NERSA Hearings
Amstilite (RF) Proprietary Limited
Golden Valley 120 MW Wind Energy Facility
10 September 2015
PRIVATE & CONFIDENTIAL
Presentation Outline

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Business Overview
BioTherm Energy ("BTE") is one of the leading African renewable energy project developers with a focus on wind and solar power development

- BioTherm develops, finances, owns, and operates both wind and solar power plants to provide long-term clean electricity in South Africa ("RSA") and Rest of Africa ("RoA")
- Over 52MW of operational assets in South Africa, including a 4.2MW waste project

### BioTherm Snapshot

<table>
<thead>
<tr>
<th>South Africa Projects</th>
<th>In Operation</th>
<th>South Africa Projects</th>
<th>Approaching Financial Close</th>
<th>Rest of Africa successes</th>
<th>Over 5 GW under development</th>
</tr>
</thead>
<tbody>
<tr>
<td>27 MW Klipheuwel Wind Project</td>
<td>W. Cape</td>
<td>11 MW Aries Solar Project</td>
<td>N.Cape</td>
<td>4 Solar PPAs Awarded</td>
<td>Zambia</td>
</tr>
<tr>
<td>11 MW</td>
<td>86 MW Konkoonsies II Solar Project</td>
<td>N.Cape</td>
<td>150MW solar PPA</td>
<td>Nigeria</td>
<td></td>
</tr>
<tr>
<td>4.2MW PetroSA Waste Gas Project</td>
<td>W.Cape</td>
<td>32 MW Excelsior Wind Project</td>
<td>W.Cape</td>
<td>Shortlisted 30MW Wind Project</td>
<td>Mozambique</td>
</tr>
</tbody>
</table>

- Large sites throughout South Africa and Rest of Africa
- >1,000 MWs fully permitted, bid ready in South Africa
- >250MW’s of PPA’s in rest of Africa in the process of being secured
Project Locations South Africa

- 11 MW Konkoonsies Solar Project
- 11 MW Aries Solar Project
- 27 MW Klipheuwel Wind Project
- 4.2 MW PetroSA Waste Gas Project
BioTherm’s progress in Africa

- BioTherm is preferred bidder in the following countries:
  - Zambia: four solar projects (10MW), financial close by Q1 2016
  - Burkina Faso: 2 solar projects (32MW), financial close by Q1 2016
  - Mozambique: 1 wind project (30MW), financial close by Q1 2016

- BioTherm is also shortlisted as a finalist in the following countries:
  - Uganda: 2 solar projects (10MW)
  - Togo: 2 solar projects (10MW)
  - Sierra Leone: 1 solar project (50MW)

- Markets in which it is pursuing unsolicited bids:
  - Nigeria (150MW)
  - Ghana (200MW)
  - Ethiopia (100MW)
  - Botswana (100MW)
Experienced Management Team

- Local management team with international experience and strong focus on returns, as proven with the recent sale of operating assets
- CEO has a combination of an international renewables and private equity background
- 100+ years of management expertise in the development, construction and operations of power projects
- Cohesive team that has collectively worked together for last four years in the African renewable sector
- To date, secured 336MW of PPAs in South Africa and in process of securing over 250MW in the Rest of Africa
- Successfully managed the construction of the Round I projects, ahead of schedule and under budget
- Team provides a top tier, end to end development solution that it is leveraging to aggressively build out a robust development pipeline
- **Focused on building a truly African independent power producer building world class, low cost, renewable power projects, while delivering private equity returns**
The BioTherm Team
Project Information
Golden Valley WEF Project Description

- **Project size**
  - Contracted Capacity – 117.7 MW
  - Nameplate capacity – 120 MW
  - 2.5MW, 48 Turbines

- **Land:**
  - The project area is approximately 10 000 hectares proposed on eight land parcels with four land owners
  - The servitude traverses three farm portions namely Portion 2 of Farm Olive Woods Estate 169, Remaining Extent of Farm Olive Woods Estate 169, Remaining Extent of Farm Stompstaart Fontein 168

- **Location:**
  - Located approximately 5 km from Cookhouse (10 km South West of Bedford) in the Blue Crane Route Local Municipality, Eastern Cape
  - Site access is via the N10 main road
  - The Site lies 20km south of the Eskom Poseidon Main Transmission Substation
Golden Valley Wind Energy Facility

LEGEND

- **Project Infrastructure**
  - Development Area
  - Turbine layout
  - Point of Connection, Facility and System Metering
  - Olive Woods 132kV Substation
  - Olive Woods-Kopleegte 132kV
  - Internal Roads
  - Internal Roads and Cables

- **Existing Infrastructure**
  - Poseidon MTS
  - Kopleegte 132kV Substation
  - Poseidon-Kopleegte 132kV
  - National Roads
  - Existing Roads

Datum: Universal Transverse Mercator - Zone 35 (S)
Centre Lon: 400377 m
Centre Lat: 6365445 m

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Design Quarter District
Leslie Avenue East Fourways
Tel: 011 367 4600
Fax: 011 367 4601
www.biothermenergy.com
Technical Information

- **Energy Analysis**
  - Net energy production (20 year, P50) - 468.5 GWh
  - Net capacity factor (20 year, P50) - 44.6%

- **Technology**
  - Permanent Magnet Generator
  - Gearless Directly Driven (DD) by a 3-blade rotor
  - Synchronous generator with full power converter

- **Grid Connection**
  - Sub-Station: On site substation Olive Woods Switching Station connecting to Kopleegte Substation, South of Poseidon MTS
  - Self-build connection of 6.7km 132kV line from the new Olive Woods Switching Station to Kopleegte substation

