

# Investor update: power generation opportunities in southern Africa

February 2017



Key elements of a successful power generation business

#### AFR's projects demonstrate the critical elements required to build a major power business:

#### 1. Access to a secure supply of power station fuel for the life of the project

Mining License application at Sese contains  $\checkmark$ enough coal for multiple 450MW projects for >35 years

#### 2. Access to long-term power markets through a secure power sales agreement

**Developing a Power Sales Agreement to sell**  $\checkmark$ power into Zambia

#### Access to project funding 3.

AFR's share of Sese project funding to be loan  $\checkmark$ carried by strong development partner

#### 4. Access to sufficient transmission infrastructure capacity

Existing transmission infrastructure in place  $\checkmark$ with available capacity



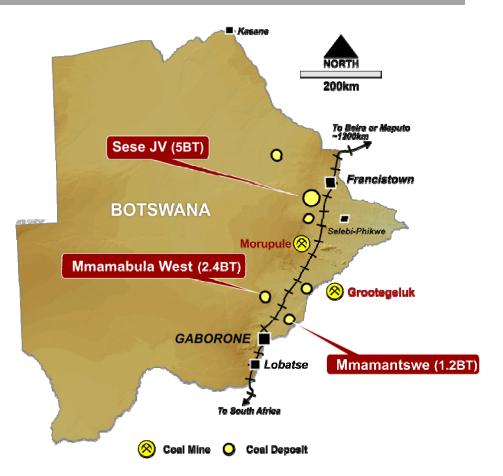
## Company overview



#### AFR is participating in the development of three large-scale power projects in Botswana

- African Energy Resources Ltd (ASX: AFR) has built a portfolio comprising over 8.5 billion tonnes of thermal coal\* in Botswana, the safest and most stable investment destination in Africa
- Three projects are being developed as 300-600MW fully integrated power projects to supply the chronically power starved SADC region
  - Sese JV: managed by First Quantum Minerals Ltd, targeting power sales to Zambia
  - Mmamabula West: developing a 600MW power project for submission into South Africa's 3,750MW coal-fired base-load cross border IPP procurement program
  - Mmamantswe: Agreement to sell project to South African developer (TM Consulting) for US \$20M at financial close

\* Refer to Appendix 1 Resource Statement



### Regional demand for new power generation is strong



**Industrial demand** in the Copperbelt and Bushveld, plus growing population is driving a strong, long-term regional market for new power generation (base-load + renewables)

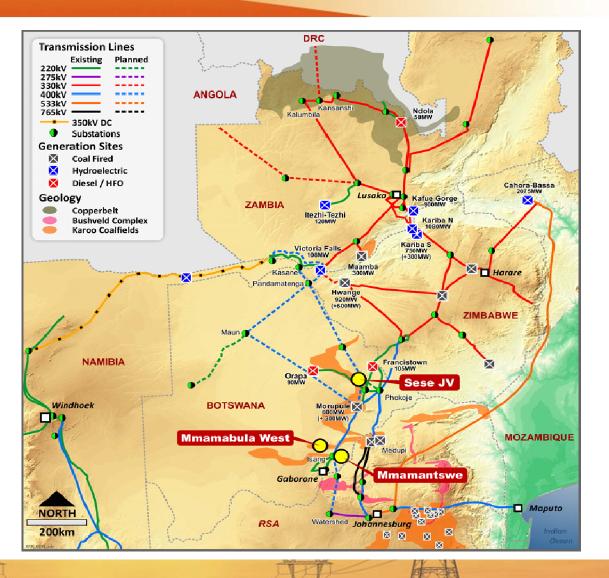
## Limited competition for new base load supply in main markets:

- Zambian hydro-electric projects (~80% of installed base load) struggle during drought
- Limited alternative fuels in Zambia for base load power, currently importing expensive diesel generated power from Mozambique
- South Africa formally seeking 3,750MW via cross border, coal-fired, IPP procurement

