



**PROJECT DESIGN DOCUMENT FORM
FOR SMALL-SCALE CDM PROJECT ACTIVITIES (F-CDM-SSC-PDD)
Version 04.0**

PROJECT DESIGN DOCUMENT (PDD)

Title of the project activity	Grahamstown Invasive Biomass Power Project
Version number of the PDD	01
Completion date of the PDD	04/05/2012
Project participant(s)	Nollen Group Topec Waste 2 Energy B.V. Bunge Emissions Holdings SARL
Host Party(ies)	Republic of South Africa
Sectoral scope(s) and selected methodology(ies)	1. Energy industries (renewable sources) AMS-I.D. 'Grid connected renewable electricity generation' (Version 17)
Estimated amount of annual average GHG emission reductions	22562



SECTION A. Description of project activity

A.1. Purpose and general description of project activity

>> The purpose of the project activity is to utilize the invasive biomass for the generation of clean electricity. The electricity generated by the project activity will be supplied to the national electricity grid. The proposed project activity, “Grahamstown Invasive Biomass Power Project” (hereafter also referred as GIBPP) involves the installation of 3.5 MW biomass based power plant at Grahamstown, Eastern Cape of South Africa by Nollen Group, an Environmental Finance group based out of Netherlands.

The technology being employed in the project activity will comprise one 18 TPH biomass fired boiler and one 3.5 MW steam Turbo Generator Set. GIBPP involves the utilization of wood chips from Invasive Alien Plants (IAPs) as the sustainable biomass feedstock. The wood chips will be combusted in the boiler to produce steam at 45 kg/cm² and 450°C, this high pressure high temperature steam will be utilized to drive the steam turbine which drives the generator to generate the electricity.

The project activity will reduce the GHG emission by use of renewable (biomass) source for electricity generation in place of fossil fuels. The project activity will reduce the dependence on fossil fuel of the national electricity grid which is dominated by emission intensive coal based thermal power plants. The project activity will replace equivalent amount of energy in the national electricity grid which is predominantly sourced from fossil fuel based power plants. South Africa transmits and distributes its electricity supply through a national electricity grid. Eskom is a power generating and distributing company which generates approximately 95% of the electricity used in South Africa, out of which 93% is generated from coal-fired power stations¹.

Since the project activity generates electricity through sustainable means, it will not cause any negative impact on the environment and there by contribute to climate change mitigation efforts.

Baseline scenario:

The project activity is the installation of a new grid-connected renewable power plant. Therefore, the baseline scenario is identified according to the applicable methodology:

“The baseline scenario is that the electricity delivered to the grid by the project activity would have otherwise been generated by the operation of grid-connected power plants and by the addition of new generation sources into the grid.”

The proposed project activity is a Greenfield project; therefore the pre-project scenario and the baseline scenario for the project are the same.

The project fulfils the national sustainable development criteria laid down by the Department of Minerals and Energy of South Africa and commitment to these aspects generally is demonstrated by GIBPP’s contribution to the municipality’s Local Economic Development department efforts to establish a Green Economy, whereby sustainable development aims are implemented by focusing on environmentally sustainable jobs².

Economic: The project will make a positive contribution to national economic development in different ways: employment generation, foreign investment through start up capital funding and the sale of CERs,

¹ Eskom’s coal-fired stations produced 215,940 GWh of electricity for the 2009/2010 year, while the total produced by Eskom stations was 232,812 GWh – Eskom Annual Report 2010. P1.

² Prudence Mini, 2010. *Establishing Grahamstown as a Green City*. Grocotts Mail Online, 6 July 2010. URL: <http://ghknow.co.za/stories/view/establishing-grahamstown-as-a-green-city>



contributing additional electrical capacity to the national electricity grid to unlock local development. Besides, the success of this project will encourage other investors to consider CDM opportunities in South Africa.

Social: The project promotes sustainable society and increases the long-term sustainability of energy production by decreasing dependency on fossil fuels. This project will generate jobs and create opportunities to develop capacities for alternative and renewable energy generation. It will also advance society's thinking about mitigating climate change.

Environmental: The project will positively affect all the relevant indicators provided for within environmental protection legislation³⁴, without any significant detriment to the ecosystem or biodiversity. The project helps mitigate climate change by reducing CO2 emissions through substitution of fossil fuels. Furthermore, the project has a positive impact on local air quality: it will decrease fossil fuel use and lead to a reduction in levels of sulphur dioxide. In addition, by removing the invasive biomass species from the land, the amount of water thus made available to indigenous species and to the water system generally has been well documented by the Working for Water programme, and this will have a profound impact on the local flora and fauna.

Technology Transfer and Transfer of Skills: The project will feature technology that is well known in South Africa but the technology will be used in a unique application i.e. the large-scale combustion of IAP biomass to generate renewable electricity. There will be significant skills transfer as the project's foreign operations and maintenance (O&M) provider will be training local staff to operate the facility.

A.2. Location of project activity

A.2.1. Host Party(ies)

>> Republic of South Africa

A.2.2. Region/State/Province etc.

>> Eastern Cape

A.2.3. City/Town/Community etc.

>> Grahamstown

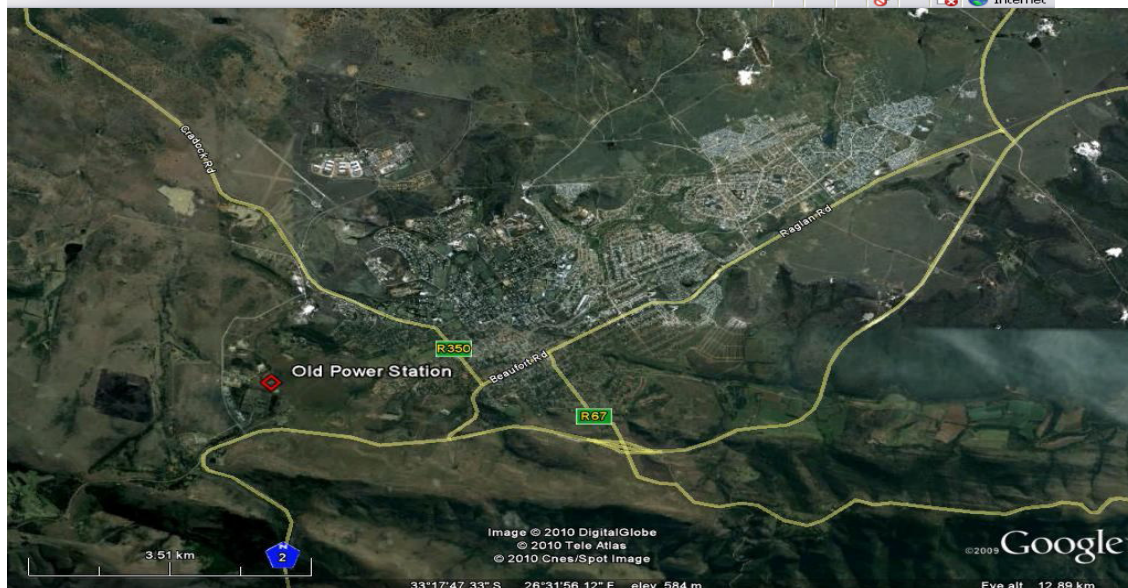
A.2.4. Physical/ Geographical location

>> The power plant will be located at the site of an original coal-fired power plant that used to supply electricity to Grahamstown and the surrounding area. The project site is situated about 2 km west of the centre of Grahamstown. Grahamstown is a small city approximately 100 km northeast of Port Elizabeth, in the Eastern Cape, South Africa (see the figure below⁵).