- **Transportation**
  - Initial transportation studies demonstrate no infrastructure upgrades are necessary
Project Progress to Date – Permits and Consents

- Appropriate progress has been made in obtaining all necessary consents and permits
- Permits and Consents received to date include but are not limited to the following:
  - Notarial Deeds of Lease over the whole of each of the properties for a period of 25 years
  - Environmental Authorisations received allow for construction and operation of the Wind Energy Facility
  - South African Civil Aviation Authority consent received. Project Site and the power line received on 14 October 2011 and 11 July 2013 respectively
  - Confirmation of water availability and usage rights from the Department of Water Affairs and Great Fish River Users' Association
  - Confirmation from the Office of the Regional Lands Claims Commission
  - Land Use Planning Approval (Rezoning approval) in terms of LUPO, 15 of 1985 approved by Blue Crane Route Municipality
  - Subdivision of Agricultural Land Act ("SALA"), 70 of 1970
  - Water Use Licence ("WUL") was submitted to the Department of Water Affairs ("DWA") for water crossings
  - Heritage Approval
Interested Parties & Stakeholder Consultations

- Stakeholder engagement was conducted through newspaper adverts and local library
- Documents were placed in the Cookhouse Library
- Newspaper adverts were placed in Die Burger and Gazette
- No objections were received
Socio-Economic Development
Economic Development ("ED")
Industry Information

<table>
<thead>
<tr>
<th>Onshore Wind *</th>
<th>Bid Window 4</th>
<th>Bid Window 3</th>
<th>Bid Window 2</th>
<th>Bid Window 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>MWs</td>
<td>676</td>
<td>787</td>
<td>563</td>
<td>634</td>
</tr>
<tr>
<td>Job** Creation: Construction (Citizens)</td>
<td>2 831</td>
<td>2 612</td>
<td>1 787</td>
<td>1 810</td>
</tr>
<tr>
<td>Job** Creation: Operations (Citizens)</td>
<td>8 161</td>
<td>8 506</td>
<td>2 238</td>
<td>2 461</td>
</tr>
<tr>
<td>Jobs/MW</td>
<td>16.26</td>
<td>14.13</td>
<td>7.15</td>
<td>6.74</td>
</tr>
<tr>
<td>Total Project Costs (ZAR Millions)</td>
<td>R 13 466</td>
<td>R 16 969</td>
<td>R 10 897</td>
<td>R 13 312</td>
</tr>
<tr>
<td>Local Content Value (ZAR Millions)</td>
<td>R 5 146</td>
<td>R 6 283</td>
<td>R 4 817</td>
<td>R 2 727</td>
</tr>
<tr>
<td>Local Content %</td>
<td>44.60%</td>
<td>46.90%</td>
<td>48.10%</td>
<td>27.40%</td>
</tr>
<tr>
<td>Fully Indexed Price (Ave. Rand/MWh, Base Apr ’14)</td>
<td>R 619</td>
<td>R 782</td>
<td>R 1 069</td>
<td>R 1 363</td>
</tr>
</tbody>
</table>

* Numbers are based on initial R4 Preferred Bidder project announcement. Of these, three Onshore Wind projects are located within the Eastern Cape and the remaining two are located in the Northern Cape.

** 1 Job = 12 RSA Citizen person-months, 1 RSA Citizen person-month = 160 working hours.
Economic Development ("ED")
Project Information

- Consideration of economic landscape within the region, was a critical element in setting ED commitments
- All ED thresholds set by DoE were well exceeded by Project
- Local content commitment designed to stimulate South African economy by localising manufacturing processes within South Africa
- Increasing the Local and Black RSA employment was essential to the strategy design in improving and maximising job creation commitments
- Employment opportunities during both construction & operations maximised within Bid Window 4 - Jobs/MW moved from 6.74 to 16.26 for Onshore Wind projects
Economic Development (“ED”) Project Information

- Black ownership in Project:
  - Local community will own 12.5% of Project equity – 2.5x higher than DoE target of 5%
  - Local community trust to be created, with key Objects identified to be Education, Economic Empowerment of Black Women and Sustainable Rural Development

- Unlocking opportunities to increase the procurement from Women Owned Vendors remains high on Project’s & Renewable Energy industry’s agenda

- Enterprise Development (“EnD”) and Socio-Economic Development (“SED”) commitments made by the Project exceeded Adjusted Targets set by the DoE.

- The EnD and SED funds are to be additional resources, over and above Local community ownership, that will assist the communities in improving their living and economic conditions

*The Project intends on working with all relevant stakeholders within the region, including other Renewable Energy projects, in order to successfully implement and execute meaningful & sustainable ED solutions that will change communities’ lives.*
The Socio-economic development and enterprise development activities of the project will deliver Value for Money to the Government as the project is deeply committed to truly broad-based Black economic empowerment.

Project will

- Aim to alleviate some of the pressure on State coffers in terms of what it can achieve at both a local and national level
- Meet the energy security using cost competitive solutions to create diversity in our energy mix
- Act as a catalyst for local manufacturing and ensuring, that over the medium term, South Africa becomes the gateway to Africa for renewable energy component manufacturing
- An opportunity to develop a market for Independent Power Producers to contribute to an energy balance that is economically, socially and environmentally sound
Project Milestones and COD

- Preferred bidder awarded: 10 April 2015
- NERSA application submission: 23 April 2015
- Financial Close expected date: Q4 2015
- Project execution start: January 2016
- Commercial operation: January 2018
Questions