NCHENA ZICO MOTHEBE
MANAGER TRANSMISSION NETWORK MAINTENANCE

BOTSWANA POWER CORPORATION

AND

BENNY MDLULI
PRINCIPAL ECONOMIST

MINISTRY OF FINANCE & DEVELOPMENT PLANNING
The Business Model

Generation SBU

Transmission SBU

Supply and Customer Service (SACS) Customers

Rural Customers

Corporate Services SBU

Finance CSU

Human Resources CSU

Office of the CEO
Internal Audit CSU
Corporation Secretariat CSU
Botswana's Electricity Consumption

Electricity Market Segmentation

**Year 2010**
- Commercial: 28%
- Government: 7%
- Domestic: 15%
- Mining: 50%

**Year 2011**
- Commercial: 26%
- Government: 11%
- Domestic: 25%
- Mining: 38%
## Botswana’s Sources of Supply

<table>
<thead>
<tr>
<th>Source</th>
<th>Quantum (MW)</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Morupule Power Station</td>
<td>120</td>
<td>• Domestic Coal Fired Plant</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Provides 20% of Demand</td>
</tr>
<tr>
<td>Eskom (RSA) (Imports)</td>
<td>250 – Yr. 2010</td>
<td>• Stepped Reduction 5 Year PPA</td>
</tr>
<tr>
<td></td>
<td>150 – Yr. 2011</td>
<td>• Impact of Regional Supply Deficit</td>
</tr>
<tr>
<td></td>
<td>150 – Yr. 2012</td>
<td></td>
</tr>
<tr>
<td>Other SAPP Imports</td>
<td>Up 150 MW (Non Firm)</td>
<td>• Off Peak Energy Contracts</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Annual Arrangements (EDM; SNEL; NamPower)</td>
</tr>
</tbody>
</table>
## New Generation Projects In Progress

<table>
<thead>
<tr>
<th>No</th>
<th>Strategy</th>
<th>Timing</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>70 MW Emergency Power – (Diesel Power) (Temporary – Rented)</td>
<td>Jan 2010</td>
<td>In Operation</td>
</tr>
<tr>
<td>2</td>
<td>90 MW Orapa (Dual Fuel OCGT) (Diesel Power)</td>
<td>Oct 2010</td>
<td>In operation</td>
</tr>
<tr>
<td>3</td>
<td>Morupule B Phase 1 (600 MW) (Coal Fired) 4 X 150MW</td>
<td>2012</td>
<td>Work In Progress</td>
</tr>
</tbody>
</table>
## Morupule B Phase 1 Commissioning

<table>
<thead>
<tr>
<th>DATE</th>
<th>UNIT 1 (MW)</th>
<th>UNIT 2 (MW)</th>
<th>UNIT 3 (MW)</th>
<th>UNIT 4 (MW)</th>
<th>Total (MW)</th>
</tr>
</thead>
<tbody>
<tr>
<td>January 2012</td>
<td>150</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>150</td>
</tr>
<tr>
<td>April 2012</td>
<td>150</td>
<td>150</td>
<td>0</td>
<td>0</td>
<td>300</td>
</tr>
<tr>
<td>July 2012</td>
<td>150</td>
<td>150</td>
<td>150</td>
<td>0</td>
<td>450</td>
</tr>
<tr>
<td>October 2012</td>
<td>150</td>
<td>150</td>
<td>150</td>
<td>150</td>
<td>600</td>
</tr>
</tbody>
</table>
Supply Demand Balance (2009 -2020)

Capacity (MW)


- 100  200  300  400  500  600  700  800  900  1,000

Emergency Power
Other Imports
Eskom
Morupule B
Morupule A
System MD

Botswana Long Term Supply Outlook
Impact of Strategic Projects on Supply Demand Balance
## Potential RE - Generation Projects

<table>
<thead>
<tr>
<th>No</th>
<th>Description</th>
<th>Capacity</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Concentrating Solar Thermal (CST) (SOLAR) IPP/PPP</td>
<td>200 MW</td>
<td>Pre – Feasibility Study completed which confirmed strong Potential. (Bankability Feasibility Study)</td>
</tr>
<tr>
<td>2</td>
<td>1MW PV</td>
<td>1 MW</td>
<td>Pilot Project Funded by Japan (Grant) COD – 2012 On Grid</td>
</tr>
</tbody>
</table>
CSP PROGRAMME
1. Prefeasibility Study – Completed in 2009

- Up to 200MW CSP
- Parabolic Trough
- 5 X Sites
CSP SITES – DNI (kWh/m²/annum)

- Selebi Phikwe - 2359,
- Maun - 2298,
- Letlhakane - 2396,
- Serowe - 2432 and
- Jwaneng - 2745

2. Financial Institutions:
   - African Development Bank
   - World Bank

2. 100MW with 4hrs TES; Central Receiver

3. DNI Monitoring Stations installed at the 2 sites
   - Jwaneng
   - Letlhakane
1. Full ESIA – To be progressed
2. Registration as a CDM Project
   - Technical Support – ACSP/AfDB
3. Finance Structure – 30% Equity & 70% Debt; Private Public Partnership
THANK YOU