³ Atmospheric Pollution Prevention Act 45 of 1965 (last amendment in 1997) , p.14-26, available under: http://www.capetown.gov.za/en/EnvironmentalResourceManagement/publications/Documents/Atmosph_Poll_Prev_Act.pdf

⁴ National Environmental Management Act, 1998, available under: http://www.capetown.gov.za/en/EnvironmentalResourceManagement/publications/Documents/NEMA_1998.pdf

⁵ Source: http://iguide.travel/South_Africa#/Map



The geographical location of the proposed project power house is between Latitude 33° 18.917' S; Longitude 26° 29.758' E.

A.3. Technologies and/or measures

>> As defined under the version 17 of methodology, renewable biomass-based power generation systems are included in this category.

The project activity is a renewable energy project as it involves the utilization of wood chips from Invasive Alien plants (IAPs) as a fuel for the boiler. In accordance with the Para 2 of annex 18, EB 23; the IAPs⁶ biomass harvested for the project activity falls under the “woody biomass category” that originates from cropland and/or grasslands. Hence, the use of woody biomass in the project activity does not involve a decrease in carbon pool.

⁶ http://www.unep.org/training/programmes/Instructor%20Version/Part_3/readings/WfW_case.pdf,
<http://www.dwaf.gov.za/wfw/Control/docs/article1.2.pdf> (Also an annexure would be submitted justifying the same)



The technology used for the project activity is environmentally safe and sound.

Technology employed for the project activity

The proposed project activity involves the installation of one 18 TPH biomass fired steam boiler to generate high pressure (45 kg/cm²) and superheated (450 °C) steam. The entire quantity of the generated Steam will be supplied to the steam turbine at the above said pressure and temperature for power generation. The rated capacity of turbine is 3500 kW.

Technical Specification of Project Activity

S.No	Parameter	Specification
Boiler Specification		
1	Boiler Type	Traveling Grate bi-drum
2	Boiler Capacity	18 TPH
3	Steam Pressure	45 kg/cm ²
4	Steam Temperature	450° C ± 5 °C
Combustion System		
1	Combustion type	Traveling grate
2	Combustion temperature	850 ° C to 1050 ° C
Fuel		
1	Fuel Type	IAP Wood Chips
2	Fuel size	25 X 25 X 5 mm3
Turbo Generator Specification		
	Capacity	3.5MWe
1	Turbine Type	Multi Stage Condensing
2	Steam Pressure at the TG Inlet	43 Kg/cm2
3	Steam Temperature at the TG Inlet	435 °C
5	Generator Voltage	11kV
6	Generator Frequency	50Hz

The plant is designed with all other auxiliary systems like:

- Biomass Fuel handling system
- Ash handling system
- Air pollution control devices
- Water treatment system
- Compressed air system
- Fire protection system
- Complete electrical system for power plant including, instrumentation and control systems etc.

Being a Greenfield project; baseline scenario is identical to the scenario existing prior to the implementation of the project activity.

**A.4. Parties and project participants**

Party involved (host) indicates a host Party	Private and/or public entity(ies) project participants (as applicable)	Indicate if the Party involved wishes to be considered as project participant (Yes/No)
The Republic of South Africa (host)	Private entity A: Nollen Group	Yes
The Republic of South Africa (host)	Private entity B: Topec Waste 2 Energy B.V.	No
Switzerland (Annex 1 Party)	Private entity C: Bunge Emissions Holdings SARL	No

A.5. Public funding of project activity

>> There is no public funding involve in the project activity from Annex-1 countries.

A.6. Debundling for project activity

>>In accordance with the Project Standard Para 88; “GUIDELINES ON ASSESSMENT OF DEBUNDLING FOR SSC PROJECT ACTIVITIES” Annex 13 of EB 54 and Appendix C of “Simplified Modalities & Procedure for Small Scale CDM Project Activities” – ‘Debundling is defined as the fragmentation of a large project activity into smaller parts’.

As per Annex 13 of EB 54, Section A paragraph 2 - a proposed small-scale project activity shall be deemed to be a debundled component of a large project activity if there is a registered small-scale CDM project activity or an application to register another small-scale CDM project activity:

- With the same project participants;
- In the same project category and technology/measure;
- Registered within the previous 2 years; and
- Whose project boundary is within 1 km of the project boundary of the proposed small-scale activity at the closest point

The project proponents confirm that the proposed project activity is not a debundled component of a larger project activity. The project activity consists of independent small biomass power plant generating electricity and supplying to the national electricity grid. The project proponents have not registered any other small scale project activity in the previous two years, in the same project category and technology/measures and whose project boundary is within 1 km of project boundary of the small scale project activity.

**SECTION B. Application of selected approved baseline and monitoring methodology****B.1. Reference of methodology**

>> AMS-I.D. ‘Grid connected renewable electricity generation’ version 17⁷ (EB 61)

Tools referred in this methodology: “Tool to calculate the emission factor for an electricity system”, Version 02.2.1 (Annex 19, EB 63)⁸ (applicable for this project activity)

B.2. Project activity eligibility

>> Appendix B of the simplified Modalities & Procedures for small-scale CDM project activities provides indicative simplified baseline and monitoring methodologies for selected small-scale CDM project activity categories. In accordance with the para 81 & 82 of the project standard, the proposed project activity falls under Type I & category D. - Grid connected renewable electricity generation.

Justification of the category

Technology /Measure as per AMS-I.D.	Measure of project activity
<p>This methodology comprises renewable energy generation units, such as photovoltaic, hydro, tidal/wave, wind, geothermal and renewable biomass⁹:</p> <p>(a) Supplying electricity to a national or a regional grid; or</p> <p>(b) Supplying electricity to an identified consumer facility via national/regional grid through a contractual arrangement such as wheeling.</p>	<p>The proposed project activity is a biomass based power generation system (energy derived from renewable biomass). The project activity will be displacing the fossil fuel by using the renewable biomass fuel i.e. wood chips derived from IAPs¹⁰.</p> <p>The project activity therefore meets this applicability requirement.</p>
<p>As per table 2, AMS.I D, AMS-I.F, AMS-IA¹¹ is applicable for following project types:</p> <p>1.Project supplies electricity to a national/regional grid</p> <p>2.Project displaces grid electricity consumption (e.g. grid import) and/or captive fossil fuel electricity generation at the user end (excess electricity may be supplied to a grid)</p>	<p>The project activity will supply electricity to national grid. Hence, the project activity satisfies to the project type applicability condition 1 only of the table 2 given under the Methodology. The project activity therefore meets this applicability requirement and applicable to use AMS-I.D.</p>

⁷ http://cdm.unfccc.int/filestorage/V/9/L/V9LRSXKP24Q7YT6HZDUBO3C0ING8AJ.1/EB61_repan17_Revision_AMS-I.D_ver17.pdf?t=Y298bTIwODk5fDAbSYV7YesxdJBvYPOII7YL

⁸ <http://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-07-v2.2.1.pdf>

⁹ Refer to EB 23, annex 18 or the definition of renewable biomass.

