Mmambula Coal Fired Power Station:

A window of opportunity for investment

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Tributes

- Ministers and Excellencies
- Cooperating Partners
- Conference Organisers and Sponsors
- Captains of industry
- All invited guests
- Visionaries (past Ministers, past CEOs and Officials)

MMAMABULA

(Export Power Station - Botswana)

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PART A: Morupule Expansion

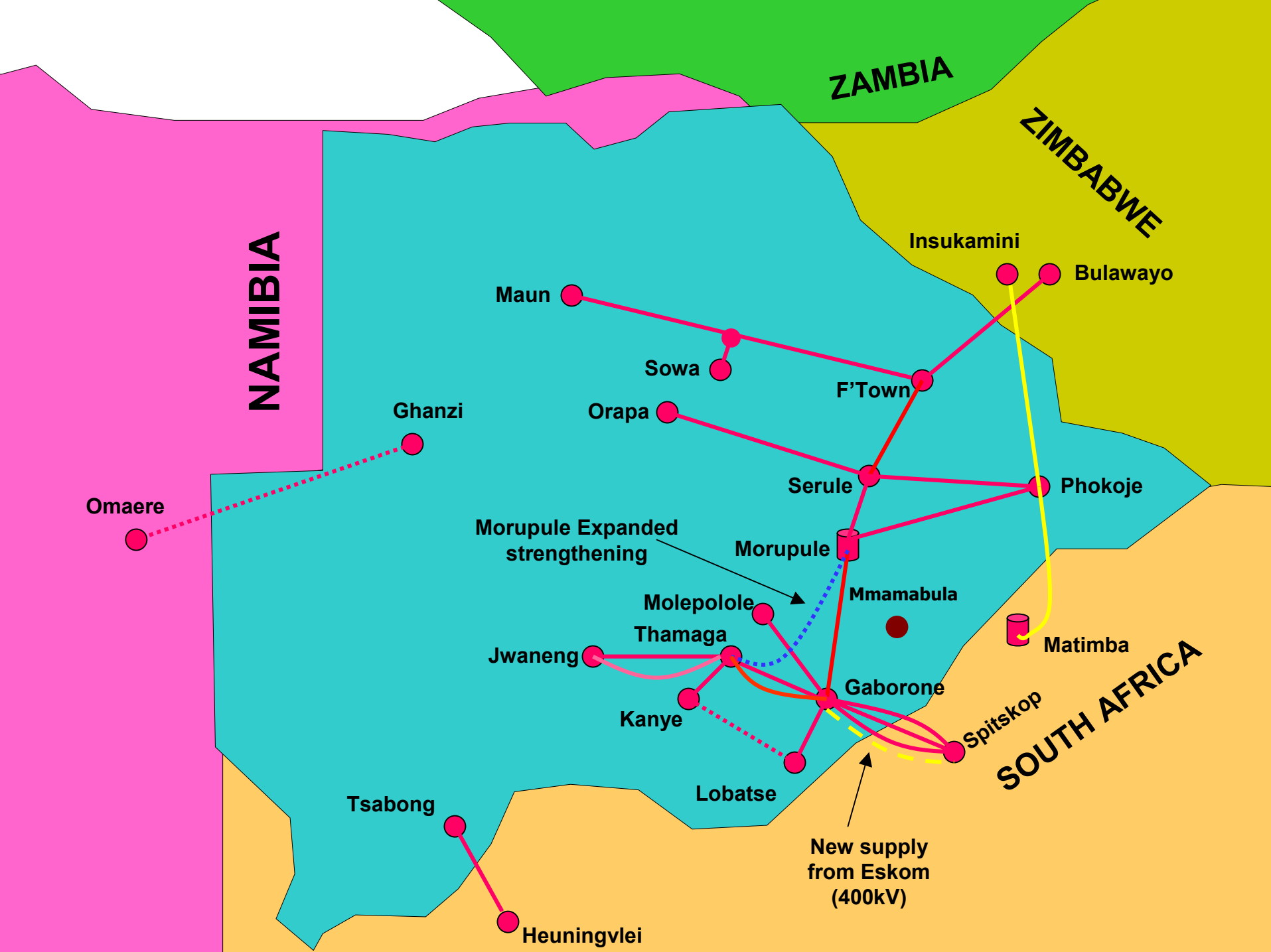
SAPP short term generation projects

SHORT-TERM GENERATION PROJECTS					
No.	**Country**	**Project Name**	**Capacity [MW]**	**Type**	**Expected Commissioning Year**
1	Angola	Capanda	260	Hydro	2007
2	**Botswana**	**Morupule Expansion**	**240**	**Coal**	**2009**
3	DRC	Refurbish Inga-1 & 2	500	Hydro	2007
4	Lesotho	Muela Phase-2	110	Hydro	2010
5	Malawi	Kaphichira Phase-2	64	Hydro	2009
6	Namibia	Kudu	800	Gas	2009
7	South Africa	Mothballed Plants	3,500	Coal	2005 to 2010
		Open Cycle Gas Turbine	500	Gas	2008
8	Swaziland	Maguga	20	Hydro	2007
9	Zambia	Refurbishment	210	Hydro	2006
		Itezhi-Tezhi	120	Hydro	2007
		Kafue Lower	600	Hydro	2009
		Kariba North	360	Hydro	2009
10	Zimbabwe	Kariba South	300	Hydro	2007
		Hwange 7 & 8	660	Thermal	2008
		Lupani	300	Gas	2009
11	Tanzania	Ubungo	40	Gas	2004
		Ubungo	40	Gas	2005
		Kinyerezi	60	Gas	2007
		Kinyerezi	60	Gas	2009
		TOTAL	**8,744**		

Brief Overview of Morupule Expansion

a. Morupule expansion is being considered as one of the SAPP short term generation projects
b. The Feasibility Study Report has been completed – Final Report submitted by the Consultant in October 2004.
c. Recommendation – 2x100MW in 2009 and 2x100MW in 2012 (or 2010). Total = 400MW. Estimated cost of U$ 600 Million
d. Though recommendation is for 100MW units, BPC is considering bigger unit sizes: 4x300MW (1200MW) for meaningful contribution to the regional power deficit.
e. Point (d) above is conditional on the amount of water available

PART B: MMAMABULA


ZAMBIA
ZIMBABWE
NAMIBIA
SOUTH AFRICA
Insukamini
Bulawayo
Maun
Sowa
F'Town
Ghanzi
Orapa
Serule
Phokoje
Omaere
Morupule Expanded strengthening
Morupule
Mmamabula
Molepolole
Thamaga
Matimba
Jwaneng
Gaborone
Kanye
Spitskop
Lobatse
Tsabong
New supply from Eskom (400kV)
Heuningvlei