#### Key infrastructure already in place: well

developed regional interconnected transmission grid allows wheeling of power throughout the region with additional capacity planned over the short term

#### AFR is well placed to supply these markets due to proximity and abundant low-cost coal (fuel security)



## The Sese JV: Summary



#### First Quantum Minerals Ltd (FQML) is investing A\$20M into the Sese JV

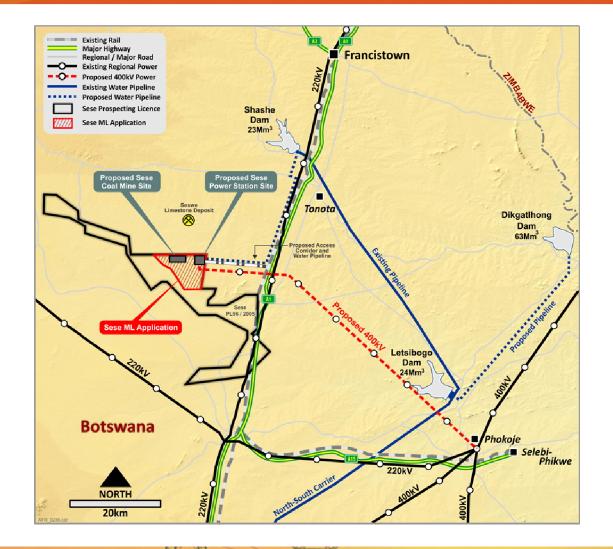
- Over A\$10M invested to date by FQML to take a 55% interest and management of JV
- FQML sole funding the first A\$20M to increase its interest to 75%
- Funding being used to investigate the development of a fully integrated coal mine and mine-mouth power station
- Major work program commenced in Q3 2016 to advance technical studies and permitting, completion due by end Q1 2017
- Remaining ~A\$7M to be invested in project by 12<sup>th</sup> July 2017
- AFR is loan carried by FQML beyond the initial A\$20M investment – i.e.
   AFR does not have to contribute any more cash to this project, even for construction



15,000t bulk sample pit excavated by AFR at the Sese project

### Sese JV: Project overview





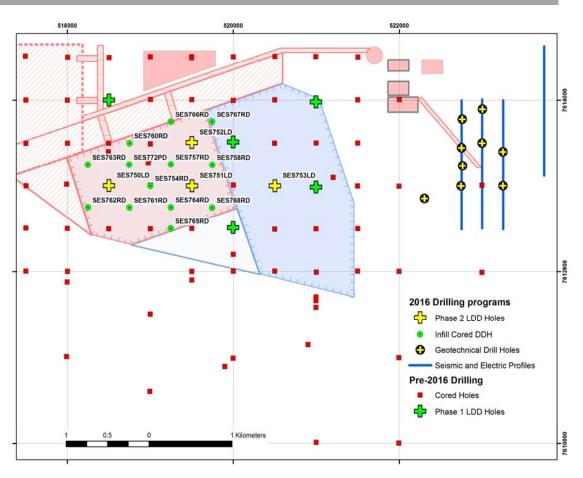
- Approved EIA for 300MW of power and associated coal mining
- Approved water allocation from Shashe Dam sufficient for 750MW
- 50-year Land Lease Agreement covering 110km<sup>2</sup> Land Rights area
- 51km<sup>2</sup> Mining Licence with enough coal in ML to fuel multiple power projects for >35 years
- 400kV grid connection to Phokoje sub-station opens up power markets in Botswana, Zambia, South Africa, Namibia
- Transmission studies for power evacuation to Zambia completed
- Power station preliminary design and layout, and indicative EPC pricing expected in Q1 2017