¹⁰ In accordance with EB 23 Annex 18 as referred in footnote 9, the IAPs falls under the *woody biomass* category and therefore satisfies the renewable biomass applicability condition.

¹¹ AMS-I.D .Grid connected renewable electricity generation., AMS-I.F .Renewable electricity generation for captive use and mini-grid. and AMS-I.A .Electricity generation by the user.



Technology /Measure as per AMS-I.D.	Measure of project activity
<p>3. Project supplies electricity to an identified consumer facility via national/regional grid (through a contractual arrangement such as wheeling)</p> <p>4. Project supplies electricity to a mini grid system where in the baseline all generators use exclusively fuel oil and/or diesel fuel</p> <p>5. Project supplies electricity to household users (included in the project boundary) located in off grid areas</p>	
<p>This methodology is applicable to project activities that: (a) Install a new power plant at a site where there was no renewable energy power plant operating prior to the implementation of the project activity (Greenfield plant); (b) Involve a capacity addition¹²; (c) Involve a retrofit¹³ of (an) existing plant(s); or (d) Involve a replacement¹⁴ of (an) existing plant(s).</p>	<p>This is a Greenfield project activity, as there has been no renewable energy power plant operating by Nollen Group at the project site prior to the implementation of the project activity. The project activity therefore meets the applicability requirement (a) .</p>

¹² A capacity addition is an increase in the installed power generation capacity of an existing power plant through: (i) The installation of a new power plant besides the existing power plant/units; or (ii) The installation of new power units, additional to the existing power plant/units. The existing power plant/units continue to operate after the implementation of the project activity.

¹³ Retrofit (or rehabilitation or refurbishment). It involves an investment to repair or modify an existing power plant/unit, with the purpose to increase the efficiency, performance or power generation capacity of the plant, without adding new power plants or units, or to resume the operation of closed (mothballed) power plants. A retrofit restores the installed power generation capacity to or above its original level. Retrofits shall only include measures that involve capital investments and not regular maintenance or housekeeping measures.

¹⁴ Replacement. It involves investment in a new power plant or unit that replaces one or several existing unit(s) at the existing power plant. The installed capacity of the new plant or unit is equal to or higher than the plant or unit that was replaced.



Technology /Measure as per AMS-I.D.	Measure of project activity
<p>Hydro power plants with reservoirs¹⁵ that satisfy at least one of the following conditions are eligible to apply this methodology:</p> <ul style="list-style-type: none"> • The project activity is implemented in an existing reservoir with no change in the volume of reservoir; • The project activity is implemented in an existing reservoir¹⁶, where the volume of reservoir is increased and the power density of the project activity, as per definitions given in the Project Emissions section, is greater than 4 W/m²; • The project activity results in new reservoirs and the power density of the power plant, as per definitions given in the Project Emissions section, is greater than 4 W/m². 	<p>This applicability requirement is not relevant to the project activity as proposed project activity is a biomass based power generation project.</p>
<p>If the new unit has both renewable and non-renewable components (e.g. a wind/diesel unit), the eligibility limit of 15 MW for a small-scale CDM project activity applies only to the renewable component. If the new unit co-fires fossil fuel,¹⁷ the capacity of the entire unit shall not exceed the limit of 15 MW.</p>	<p>This applicability requirement is not relevant to the project activity as this is a Greenfield project activity and there is no non-renewable component attached to the project activity. Also, the installed capacity of the project activity is 3.5 MW which is less than the eligibility limit of 15 MW for a small scale CDM project activity. At any given point of time the capacity of said project activity shall not exceed 15 MW.</p>
<p>Combined heat and power (co-generation) systems are not eligible under this category.</p>	<p>The proposed project activity is a biomass based electricity generation project only. Therefore, this is not relevant to the project activity.</p>
<p>In the case of project activities that involve the addition of renewable energy generation units at an</p>	<p>This applicability requirement is not relevant to the project activity as it is a Greenfield activity which</p>

¹⁵ A reservoir is a water body created in valleys to store water generally made by the construction of a dam.

¹⁶ A reservoir is to be considered as an existing reservoir, if it has been in operation for at least three years before the implementation of the project activity.

¹⁷ A co-fired system uses both fossil and renewable fuels, for example the simultaneous combustion of both biomass residues and fossil fuels in a single boiler. Fossil fuel may be used during a period of time when the biomass is not available and due justifications are provided.



Technology /Measure as per AMS-I.D.	Measure of project activity
existing renewable power generation facility, the added capacity of the units added by the project should be lower than 15 MW and should be physically distinct ¹⁸ from the existing units.	does not involve any addition of renewable energy generation units at existing renewable energy power generation facility.
In the case of retrofit or replacement, to qualify as a small-scale project, the total output of the retrofitted or replacement unit shall not exceed the limit of 15 MW.	This applicability requirement is not relevant to the project activity since the project activity does not involve any retrofitting or replacement.

