# Introduction

<table>
<thead>
<tr>
<th>Project Name</th>
<th>Ngodwana Energy (RF) Pty Ltd (“Ngodwana Energy”)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bidder Number</td>
<td>RE_BM_0261_002</td>
</tr>
<tr>
<td>Technology</td>
<td>Biomass</td>
</tr>
<tr>
<td>Net Power Output</td>
<td>25MWe</td>
</tr>
<tr>
<td>Gross Power</td>
<td>28MWe</td>
</tr>
<tr>
<td>Grid Availability</td>
<td>98%</td>
</tr>
<tr>
<td>Energy sales</td>
<td>198,450 MWh/year</td>
</tr>
<tr>
<td>Location</td>
<td>Ngodwana, Ehlanzeni District Municipality, Mpumalanga</td>
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<tr>
<td>Substation</td>
<td>Ngodwana Substation</td>
</tr>
<tr>
<td>Project Company</td>
<td>Ngodwana Energy (RF) Pty Ltd</td>
</tr>
<tr>
<td>Shareholders</td>
<td>Sappi Southern Africa Ltd: 30%</td>
</tr>
<tr>
<td></td>
<td>Fusion Energy (Pty) Ltd: 30%</td>
</tr>
<tr>
<td></td>
<td>KC Africa (Pty) Ltd: 30%</td>
</tr>
<tr>
<td></td>
<td>Ngodwana Energy Employees Trust: 5%</td>
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<tr>
<td></td>
<td>Ngodwana Energy Community Trust: 5%</td>
</tr>
<tr>
<td>EPC Contractor</td>
<td>ELB Engineering</td>
</tr>
<tr>
<td>O&amp;M Contractor</td>
<td>KC Cottrell</td>
</tr>
<tr>
<td>Land lease agreement</td>
<td>Sappi Southern Africa Limited</td>
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<tr>
<td>Biomass supply</td>
<td>Sappi Southern Africa Limited</td>
</tr>
<tr>
<td>agreement</td>
<td></td>
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<tr>
<td>Lenders</td>
<td>ABSA</td>
</tr>
<tr>
<td></td>
<td>Nedbank</td>
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</table>
**Project summary**

Sappi Plantations, FSC accredited

Biomass bundled in plantation and delivered to site

Biomass Boiler
Condensing Turbine
30MW Capacity

Chipper/Hogger

6-day stockpile
Feed rate of 35 tons/hour
275,000 per annum

Exporting 198,450MWh annually.
Power is green and provides much needed distributed power supply in Mpumalanga.
High load factor.
Location: Ngodwana, Mpumalanga
The main Shareholders have agreed to provide 2.5% of the 5% equity allocated to the Community Trust as “Free Carry”.

Senior debt to be provided by Nedbank and ABSA in equal shares in their capacity as joint Mandated Lead Arrangers.

Total Project costs is estimated at R1.2 billion (E/R ZAR10.78/US$1 – to be funded using 75% senior debt and 25% shareholder equity.

Nedbank and ABSA have undertaken to fund the remaining 2.5% as well as the Ngodwana Energy Employee Trust equity.
ELB (of the ELB Group), formerly known as Edward L Bateman Ltd, a top supplier of engineered products to the infrastructure, mining, processing and construction industries, was established over a century ago by Edward L Bateman.

They are based in Johannesburg (local entity) but work nationally and internationally.

Sub contractors:
- DP Cleantech – Boiler supplier and erection
- K C Cottrell, a Korean entity which has the Biomass technical know-how, experience and expertise
- Mandla Engineering, a local BBBEE compliant entity

Committed to the employment of local persons

Committed to local procurement where possible
Contractor during O&M – KC Cottrell Co Ltd

• Is a Korean listed company

• Has the required technical know-how, experience and expertise

• Is in the process of establishing a Broad-based SED Trust which will provide socio-economic support to the greater community

• Committed to a programme which includes a strategic skills transfer plan to ensure that local persons are trained and able to provide key technical services to the project in the future

• Committed to the employment of local persons

• Committed to local procurement where possible, however most of the procurement during this phase will be managed by the SPV directly
Biomass feedstock is transported via conveyors from stockyard to the power plant site and then fed into a stoker furnace which shall provide the required heat to a high pressure steam boiler. The steam cycle will then power a steam turbine-electrical generator to generate the electricity. This proposed biomass system provides renewable and base-load electricity to the electric grid and also for internal consumption. The total system is sustainable, efficient, and robust.

Emissions from the power plant are minimal. Fly-ash is removed from the stack gas by a dust collector. The coarse ash can be disposed of or used as fertilizer for the trees. Nitrogen oxides are controlled with extensive over-fire air. There is very little sulphur or chlorine in the wood.