Energy Supply Situation

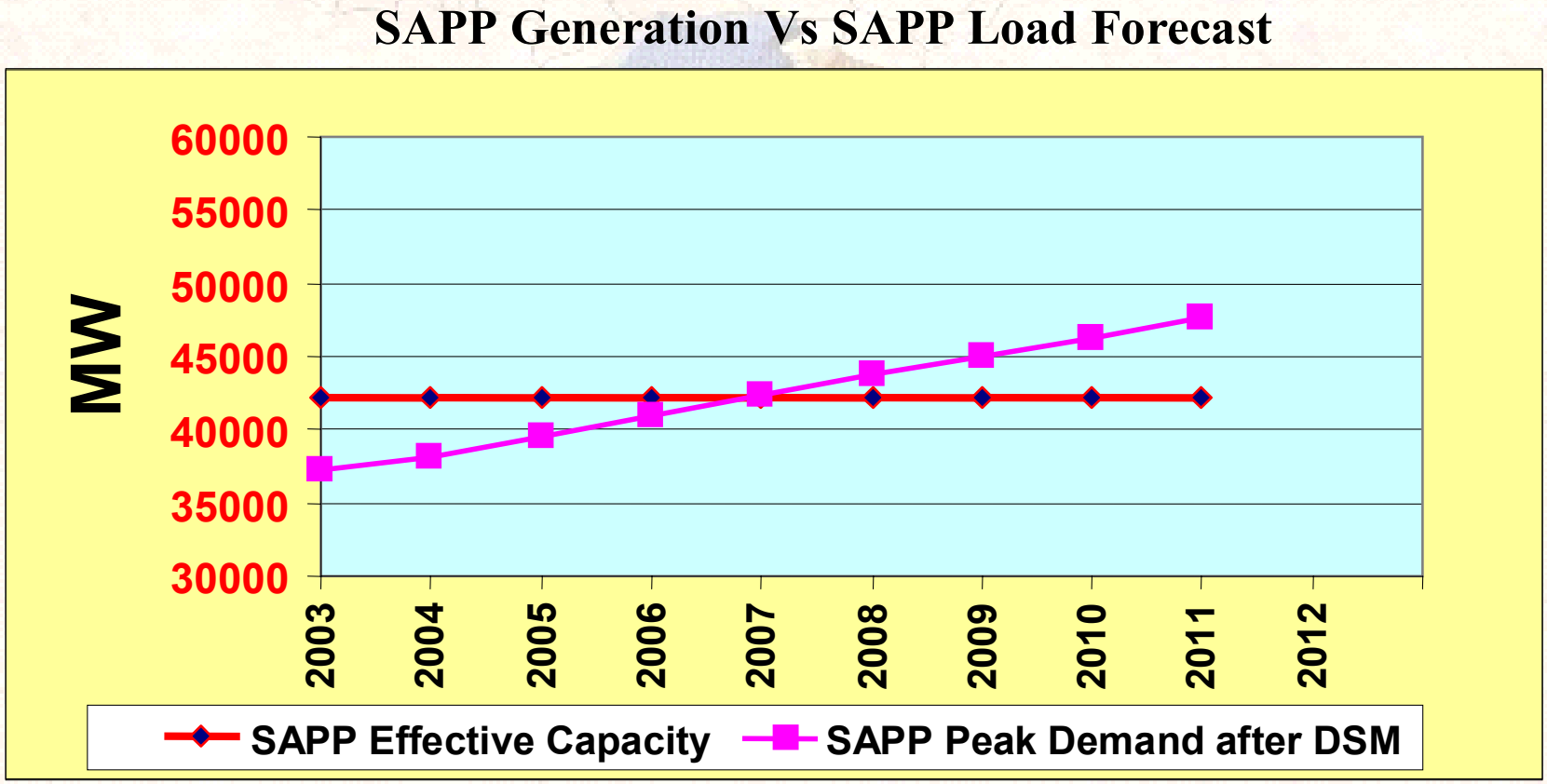
SAPP INSTALLED CAPACITIES

Table-1: SAPP Installed and Available Generation Capacity

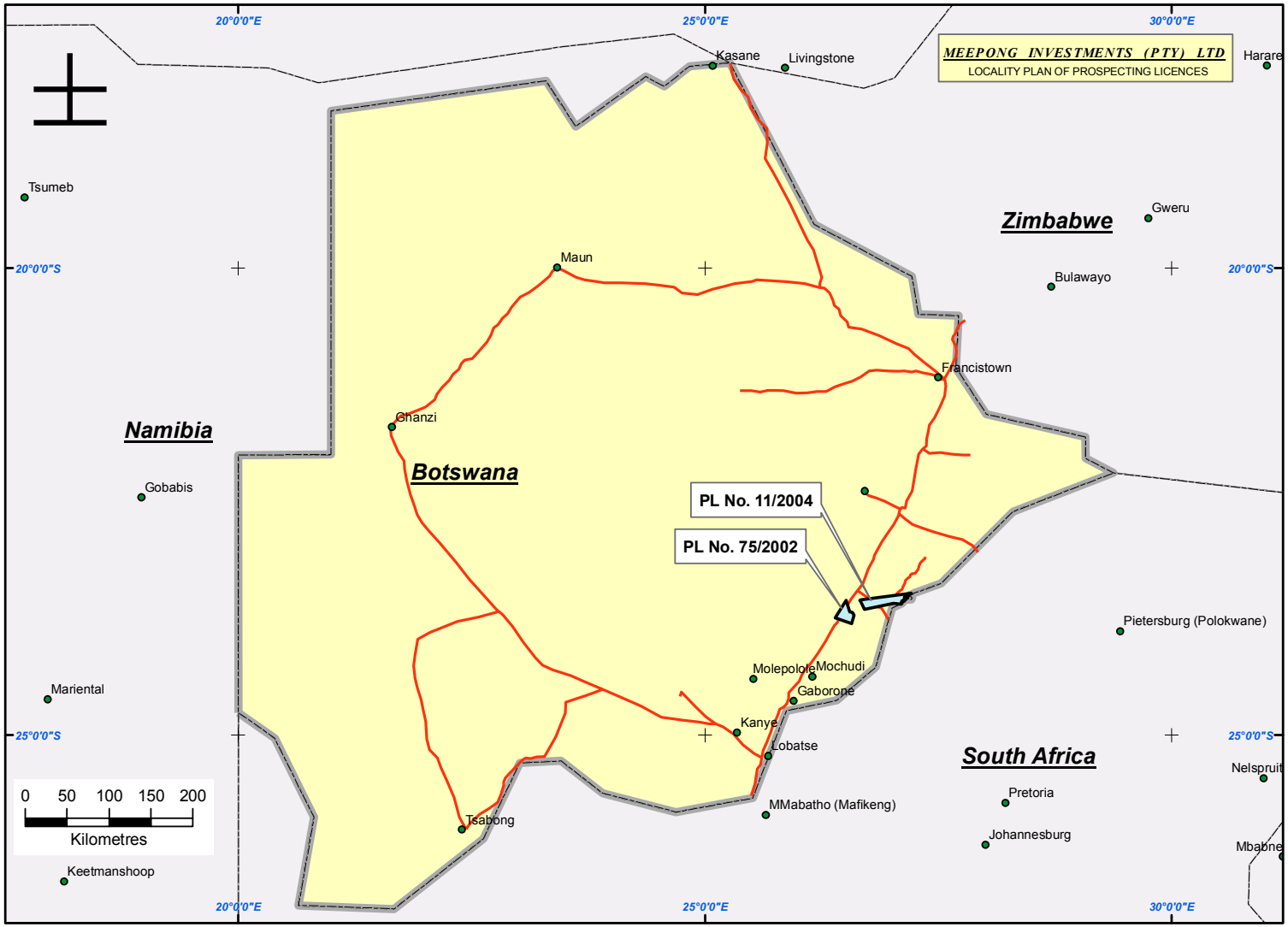
No.	Country	Installed Capacity [MW]	Available Capacity [MW]
1	Angola	742	590
2	Botswana	132	120
3	DRC	2,442	1,170
4	Lesotho	72	70
5	Malawi	305	261
6	Mozambique	2,382	2,250
7	Namibia	393	390
8	South Africa	42,011	36,208
9	Swaziland	51	50
10	Tanzania	591	480
11	Zambia	1,632	1,630
12	Zimbabwe	1,990	1,825
TOTAL		**52,743**	**45,044**