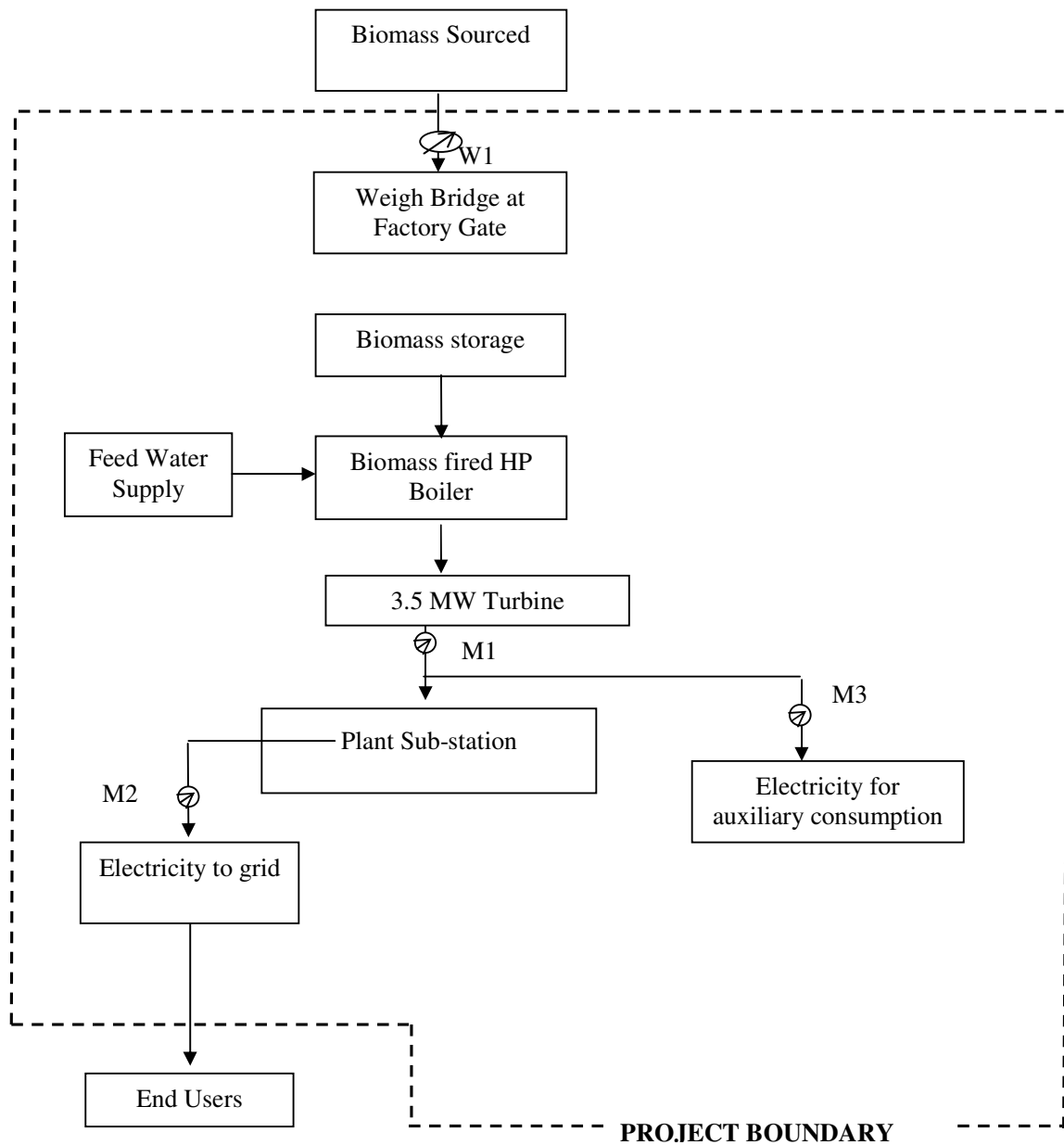
B.3. Project boundary

>> As per Paragraph 9 of the small-scale baseline methodology AMS-I.D., version 17: for Grid connected renewable electricity generation “The spatial extent of the project boundary includes the project power plant and all power plants connected physically to the electricity system that the CDM project power plant is connected to.”

Hence, the project boundary covers the point of fuel supply to the point of power export to the grid where the project proponent has a full control. Hence, project boundary is considered within these terminal points. However, for the purpose of calculation of baseline emissions, electricity grid is also included in the project boundary.

Thus, boundary covers fuel storage and processing, boiler, Steam Turbo Generator set and all other power generating equipments, captive consumption units and electricity grid.

¹⁸ Physically distinct units are those that are capable of generating electricity without the operation of existing units, and that do not directly affect the mechanical, thermal, or electrical characteristics of the existing facility. For example, the addition of a steam turbine to an existing combustion turbine to create a combined cycle unit would not be considered .physically distinct..



W1 = Weigh bridge at plant entry gate

M1 = Gross Energy Meter

M2 = Export/import Energy Meter at grid sub-station

M3 = Auxiliary consumption Energy Meter at plant site

The main greenhouse gas that is prevented from being emitted into atmosphere is CO₂ which would have otherwise been emitted from the fossil fuel fired power plants that are connected to the grid

**B.4. Establishment and description of baseline scenario**

>> In accordance with the project standard Para 41, the baseline scenario for the proposed project activity is established as per the paragraph 10 of the applicable methodology; *the baseline scenario is the electricity delivered to the grid by the project activity that would have been generated by the operation of the grid connected power plants and by the addition of new generation sources.*” In the proposed project activity the generated electricity would be supplied to the grid that in the absence of the project activity would have been generated by the operation of the grid connected power plants and by the addition of new generation sources.

Thus, as per the paragraph 11 of the methodology, “the baseline emissions are the product of electrical energy baseline $EG_{BL,y}$ expressed in MWh of electricity produced by the renewable generating unit multiplied by an emission factor”.

$$BE_y = EG_{BL,y} * EF_{CO2,grid,y}$$

Where:

BE_y - Baseline Emissions in year y; t CO₂

$EG_{BL,y}$ - Quantity of net electricity supplied to the grid as a result of the implementation of the CDM project activity in year y; MWh

$EF_{CO2,grid,y}$ - CO₂ Emission Factor in year y; t CO₂e/MWh

As per paragraph 12, ‘the emission factor can be calculated in a transparent and conservative manner as follows:

(a) A combined margin (CM), consisting of the combination of operating margin (OM) and build margin (BM) according to the procedures prescribed in the ‘Tool to calculate the emission factor for an electricity system’.

OR

(b) The weighted average emissions (in t CO₂e/MWh) of the current generation mix. The data of the year in which project generation occurs must be used.”

Based on the above this project has considered option (a) and the baseline emission factor has been calculated Ex-ante based on baseline methodology AMS-I.D. (Version 17). ‘Tool to calculate the emission factor for an electricity system’ version 02.2.1¹⁹ is used for emission factor calculation. In line with Para 4 of the Tool, a national grid definition should be used by default. Hence, the project electricity system is thus identified as the **national grid of Republic of South Africa**. Recent and publicly available data on power plants connected to the electricity system is published by the South African central utility Eskom. Eskom generates approximately 95% of the electricity used in South Africa and also operates the grid. Eskom data²⁰ are therefore appropriately represents the project electricity system.

The key parameters used to determine the baseline emissions are furnished below:

Parameter	Value	Units	Source
($EF_{CO2,grid,y}$) CO2 emission factor of the grid in year y	0.99	tCO ₂ /MWh	ESKOM 2011. <i>Eskom – Integrated Report 2011</i> . P109.
($EG_{BL,y}$) Quantity of net electricity	22790.586	MWh	Energy Meter at substation

¹⁹ [Tool to calculate the emission factor for an electricity system](#)

²⁰ Data used for the calculation combined margin grid emission factor is in line with the methodological footnote 11 requirement (1).



supplied to the grid in the year y			
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B.5. Demonstration of additionality

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The Para 10 of the applied methodology AMS-I.D version 17, prescribes the baseline scenario for the project activity. Therefore, the analysis²¹ of alternatives to the project activity is not required.

In accordance with project standard para 96 (a) ‘Attachment A to Appendix B²² of the simplified modalities and procedures’ and further following the “Non-binding practice examples to demonstrate additionality for SSC project activities” for small scale CDM project activities a simplified baseline and monitoring methodology listed in Appendix B may be used for a small-scale CDM project activity if project participants are able to demonstrate that the project activity would otherwise not be implemented due to the existence of one or more barrier(s) listed below:

- (a) Investment barrier:
- (b) Technological barrier:
- (c) Barrier due to prevailing practice:
- (d) Other barriers:

The barrier analysis for the identified project is detailed below:

Investment barrier:

In order to evaluate the profitability of the present project activity an investment analysis of the project activity has been conducted. As the project activity generates income other than the CDM benefits (revenues from the sale of electricity to the grid), Option I that is the Simple Cost Analysis cannot be applied in this case. Among the other two options-Investment Comparison analysis (Option II) and Benchmark analysis (Option III), benchmark analysis has been applied for investment analysis. The proposed benchmark for the project is considered post tax, therefore the project Internal Rate of Return (IRR), post tax, has been considered as the most suitable financial indicator for the project activity.