In addition to the thermal plant a number of auxiliary plant elements will be required:
- Fuel reception
- Fuel handling system
- Ash handling system
- Buildings and other civil works
- Connection to grid

Biomass is received from 3 different supplies for the plant which consumes (275 000 Tons/annum)
- Biomass from the forest delivered on trucks (Make up est 195 000 Tons / annum)
- Biomass from the softwood debarking and chipper (57 000 Tons/annum)
- Biomass from the screening plant (23 000 Tons/annum)
Milestones

Note:
These dates are still subject to:
- Confirmation of Commercial Close date from DoE
- Eskom Budget Quote indicating grid connection timeline
- Finalisation of construction timeline from contractor
Located at Ngodwana Mill site on the N4 national road

- 3 hours or just over 300km from Johannesburg
- The Project is to be situated on the Ngodwana Mill Site. The Mill is located within the Elands Valley, between Emgwenya (formally Waterval Boven) and Mbombela (formerly Nelspruit).
- The Mill is approximately 50km west of Mbombela with the geographical co-ordinates for the site being
  - Latitude: 25°34’41.15” and
  - Longitude: 30°39’31.83”E.
The Project has obtained the Environmental Authorisation as required by the National Environmental Management Act, on 31 May 2013.

WSP Environment and Energy (WSP) was appointed to undertake the function of independent Environmental Assessment Practitioner to undertake the EIA. The project constitutes scheduled activities in terms of the following:

- NEMA, 1998 (Act No107 of 1998) EIA Regulations Listing Notice 1 (GNR 544)
- National Environmental Management: Waste Act, 2008 (Act No.59 of 2008) list of waste management activities (GNR 718); and

Specialist studies were undertaken during the EIA process to include amongst others:

- Visual Impact Assessment
- Noise Impact Assessment
- Socio-Economic Impact Assessment
- Traffic Impact Assessment
- Air Quality Impact Assessment

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Status</th>
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<tbody>
<tr>
<td>Environmental Authorisation</td>
<td>Obtained</td>
</tr>
<tr>
<td>Waste Management Licence</td>
<td>Obtained</td>
</tr>
<tr>
<td>Air Emission Licence</td>
<td>In Place</td>
</tr>
<tr>
<td>Water Use Licence</td>
<td>One In Place – Have applied for a new one</td>
</tr>
<tr>
<td>Land claims clearance (Rural Development and Land Reform)</td>
<td>Notification issued in terms of the Restitution of Land Rights Act</td>
</tr>
<tr>
<td>Eskom Cost Estimate Letter</td>
<td>Obtained</td>
</tr>
</tbody>
</table>
Stakeholder & Interested or Affected Parties

During the EIA process the potential impacts associated with the project were assessed and the significance of these evaluated.

- Potential negative impacts were all considered to be of low significance.

Details with regards to public participation and engagement with the interested and affected parties can be found in the EIA report.

- The Department of Economic Development, Environment and Tourism
- Agricultural Water Body
- Department of Water Affairs
- Department of Health
- Mpumalanga Department of Public Works, Roads, and Transport
- Mpumalanga Heritage Resources Agency
- Mpumalanga Tourism and Parks Agency
- SAN Parks (KNP)
- South African Heritage Resources Agency
- Ehlanzeni District Municipality
- Mbombela Municipality
Stakeholder & Interested or Affected Parties (cont.)

• In addition to the EIA process, Ngodwana Energy has invested in the community involvement process and has appointed an Economic Development consulting firm to -
  • Conduct a full Community Needs Assessment
  • Conduct a Community Mapping exercise in order to identify all the communities, villages, hamlets or settlements which may be impacted by the construction of this Biomass facility. The main communities which have been identified are -
    • Bhamjee
    • Elandshoek
    • Airlie
    • Mankhela
    • Waterval Boven
    • Mataffen
    • Schagen
    • Kaapsehoop
  ✓ All areas fall within the prerequisite 50 km radius.
  ✓ There are other smaller villages / hamlets / farming communities within the forests and farming areas which may also gain benefit.
  ✓ A Stakeholder Engagement Report as well as the Community Needs Assessment Report is available for perusal should NERSA so require.
Economic Development

- Project structure confirms our commitment to BEE and RSA participation

- Management Control structure incorporates both Black Persons and Black Women

- The project will create approximately 344 jobs during the 24 month construction phase of the project and approximately 120 direct jobs during the operations and maintenance phase of the project.

- There is potential to support an independent biomass collection and biomass crop farming industry in the vicinity of Ngodwana Mill which will further impact the local economy

- 0.6% of revenue during the operational phase will be spent on Enterprise Development. This will be achieved through the establishment of an accredited SMME Incubator and Support Programme, which will train local entrepreneurs on how to seek opportunities and best run a sustainable, profitable business.

- 1.5% of revenue during the operational phase will be spent on Socio-Economic Development (SED) initiatives. This long-term commitment will allow Ngodwana Energy to implement long-term sustainable programmes within the community. Skills development, education, nutrition and social welfare have been targeted as the initial focus areas for implementation.

- Ngodwana Energy expects to spend R626 million on B-BBEE Procurement, R51 million on QSE’s and EME’s and R5 million on women owned vendors over the 20 year expected lifespan of the plant.
Value for Money

• All three of the major shareholders and the Project partners have significant experience across the energy industry

• There is a regional value add spend of approximately R13 billion, mainly in Mpumalanga

• Biomass provides a comparable cost per MW

• Biomass provides baseload power and is competitive

• The biomass supplier to the Project is also a Project sponsor

• There are minimal grid losses and low grid connection costs

• There is significant enterprise development and socio-economic development spend

• There is significant job creation

• Biomass collection part of the value chain has significant positive impacts in the industry as a whole

• The project is situated in Mpumalanga (1st REIPPP project in the province)
Objections

- No objections have been recorded to date.
Thank You