STATUS OF GENERATION RESERVES

- **The SAPP Planning Data is indicating that SAPP runs out of generation reserve capacity after the year 2007.**



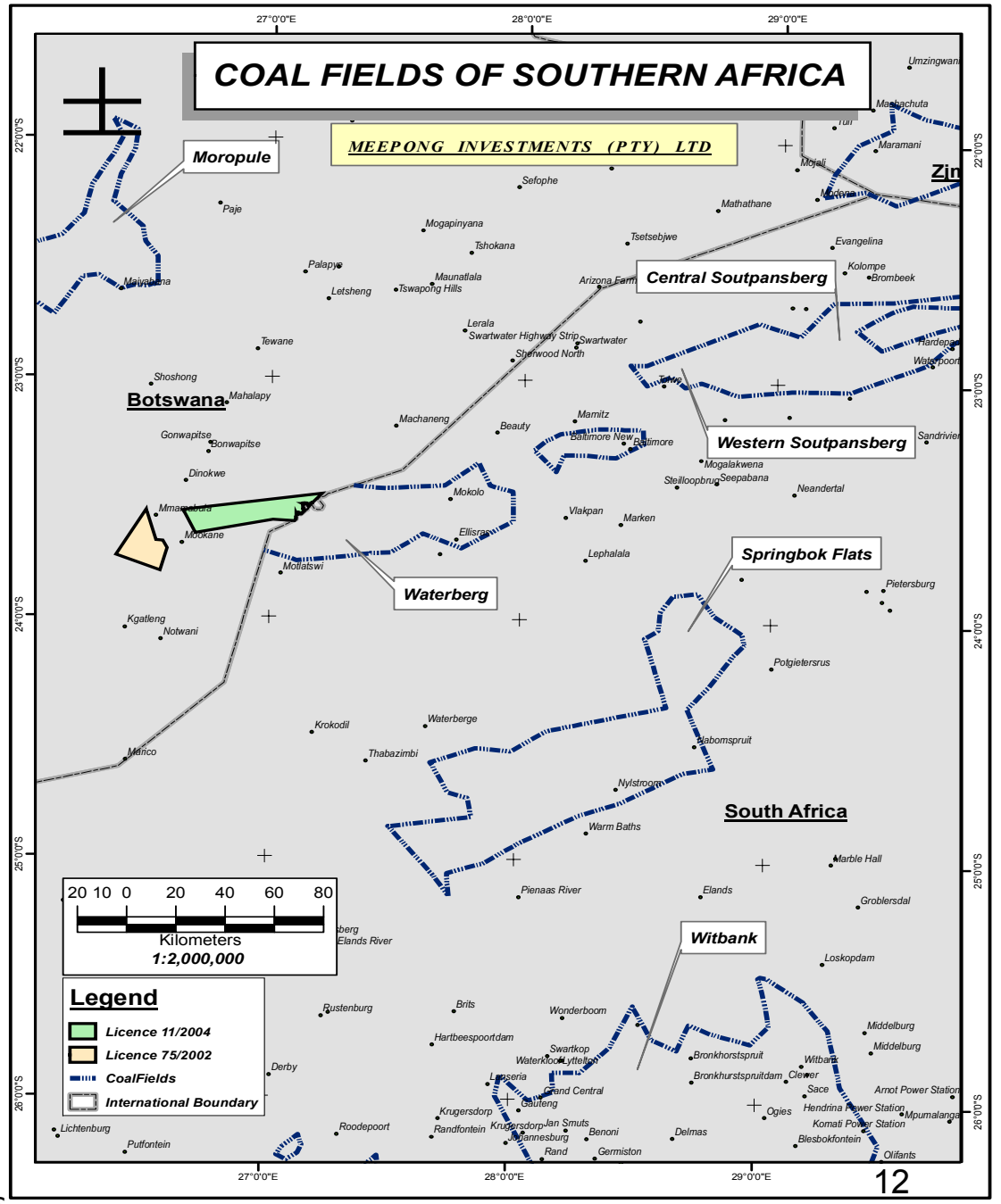
Project Location



Source: Coal Investment Corp / Meepong Investments

Main Coal Fields of South Africa and Botswana

- Project is the extension of the Waterberg coal field in South Africa
- Project located away from Lloyd's Blanket – major environmental advantage
- Approx. 60 km to the South African Electricity grid (Matimba)



Source: Coal Investment Corp / Meepong Investments

Resources

Mmambula East

- In Situ resources > 1.6 billion tonnes
- Estimated recoverable tonnes > 680 million, from drilling completed to date
- Only 60% of the license has had drilling carried out on it

Mmambula South

- In Situ Resources > 2 billion tonnes
- Estimated recoverable tonnes > 0.5 billion

Extensive work carried out by previous operators:

- BP Coal, Amax Exploration, Botswana Power Corporation, Anglo American, Shell Coal, Carbonares de France

Source: Coal Investment Corp / Meepong Investments

Comparative with Matimba Power Station Feed

	CV (MJ/kg)	Moisture %	Ash %	Volatile Matter	Total Sulphur
Grootgeluk Power Station Feed	20.37	2.0	33.4	27.2	0.95
Mmamabula Priority Area A*	27.5	3.6	11.1	28.4	0.70

*Coal from Priority Area A of Mmambula East, currently comprises 164 million tonnes

Source: Coal Investment Corp / Meepong Investments

Comparative Advantages – Botswana as a host of the next big thermal power station

a. Political stability & high sovereign rating - low investment cost.