Selection of Benchmark

The benchmark of the project activity has been established in accordance with the guidance 12 & 15 of the “GUIDELINES ON THE ASSESSMENT OF INVESTMENT ANALYSIS”, version 5²³

Accordingly referring to the guidance(s) mentioned above, Weighted Average Cost of Capital (WACC) has been taken as the benchmark. The WAAC is the appropriate benchmark since the proposed project is financed by both equity and loan and WACC is the average of the costs of these sources of financing, each of which is weighted by its respective use in the given situation. WACC represents the weighted average of the costs of various sources of financing in the financial structure of the project.

The project IRR (Post -tax) of the project activity has been computed over a period of 20 years and then compared against a (WACC) benchmark return.

The WACC has been calculated as demonstrated below:

$$\text{WACC} = \text{CoE} * \{E/(E+D)\} + \text{CoD} * \{D/(E+D)\}$$

Where:

²¹ In compliance to Para 115 of the VVS.

²² EB63, Annex 24- Attachment A of Appendix B (version 8)

²³ Annex 05 of EB62



CoE – Cost of equity

CoD – Cost of Debt

E - Equity

D - Debt

CoE – Cost of Equity:

The cost of equity is the minimum rate of return that a business or organization must offer investors or owners to offset their wait for a return on investment and for assuming some level of risk. The cost of equity has been determined based upon the guidance 15 (a), Default values for the expected return on equity provided in the table under para 8 of the appendix. The table provides default values for the approximate expected return on equity for different project types and host countries. The values are expressed in percentages in real terms. The default value for the expected return on equity, for South Africa is 10.9 %.

As explained in para 7 of the Appendix of Annex 05 EB 62, Project participants have considered the inflation rate for converting the default real term value to the nominal values. The average forecasted inflation rate based upon the World Bank (IMF World Economic Outlook, April 2011 for the next five years after the start of the project activity has been considered to establish the benchmark for the project activity.

Hence, Cost of equity in real terms : 10.9%
 Cost of equity in nominal terms : 10.9% + 5.151%
 : 16.05%

The ***Cost of Debt*** has been considered as *Benchmark rate at which private banks lend out to the public* at the time of investment decision of the project activity. The rate available at the time of investment decision is 11.5%.²⁴

The ***Tax rate*** applicable in the host country at the time of investment decision is 28%.²⁵

The ***Debt Equity ratio*** has been considered as 50:50 , default debt equity financing in accordance with the guidance 18 of annex 5, EB 62 .

Using the formula and the parameters mentioned above, the benchmark [WACC] is determined to be 12.17%.²⁶

The IRR (Post - tax) for the project activity has been estimated over a period of twenty years, the results of which are detailed in Table below:

IRR with and without CDM funds and the benchmark

IRR (Post – tax) without CDM (%)	5.18%
IRR (Post - tax) with CDM (%)	7.13%
Benchmark	12.17%

²⁴ Source: Financial annexure of DPR.

²⁵ <http://www.sars.gov.za/home.asp?pid=289#Income%20ta>

²⁶ IRR Calculation and Benchmark calculation spread sheet would be submitted to DOE.

Comparison against the benchmark return of 12.17%

The project IRR (Post - tax) for the project activity without CDM revenue has been found to be well below the benchmark value of 12.17%. As apparent from the Table, the project IRR (Post-tax) improves only after accounting for the CDM revenue in its cash flow. However, not crosses the benchmark.

Sensitivity Analysis:

Sensitivity analysis has been conducted to the project activity by considering critical factors to reasonable variation to test the robustness of the conclusion drawn above. As per the EB62 Annex 5 guidance on investment analysis (para 20), those parameters which contribute more than 20% of either total project cost or revenue streams should be considered for sensitivity analysis. These factors shall be subjected to a reasonable variation. Therefore, as per para 21 of guidance on investment analysis, below parameters are subjected to +/- 10% from the base values which is a minimal required variation:

1. Generation
2. Tariff
3. Project cost
4. Fuel Cost
5. O&M Cost

Table: **Sensitivity analysis**

Parameter	-10%	Base Case	+10%
Generation	1.77%	5.18%	8.40%
Tariff	1.77%	5.18%	8.40%
Project cost	6.90%	5.18%	3.76%
Fuel Cost	6.90%	5.18%	3.45%
O&M Cost	5.67%	5.18%	4.69%

The financial analysis shows that the project activity is not financially attractive proposition, and the sensitivity analysis shows that it is unlikely to be financially attractive compared to the benchmark under reasonable variations in the assumptions. However, the revenue from the CERs will improve the financial feasibility of the proposed project.

Thus, in light of the above discussion it can be concluded that the project activity is not an economically attractive option without CDM revenues. The Project IRR with CDM benefits goes up to 7.13%, hence as apparent, the IRR for the Project activity improves with the consideration of CDM funds into the project cashflows, which would certainly alleviate the financial condition of the project upto to a certain extent.

Prior Consideration of CDM:

In accordance to Project standard Para 27 and as per the EB Guidelines 62, Annex 13 on the Demonstration and Assessment of Prior Consideration of the CDM - For a proposed CDM project activity with a start date on or after 2 August 2008, project participants shall inform the host Party's designated national authority (DNA) and the secretariat of their intention to seek CDM status in accordance with the Project cycle procedure.

Accordingly the UNFCCC and DNA have been informed of the commencement of the project activity and of their intention to seek CDM status.

CDM revenue has been considered during the project designing stage itself. Initially the project was designed for the 3 MW generation capacity; a detailed project study report has been prepared based on which Nollen Group had decided to develop the project as a CDM project. However, later on the EPC contractor and technical expert team found the possibility of 0.5MW increment in the installation



capacity of project activity and suggested Nollen Group to revise the project capacity to 3.5 MW. Therefore, the board of the company has finally approved the project as 3.5 MW biomass power project and CDM activities are being carried out for the same capacity.

The chronology of events including serious CDM consideration has been provided in the following table:

Chronology of events	Date
Received quotation from EPC contractor and biomass fuel supplier for 3 MW capacity	October 2009
Nollen Group's decision to develop 3 MW biomass based CDM project	December 2009
Appointment of CDM consultant for 3 MW project	June 2010
PP has conducted the local stakeholder consultation meeting for the CDM project activity	July 2010
Letter of No Objection received from the DNA in South Africa for 3 MW capacity	December 2010
Communication with the same EPC contractor regarding capacity increment and revised EPC quotation	February 2011
Revised EPC quotation has been submitted by the EPC contractor to the PP for a capacity of 3.5 MW	March 2011
Based on the discussion with the EPC contractor and their technical experts, an addendum report to the old DPR has been prepared to evaluated 3.5 MW capacity.	April 2011
The board of Nollen Group has passed the resolution to revise the project capacity from 3MW to 3.5 MW and also to find the prospective buyers for CERs	April 2011
Nollen Group terminated the contract with the previous CDM consultant	May 2011
Communication with the CER Buyers	October 2011
First Supply Agreement signed with EPC contractor for 3.5MW revised capacity	October 2011
Term Sheet Signed with the CER Buyer.	December 2011
Submission of Annex 13 of EB Report 62 – Prior Intimation to Secretariat and Host Country DNA.	February 2012
Communication with DOE for the validation of CDM Project	March – April 2012

The actual project is yet to be implemented on ground, whereas the CDM activities are being conducted as continuous and real actions to this project. The project proponent has signed an agreement with EPC contractor which has been considered as the project start date.

