location of the project site	The project site activity is located at the co-ordinates: 26.6627458781°S, 27.854175223°E

Project Schedule/Timetable	
Earliest Project Start Date	24 April 2008
When is the expected first year of CER delivery	October 2012
Project Lifetime	The life time of the equipment exceeds the 10 year crediting period of this project activity. If maintained the equipment has an almost infinite lifetime. This is substantiated by expert opinion in supporting documentation as stated in the PDD.
Project End Date	October 2022
Crediting Period	10
Current Status or phase of the project	Actions already commenced. The project has already been 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. Promoting energy efficiency in South Africa will reduce the pressure on the current energy infrastructure, thereby making important contributions the country's economic sustainability.

There will be a transfer of knowledge from the countries supplying the energy efficient technology to South Africa, and the project will contribute to foreign reserve earnings for South Africa via carbon credit sales revenue.

With the new technology, local skills will be developed. This project also has the potential to be replicated at other steel manufacturers in South Africa.	
2. Social: Does the project contribute to social development in South Africa? The programme created 30 jobs in the construction phase. The implementation of the project improved the working conditions of the people operating the furnace.	
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. The project has a positive impact on the local environmental quality when compared to the baseline technology. The Consteel technology reduces noise, dust, and other furnace off-gas pollutants.
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	The waste is reduces over the baseline technology. Dust and waste heat is considerably reduced.
v) That **the use and exploitation of non-renewable resources is responsible and equitable**, and takes into account the consequences of the depletion of the resource	There is no direct use of non-renewable resources in this project. The project will indirectly reduce coal utilisation, by implementing energy efficiency and thereby decreasing the electricity required per ton of steel produced. Electricity production in South Africa is largely coal based.
vi) That the **development, use and exploitation of renewable resources are responsible and equitable**, and take into account the consequences of the depletion of the resource.	There is no use of renewable resources 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	This project is carried out in a risk averse and cautions manner. All employees working on this project received the necessary training to operate the equipment. Safety is enhanced when compared to the old plant. There is no more manned loading of the furnace, and less noise in the factory.
vii) That **negative impacts on the environment and on people's environmental rights** be anticipated and prevented, and where they cannot be	By implementing this project, the impacts on the environment are improved over the baseline environmental impacts. The immediate environment is improved by the project by the reduction in dust, emissions, and noise. There is also a reduction in electricity usage, which

altogether prevented, are minimised and remedied	in South Africa, means a decrease in coal consumptions, and therefore a reduction in all the negative impacts associated with coal power production and coal mining.
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 over the baseline technology. • The implementation of this project will have no impact on water pollution. • The implementation of this project will have no impact on the disposal of solid waste. • The overall impact of this project on the local environmental quality is positive. The project will reduce noise, dust, and emissions.
	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 has no impact on community access to natural resources. • The project has no impact on the sustainability of use of water, minerals or other non renewable natural resources • The project will indirectly increase the efficiency of coal utilisation, by implementing energy efficiency and thereby decreasing the electricity required per ton of steel produced. Electricity production in South Africa is largely coal based.
	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 enable Cape Gate to produce larger quantities of steel, and therefore can increase the economic activity in the area. • The project will have no impact on the cost of energy. • The project has no foreseen impact on foreign or direct investment.
	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	• There is a transfer of international technology to South Africa seeing as this is a first-of-its-kind project in South Africa. This is a positive impact seeing as this will help build a skill base in South Africa to operate this type of equipment. • The project will have a positive impact on skills development. • This project can easily be replicated at a similar steel smelter operations in South Africa.

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 is aligned with the energy efficiency white paper of South Africa. • The project has no impact on the project on the provision of, or access to, basic services to the area • The project has no impact on the relocation of communities • The project will 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 project created about 30 jobs in the construction phase, and also skills of the existing employees were developed. No jobs were lost.

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 project are generally acceptable, seeing as there are many benefits such as local job and skills development, as well as aligning with national energy efficiency and emission reduction targets. Distribution of the project's benefits is deemed to be reasonable and fair.

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	Not available
Preliminary discussions with potential purchasers	Not available