b. Availability of vast coal resources, which are unexploited.
c. Botswana currently has relatively low emission loading
d. Proximity of Mmamabula to the South African transmission network
e. Botswana's transmission network is well connected to countries in the North and South. However, some reinforcements may be required.
f. Low tax rates and possibility of the Special Purpose Vehicle (SPV) (IPP) being accorded a Botswana International Financial Services Centre status.

Cost Estimates for Mmamabula & Relative distance

COST ESTIMATES	
"Bankable" feasibility study	USD 8 million
Development of the colliery	To be established
Development of the power station	USD 4 billion

RELATIVE DISTANCES

- Mmamabula lies about **140km** North of Gaborone
- Matimba is **90km** east of Mmamabula

4. Risks

- Non sustained load growth due to economic downturn in RSA/World recession- MEDIUM.
- Exchange rate movements - HIGH.
- Competing projects with low capital outlay - MEDIUM

Way Forward

a. The Project requires political support of the two Governments, through, for example, the signing of an Inter-Governmental Memorandum of Understanding/Exchange of letters

b. Through NEPAD, multilateral lending agencies such as ADB and EIB US$8million be raised to carry out a feasibility study to be undertaken by Eskom/BPC and/or other interested parties. Trade and Development Agency could also be approached.

c. An IPP (SPV) to be formed through, for example a Public Private Partnership approach.

THE END

THANK YOU!

Pula Pula Pula