B.6. Emission reductions

B.6.1. Explanation of methodological choices

>> According to the para 23 of AMS-I.D. (version 17, dated 3rd June, 2011), the Emission Reductions for the project activity will be calculated using the following formula:

$$ER_y = BE_y - PE_y - LE_y$$

Where,

ER_y = Emission Reductions during the year y in tCO_{2e}

BE_y = Baseline Emissions during the year y in tCO_{2e}

PE_y = Project Emissions during the year y in tCO_{2e}

LE_y = Leakage Emissions during the year y in tCO_{2e}

Calculation of Baseline Emissions

As per para 11 of AMS-I.D. (version 17, dated 3rd June, 2011), baseline emissions (BE_y in tCO_{2e}) are the product of electrical energy baseline $EG_{BL,y}$ expressed in MWh of electricity produced by the renewable generating unit multiplied by the grid emission factor ($EF_{CO_2,grid,y}$).

$$BE_y = EG_{BL,y} * EF_{CO_2,grid,y}$$

Where,

BE_y = Baseline Emissions in year y (t CO₂)

$EG_{BL,y}$ = Quantity of net electricity supplied to the grid as a result of the implementation of the CDM project activity in year y (MWh).

$EF_{CO_2,grid,y}$ = CO₂ emission factor of the grid in year y (t CO₂/MWh)

Calculation of Project Emissions

According to para 20 of AMS-I.D. (version 17, dated 3rd June, 2011), *for most renewable energy project activities, $PE_y = 0$. However, for the following categories of project activities, project emissions have to be considered following the procedure described in the most recent version of ACM0002.*

- *Emissions related to the operation of geothermal power plants (e.g. non-condensable gases, electricity/fossil fuel consumption)*
- *Emissions from water reservoirs of hydro power plants"*

The project activity is neither a geothermal application and nor it is a hydro power project. This is only a biomass power project; therefore no project emissions are applicable to the proposed project activity. This project aims to generate electricity from the combustion of wood chips from invasive alien biomass, with the intention that indigenous renewable vegetation will replace the alien biomass removed. Since the removed renewable biomass will be ultimately be replaced by indigenous renewable vegetation, thus there would not be any difference in the carbon pool.



i.e., $PE_y = 0$

Calculation of Leakage Emissions

As per the (EB 47 Annex 28) general guidance on leakage in biomass project activities, for small scale CDM project activities involving renewable biomass, there are three types of emission sources that are potentially significant (>10% of emission reductions) and attributable to the project activities. These emission sources may be project emissions (if under the control of project participants, i.e. if the land area where the biomass is grown is included in the project boundary) or sources of leakage (if the source is not under control of project participants).

The renewable biomass for this project is wood chips derived from IAPs. As such the project does not trigger either 'A. Shifts of pre-project activities' or 'B. Emissions.' However, the project does trigger 'C. Competing uses for the biomass'. At present a very small percentage of the invasive alien biomass is utilized as fuel wood by local community members. It is expected that even in the presence of the project activity there will be a more than sufficient amount of additional biomass so that this practice is not negatively affected. Prior to undertaking this project Nollen Group commissioned Conservation Support Services (Pty) Ltd ("CSS"), a locally based GIS mapping company, to determine the exact amount of IAPs currently existing within a 50-kilometer radius of the project site. The results of CSS's report confirmed that there is at least 25% more biomass available in the region than will be utilized for the project activity:

- Middle biomass estimate 1 = 905,169 tons
- Middle biomass estimate 2 (windrows) = 122,092 tons
- Sum middle biomass estimate = 1,027,261 tons
- Project activity biomass usage over 21 years = 766,500 tons
- Surplus = 34%

These estimates do not take into consideration the inevitable re-growth of IAPs. It can safely be concluded that the quantity of available biomass in the region is at least 25% more than the quantity of biomass that is utilized including the project activity and this source of leakage can be neglected.

Leakage is only considered for this project if the energy generating equipment is transferred from another activity (AMS-I.D version 17, paragraph 20).

In this project the equipment will not be transferred from another activity and therefore the leakage emissions are given as:

Thus, leakage due to competing use of biomass is not accounted.

Hence, $LE_y = 0$

Emission Reductions:

According to equation no 2, the Emission Reduction is calculated by subtracting the project emissions from the baseline emissions

Thus, $ER_y = BE_y - PE_y - LE_y$

According to the methodology, leakage emissions have not been considered for the project activity.

Therefore, $ER_y = BE_y - PE_y$

**B.6.2. Data and parameters fixed ex ante***(Copy this table for each piece of data and parameter.)*

Data / Parameter	$EF_{CO_2, \text{grid}, y}$
Unit	tCO ₂ /MWh
Description	Weighted average emission of current generation mix
Source of data	Annual Reports – Electricity Utility Eskom
Value(s) applied	0.99
Choice of data or Measurement methods and procedures	The Electricity Utility Eskom generate 95% and distribute 100% of the electricity consumed on the South African national grid, thus the weighted average emission of their annual generation mix is considered to be representative. The figure is stipulated each year in the publicly available Eskom annual report. ESKOM 2011. Eskom – Integrated Report 2011.
Purpose of data	Used for the estimation of emission reduction from the project activity.
Additional comment	-

B.6.3. Ex-ante calculation of emission reductions

>>

Parameter	Value
Total Installed Capacity	3.5 MW
Plant Load Factor	91%
Operating hours	= 24 X 335 = 8040
Gross Generation (MWh)	25607.400
Aux. Consumption	11%
Aux Consumption (MWh)	=25607.40 X 11 % = 2698.080
Quantity of net electricity supplied by the project plant/unit to the grid in year y ($EG_{BL,y}$)	= 2816.814 MWh
Combined margin CO₂ emission factor for South African grid connected power generation in year y ($EF_{grid,CM,y}$)	0.99
Calculation of Baseline Emission	
Baseline emissions in year y (BE_y) tCO₂/year	= $EG_{BL,y} \times EF_{grid,CM,y}$ = 22790.586 X 0.99 = 22562.68 = 22562 (Rounded)
Project Emission	= 0
Emission reductions are calculated as follows:	
Emission reductions (ER_y) (t CO₂e/yr)	= $BE_y - PE_y - LE_y$ = 22562 – 0 – 0 = 22562

B.6.4. Summary of ex-ante estimates of emission reductions

Year	Baseline emissions (tCO ₂ e)	Project emissions (tCO ₂ e)	Leakage (tCO ₂ e)	Emission reductions (tCO ₂ e)
2013 - 2014	22562	0	0	22562
2014 - 2015	22562	0	0	22562
2015 - 2016	22562	0	0	22562
2016 - 2017	22562	0	0	22562
2017 - 2018	22562	0	0	22562
2018 - 2019	22562	0	0	22562
2019 - 2020	22562	0	0	22562
2020 - 2021	22562	0	0	22562
2021 - 2022	22562	0	0	22562
2022 - 2023	22562	0	0	22562
Total	225620	0	0	225620
Total number of crediting years	10			
Annual average over the crediting period	22562	0	0	22562

B.7. Monitoring plan
B.7.1. Data and parameters to be monitored

(Copy this table for each data and parameter.)

