“COAL SECTOR OVERVIEW & OPPORTUNITIES”

SHUMBA COAL
Coal Exploration in Botswana

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1. Overview of Botswana's Coal Resources
Up until 2012 Botswana had produced less that 1 million tonnes of coal per annum for over 30 years. This year we are looking at over 3 million tonnes and the trend is set to continue.
Coal Fields of Botswana
## Coal Resources of Botswana

<table>
<thead>
<tr>
<th>Coalfield</th>
<th>Tonnes (Mt) (1998)#</th>
<th>Defined Published Resource Figures (Mt) M/Ind/Inf</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dukwe</td>
<td>1,604</td>
<td>+1,969 +1,500 Exploration Target</td>
<td>Sowa/Dukwe</td>
</tr>
<tr>
<td>Foley</td>
<td>6,860</td>
<td>3,377+860 3–6,000 Exploration Target</td>
<td>Sese &amp; Mabesekwa</td>
</tr>
<tr>
<td>Serule</td>
<td>9,685</td>
<td>915 +3,900 Exploration Target</td>
<td>Lechana &amp; Tshimoypula</td>
</tr>
<tr>
<td>Bobonong</td>
<td>179</td>
<td>None declared</td>
<td>Poorly explored</td>
</tr>
<tr>
<td>Morupule</td>
<td>18,072</td>
<td>190 7,234 2,400</td>
<td>MCL Kgaswe Morupule South</td>
</tr>
<tr>
<td>Moijabana</td>
<td>3,539</td>
<td>1,460 +5,000 Exploration Target</td>
<td>Moijabana Kweneng</td>
</tr>
<tr>
<td>Mmamabula</td>
<td>23,213</td>
<td>2,925+442+2,512+3,144+2,493</td>
<td>MME/MMNC/MMS/MMW</td>
</tr>
<tr>
<td>Mmamantswe</td>
<td>2,898</td>
<td>1,300</td>
<td>Mmamantswe</td>
</tr>
<tr>
<td>Letlhakeng</td>
<td>70,353</td>
<td>4,230+2,654</td>
<td>Takotakwane remainder poorly explored</td>
</tr>
<tr>
<td>Dutilwe</td>
<td>71,740</td>
<td>None declared</td>
<td>Poorly explored</td>
</tr>
<tr>
<td>Ncojane</td>
<td>4,725</td>
<td>None declared</td>
<td>Poorly explored</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>212,868</strong></td>
<td><strong>60,021 (28%)</strong></td>
<td></td>
</tr>
</tbody>
</table>
**Botswana Chamber of Mines Market capability study**

**REASON:**
To investigate potential coal production from Botswana’s identified coal projects and the market for Botswana thermal coal.

1. Potential Product specifications for domestic and export coal
2. Potential production volumes for domestic and export coal
3. Implications for rail and power infrastructure develops
4. If the volumes forecast are sufficient to make the planned railway line developments viable
5. Identify key target markets and potential market demand for defined Botswana product specifications
Key Outcomes

- Based on intended mine developments from existing resources up to **24 new mines** producing over **190 million tonnes** per annum of coal could potentially open.

- The Mmamabula and Morupule areas have the potential for the most mines with a possible 9 each.

- Current resources holders have plans to produce over **115mtpa** of coal for export and this number could increase substantially.

- The coal intended for Power Generation (75 mtpa) could sustain a power industry producing **15 GW** of power for domestic regional consumption.
2. Export Market
Potential Globally Significant Exporter

World's top five coal exporters by weight, 2011

- Colombia
- United States
- Russia
- Australia
- Indonesia

Exporting of coal from Botswana via Transnet

Export Possible via Existing Railway and Future Developments

- Transnet is availing export capacity for Botswana coal as follows:
  - Up to 2 million tonnes per annum available now
  - Significantly more capacity available by 2016
  - Large tonnages can be exported after 2018 via a rail link between Botswana and South Africa as part of the current heavy haul expansion in Limpopo's Waterberg
Other opportunities for export of Botswana Coal

- The first dedicated regular export coal train from Botswana has began exporting coal using existing rail via Zimbabwe to the Matola Coal Terminal in Mozambique.

- Two consortia intend to construct two separate rail way lines. The Trans-Kalahari route shall terminate at ports in Namibia and the Ponto Techobanine rail route will terminate at the Mozambique port.
Ian Hall, chairman of the South African Coal Roadmap Society (SACRM) says “Our power stations are reaching the end of their lifespans and the coal operations that supply them will reduce production or close entirely around 2020. This means we need to source anywhere between 60 and 120 Mtpa of new coal supply before then to sustain our power stations and growing energy requirements.”