Data / Parameter	EG _{BL,y}
Unit	MWh
Description	Net electricity exported to the grid by the project activity in the year y
Source of data	Approved electricity metering equipment that provides import adjusted values.
Value(s) applied	22790.586
Measurement methods and procedures	The parameter will be monitored continuously on a real time basis ²⁷ and recorded monthly basis.
Monitoring frequency	Monitored continuously & recorded Monthly
QA/QC procedures	Measuring equipment will be certified to national standards and calibrated at least once every three years, according to the manufacturer's specifications.
Purpose of data	Used for the estimation of emission reduction from the project activity.
Additional comment	This data will be archived for crediting period + 2 years

²⁷ Net Electricity exported values are monitored on a continuous basis through dedicated energy meter installed at grid substation. The export and import values are measured automatically on a real time basis and import adjusted value will be provided which ensures hourly measurement as per methodology requirement of the methodology.



Data / Parameter	$EG_{gross,y}$
Unit	MWh
Description	Gross Electricity generated by the project activity in year y
Source of data	Turbine generator control panel
Value(s) applied	25607.400
Measurement methods and procedures	Continuous measuring integrated in controls of the turbine generator sets. The parameter will be monitored continuously on a real time base. The Gross Electricity generated by the project will be available as a parameter in the control panel.
Monitoring frequency	Monitored continuously & recorded Monthly
QA/QC procedures	Standard measuring equipment certified to national standards and calibrated at least once every four years, according to the manufacturer's specifications.
Purpose of data	To Cross check net electricity supplied to a grid.
Additional comment	This data will be archived for crediting period + 2 years

Data / Parameter	$EG_{Aux,y}$
Unit	MWh
Description	Auxiliary Electricity consumed by the project activity in year y
Source of data	Turbine generator panel, import/ export meter at grid station
Value(s) applied	2816.814
Measurement methods and procedures	Continuous measuring of Auxiliary Power integrated in controls of the turbine generator sets. The parameter will be monitored continuously on a real time base. In monitoring system protocol operator is required to note Auxiliary power
Monitoring frequency	Monitored continuously & recorded Monthly
QA/QC procedures	Standard measuring equipment certified to national standards and calibrated at least once every four years, according to the manufacturer's specifications.
Purpose of data	The Auxiliary electricity consumption shall be used for the cross check of net electricity supplied to the grid as per the applicable methodology requirement.
Additional comment	This data will be archived for crediting period + 2 years



Data / Parameter	Q_i
Unit	Tonne/annum
Description	The quantity, in tonnes, of biomass delivered to, or removed from, the power station with each delivery <i>i</i> .
Source of data	Electronic weighbridge and weigh belts.
Value(s) applied	Will be measured on actual, ex post value.
Measurement methods and procedures	All trucks delivering biomass to the power station will be weighed using the weighbridge, before and after offloading the delivery of biomass only. Any discarded biomass, unsuitable for combustion in the power station, must be removed from site by trucks and weighed using the weighbridge, before and after collecting the biomass to be discarded only.
Monitoring frequency	The parameter will be measured continuously as on receipt of biomass and reported on monthly basis
QA/QC procedures	The weighbridge will be calibrated frequently, according to the manufacturer's specifications. Calibration frequency for weighbridges is once every four years. Cross-check of measured quantity can be done by an annual energy balance that is based on purchased quantities (e.g. with sales/receipts) and stock changes.
Purpose of data	To Check the consistency of measurements ex post with annual data on energy generation,
Additional comment	This data will be archived for crediting period + 2 years



Data / Parameter	M_i
Unit	%
Description	The moisture content of the biomass at delivery i (measured <i>ex ante</i>)
Source of data	On-site laboratory testing.
Value(s) applied	Will be monitored ex-post
Measurement methods and procedures	Random testing will be applied to incoming biomass deliveries to confirm the moisture content of the biomass. As the biomass for this project is not commercially grown and is being harvested from the local community some variance is expected.
Monitoring frequency	The parameter will be measured continuously as on receipt of biomass and reported on monthly basis
QA/QC procedures	Laboratory testing will be done in accordance with international standards.
Purpose of data	Moisture content analysis will be performed for the sake of the boiler operator and for the cross check Energy balance calculation.
Additional comment	The biomass for this project is made up of a mix of species. The value to be accounted would be representative moisture content based upon the moisture contents of the various species weighted against their prevalence in the area.

Data / Parameter	C_i
Unit	GJ/kg
Description	The net calorific value of the biomass at delivery i .
Source of data	On-site laboratory testing.
Value(s) applied	Will be monitored ex-post and determined once in the first year of the crediting period.
Measurement methods and procedures	Random testing will be applied to incoming biomass deliveries to confirm the calorific value of the biomass. As the biomass for this project is not commercially grown and is being harvested from the local community some variance is expected.
Monitoring frequency	Parameter will be determined once in the first year of the crediting period by taking at least three samples quarterly for each measurement.
QA/QC procedures	Laboratory testing will be done in accordance with international standards.
Purpose of data	To Check the consistency of measurements ex post with annual data on energy generation,
Additional comment	The biomass for this project is made up of a mix of species. Moisture content analysis would be performed for the sake of the boiler operator. The net calorific value in GJ/kg would be derived as a representative calorific value based on the calorific values of the various species weighted against their prevalence in the area.

**B.7.2. Sampling plan**

>> Not Applicable, as the data and parameters monitored in section B.7.1 above are not to be determined by a sampling approach.

B.7.3. Other elements of monitoring plan

>> The monitoring plan, which will be implemented by the project proponent, describes about monitoring organization, parameters to be monitored, monitoring practices, QA and QC procedures, data storage and archiving policy in accordance with the simplified baseline and monitoring methodology AMS-I.D.

Parameters requiring monitoring:

1. Gross Electricity generated by the project activity
2. Auxiliary Electricity consumed by the project activity
3. Quantity of net electricity supplied to grid
4. Quantity of biomass consumed

Monitoring System:

The proposed monitoring system of the project consists of a supervisory computer and a PLC (Proportional Logic Control) power plant controller that receives information from all field instruments and controls the overall operation of the power station based on a control algorithm. This enables the power station to monitor power load demand called by the municipality by automatically adjusting biomass consumption, steam output from the boiler, and power output from the generator set. Alarms and set points are displayed on LCD display screens that allow operators the opportunity to locate problem areas and react to alarms. Integral to the PLC Control System algorithm is the ability of automatic shutdown of the entire power station if the operators do not take corrective action within a prescribed period of time, or if certain operating parameters have been exceeded beyond allowable safe values. The PLC control system is supervised by a computer that records operating parameters on an ongoing basis. This information is used to prepare monthly reports and/or assist operators with reporting to the municipality and government departments. As a supplementation of the PLC controller, a system consisting of the weighbridge and weigh belts is crucial too. The data recorded will be archived every two years over the ten-year crediting period.

Monitoring organization & Management structure for monitoring the emission reduction:

The plant manager and operators, as the key persons operating the project, will be trained in recordkeeping and reporting, overall maintenance, and emergency reaction. They will also be trained with environmental, health and safety issues. Their main responsibilities are:

- Operation of the biomass power station
- Online recording of operating parameters including biomass throughput, steam production, power output from the facility and online monitoring of emissions
- Reports on analysis on water use in the boiler and quality of ash generated
- Maintenance of the log book showing scheduled maintenance, emergencies and other incidents
- Compliance with statutory requirements and boiler certification
- Motivation for upgrades and replacement of boiler equipment
- Submission of reports on the state of the plant to Management
- Training and self-learning in relevant regulations, i.e. adherence to a site quality assurance plan; adherence to an environmental management plan and other conditions prescribed by the relevant government departments; South African Occupational Health and Safety Act (OHS Act); wearing of protective equipment (PPE); government regulations relating to the operation of high pressure vessels and boilers.



Data storage and archiving:

Additional to the computer-archived data, operators keep a manual log book where they record incidents and maintenance schedules, along with operator concerns that operators in follow up shifts need to be aware of.



SECTION C. Duration and crediting period

C.1. Duration of project activity

C.1.1. Start date of project activity

>> 20/10/2011 date of signing of EPC agreement.

C.1.2. Expected operational lifetime of project activity

>>20 years, 0 months

C.2. Crediting period of project activity

C.2.1. Type of crediting period

>> Fixed crediting period has been chosen

C.2.2. Start date of crediting period

>>01/01/2013, expected date of registration or date of commissioning whichever is later.

C.2.3. Length of crediting period

>>10 years, 0 months

**SECTION D. Environmental impacts****D.1. Analysis of environmental impacts**

>> Given the relatively small size of GIBPP, the project does not require an environmental impact assessment. This was confirmed in a letter from the regional Department of Economic Development, Environmental Affairs and Tourism.

No significant environmental impacts considered due to implementation of project activity by the host Party. Hence, no references or procedures specified here.

**SECTION E. Local stakeholder consultation****E.1. Solicitation of comments from local stakeholders**

>> An advertisement was placed in the Grocott's Mail (Grahamstown) on the 4th of June 2010 and in the Herald (Port Elizabeth) on the 7th of June 2010. Interested and Affected Parties (I&APs) were given four calendar weeks in which to comment on the proposed project. During this period, 15 I&APs were registered however, no negative comments were received.

E.2. Summary of comments received

>> The comments received about the project activity were documented and would be made available to DOE during validation. No comments on the CDM specific public consultation were received. A compilation is presented in the table below.

Stakeholders comments and PP response

Question/comment	Response
I&AP: I have enormous amount of alien vegetation on my property, are you proposing any contracts with land owners? It is not a once off job to remove alien vegetation – you need follow up programmes to ensure eradication is maintained. Who will be responsible for this and are you working in collaboration with working for water (WFW)	Yes, This can be discussed on a private basis. A follow up programme from Nollen Group is not financially viable – It is the responsibility of the farmer/landowner but this is a lengthy and expensive process .
I&AP: How did you determine the most effective alternative? Concern over secondary impacts such as ash being blown over nearby properties etc.	Discussions with engineers; no legislation limiting output for such a small power plant. However, strict standards adhered to. By burning biomass in power plant and pushing it through a filter you are actually decreasing pollution.
I&AP: Security concerns over people entering property especially with regard to stock theft	The scope of the Basic Assessment (BA) is for the power plant and indirect impacts dealt with, amongst others, concerned theft in the industrial area. The report will be updated and indirect impacts such as stock theft to landowners will be incorporated.
I&AP: What are the actual calculated emissions of CO ₂ ? What is the lifespan of the project.	The exact emissions can only be calculated once the power plant is complete. However, it is likely to be around 21000 to 24000 tCO ₂ . Anticipated to run for 20 years, although this time can be higher or lower depending on operational stages (e.g. Care & handling of equipment.
I&AP: What quantity of water saving will there be?	Alien vegetation utilizes enormous amounts of water and so it might be worth looking at the project from the angle of it saving water supplies. While 75000 L of water are used to keep the facility running, a mature pine tree can use 500-600L water per day. By clearing alien vegetation, it is likely that more water will be released into the catchment. The water saving aspect of the project can be thought of as an even bigger benefit than 'clean electricity'



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E.3. Report on consideration of comments received

>> No negative comments were received during the public consultation process therefore no action was required.



SECTION F. Approval and authorization

>> Letter of Approval from host country will be issued after the submission of validated PDD to the host country DNA.

**Appendix 1: Contact information of project participants**

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Appendix 2: Affirmation regarding public funding

No Public Funding from the parties included in Annex I to the Convention is involved for the project activity.



Appendix 3: Applicability of selected methodology

Justification of the choice of Methodology has been described in Section B.2



Appendix 4: Further background information on ex ante calculation of emission reductions

As per methodological “Tool to calculate the emission factor for an electricity system”, version. 02.2.1, a **grid/project electricity system** is defined by the spatial extent of the power plants that are physically connected through transmission and distribution lines to the project activity (e.g. the renewable power plant location or the consumers where electricity is being saved) and that can be dispatched without significant transmission constraints.

The first two options for delineation of electricity system are not applicable, as the DNA of South Africa has not published a delineation of the project electricity system. Also due to a lack of public data on transmission constraints, the analysis of transmission constraints is not feasible and thus would not result in a clear grid boundary. Therefore, in line with Para. 4 of the Tool, a national grid definition should be used by default. This seems especially appropriate given that the South African power sector is strongly centralized on a national level.

The project electricity system is thus identified as the **national grid of Republic of South Africa**. Recent and publicly available data on power plants connected to the electricity system is published by the South African central utility Eskom. Eskom generates approximately 95% of the electricity used in South Africa and also operates the grid. Eskom data therefore appropriately represents the project electricity system.



Appendix 5: Further background information on monitoring plan

Refer section B.7

**Appendix 6: Summary of post registration changes**

Not Applicable

History of the document

Version	Date	Nature of revision
04.0	EB 66 13 March 2012	Revision required to ensure consistency with the “Guidelines for completing the project design document form for small-scale CDM project activities” (EB 66, Annex 9).
03	22 December 2006	<ul style="list-style-type: none"> The Board agreed to revise the CDM project design document for small-scale activities (CDM-SSC-PDD), taking into account CDM-PDD and CDM-NM.
02	8 July 2005	<ul style="list-style-type: none"> The Board agreed to revise the CDM SSC PDD to reflect guidance and clarifications provided by the Board since version 01 of this document. As a consequence, the guidelines for completing CDM SSC PDD have been revised accordingly to version 2. The latest version can be found at <http://cdm.unfccc.int/Reference/Documents>.
01	21 January 2003	Initial adoption.
Decision Class: Regulatory Document Type: Form Business Function: Registration		