SA Cabinet has approved the building of a third coal-fired power station by Eskom.
3. The Regional Power Situation
Central Location
SAPP (Southern African Power Pool)
connecting 9 countries

Source:
Southern Africa Power Pool
www.sapp.co.zw

Map by TradeMark Southern Africa | www.trademarksa.org
Botswana ESI Overview (Single Buyer Model)

BPC Generation

BPC Transmission

BPC Customer Services & Supply

Regulator BEWRA

IPP Generation

SAPP Import / Export

Mining

Commercial

Government

Domestic

Electricity End Users

BEWRA: New Entity under Establishment
Current Power Demand Situation

Total Declared 48,762MW
Peak Demand 50,636MW
Deficit 1874MW

KEY
Yellow: Non-Operating Members
Blue: Operating Members

DRC
1,170 (1,398)*

Zambia
1,845 (2,287)*

Tanzania
1,143 (1444)*

Malawi
287 (412)

Angola
1480 (1341)*

Namibia
360 (635)*

Zimbabwe
1,600 (2,267)*

Mozambique
174 (636)* - EDM
2,045 - HCB

South Africa
41,074 (42,416)*

Botswana
292 (604)*

Swaziland
70 (255)*

Lesotho
72 (138)*

* X (Y) = Declared Capacity (Peak MW)
Severe Shortfall in All Power Markets
(Opportunity for New Power Producers)

• In Botswana alone an additional 600MW is required in the short term

• The South African economy has been growing in excess of 3-5% per year. This growth rate has resulted in a situation where ESKOM, southern Africa’s major generating utility and price benchmark setter, no longer has sufficient surplus generating capacity.

• Leading coal industry experts, Wood Mackenzie believes that there is a massive potential power deficit that could emerge in South Africa with a potential capacity shortfall of up to 32,000MW by 2030.

• In SADC, Namibia and Zimbabwe have historically been power deficit countries. Zambia is expected to run short of power as its mining sector grows. Combined; these three countries will have a power deficit of nearly 4,000MW in the near future.

• Infrastructure and legislation for regional power distribution already in place

• Eskom’s average tariff adjustments have meant an 150% price increase in the last 4 years and there are further increases planned over the coming 5 years.

• Attractive returns available for new Independent Power Producers
4. Investment Opportunities
Areas of Possible Investment

1. Mines and Exploration
2. Power Stations
3. Provision of Services and Equipment to growing Coal Industry
4. Power Distribution Infrastructure
5. Rail and Rolling Stock
6. Coal Offtake
Mines and Exploration

At present there is the opportunity to invest in or purchase coal deposits at all time low level.

The GFC has lead to a severe drop in the valuation of non revenue producing companies such as junior miners.

The last three coal deposits sold were bought at a price lower than the expenditures that had been spent of that project by the previous owners.
Power Stations

Power Distribution Infrastructure

The current and forecast domestic and regional power shortage presents an opportunity in this area.
With the need to supply coal to regional and international customers, Botswana export infrastructure requires investment.

By 2016 Eskom will need an additional 60Mtpa and India an additional 200Mtpa.
5. The attractions of Investing in Botswana Coal
**Attractions**

**Centrally located in a power hungry region**
- The SADC region has severe power which is only going to get worse

**Botswana has large easily mined coal resources**
- In order to produce cheap competitive electricity it is best for the Power station to be close to the coal. Transport costs can add significantly to costs. This will make it very competitive in relation to Eskom

**Easy Distribution via SAPP from Botswana (Infrastructure in Place)**
- The South African Power Pool exists and can enable the export of cheap Botswana power throughout SADC from its central location

**Domestic beneficiation of coal**
- By beneficiating we aim to maximise the local economic contribution of the coal sector to Botswana
A Favorable investment climate...best in Africa

• Botswana has a stable and democratic political environment, rule of law, and a favorable regulator environment for business. Power stations are highly capital intensive with long pay back periods and that thus a stable predictable jurisdiction is key.

No foreign exchange controls

• Botswana has no foreign exchange controls and allows full repatriation of profits, investments and capital gains, free of withholding taxes. Again this will be attractive

Financing options

• Botswana has one of the most highly developed financial sectors in Africa, with a range of private and government backed financial institutions able to provide loans, overdraft facilities, and equity capital to both foreign and domestic investors.
Attractons

Africa’s Best Mining Destination

- According to the authoritative Fraser Institute Annual Survey of Mining Companies, Botswana remains the most preferred mining and minerals investment destination in Africa.

Competitive investment incentives

- Botswana incentives include duty free import of all capital equipment for all companies and duty free import of raw materials for exporters. Certain tax holidays are also available, although Botswana has reduced corporate income taxes to some of the lowest on the continent: 15% for manufacturing operations and 25% for all others.
6. Positive Regional Effects of Developing Botswana’s Coal Sector
Cheap power will benefit the whole region

• Obvious benefits to the retail market which does not want huge power price hikes or power cuts

• The South African economy is a clear example of how cheap power can stimulate industrial development.

• Cheap power will allow the regional metal beneficiation industry including Botswana, South Africa, Zambia and Zimbabwe to grow as the smelting and processing of mineral ores can be very power intensive.
Satisfaction of Regional Integration Objectives

- Meets NEPAD's aim is to promote regional economic integration by bridging Africa's Infrastructure gap. There can be no meaningful development without trade and there can be no trade without adequate and reliable infrastructure.

- Follow on from signing of a Memorandum of Agreement on Cooperation in the Field of Energy in relation to Coal-Based Energy Projects in mid 2012 by President Jacob Zuma and Botswana’s President Ian Khama.
THANK YOU