## The Sese JV: Current work programs to end Q1 2017

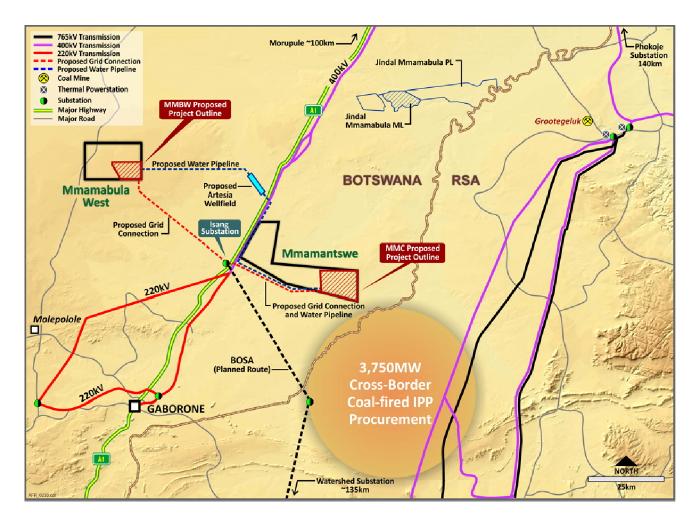


#### AUD \$3M commitment to technical, commercial and permitting programs

- Infill drilling program completed to allow more detailed scheduling in proposed mining area
- Update of mining study and mine scheduling for 450MW integrated power project (staged development of 2 x 225MW) due in Q1 2017
- Large diameter drilling program completed, finalisation of power station fuel specification due in Q1 2017
- Consultant engaged to deliver PFS for coal handling and preparation plant in Q1 2017
- Consultant engaged to provide preliminary power station design and layout plus minimum functional specification to obtain indicative EPC pricing in Q1 2017
- Preliminary geotechnical evaluations (drilling, seismic survey, electrical survey) of proposed power station and mine infrastructure sites has been completed
- Early site works to include upgrading access road and preliminary siting of camp in 2017



## South Africa: the biggest regional market for power sales



#### South Africa announced a

**3,750MW** coal-fired, cross-border, base-load IPP procurement program in May 2016:

- Includes mechanism for direct negotiation with the Dept. of Energy (the "Procurer") for power sales agreements with Eskom
- > Targeting grid connection "ASAP"
- Commitment to additional regional transmission infrastructure such as BOSA
- Strong support from Government of Botswana

**Projects in Botswana** may account for a significant component of this procurement program due to limited competition from other countries

Mmamabula West and Mmamantswe are both close to transmission connections and the main demand power centers in the northern Bushveld

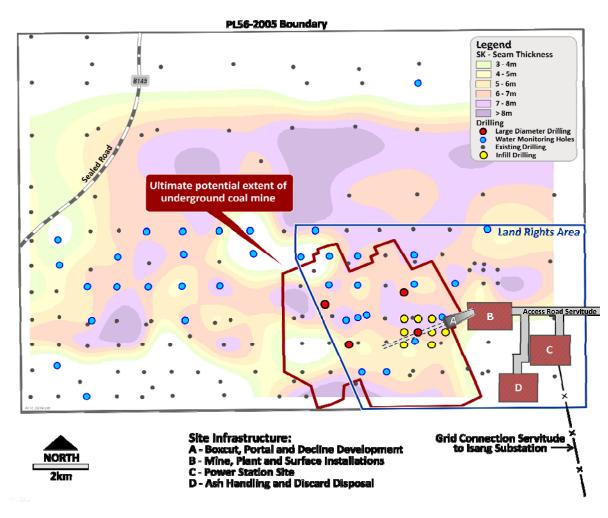
## Mmamabula West: 600MW development opportunity



- PFS for coal mine completed in 2014

   demonstrated potential for low cost
   ROM coal\* for use as power station
   fuel
- Infill drilling completed in late 2016 to upgrade part of resource to Measured
- EIA amended to include 600MW power generation plus associated grid connection, submitted Jan 2017
- Land Rights application submitted
- Fuel specification development program close to finalisation
- Aim to complete all technical studies and permitting activities and make a formal project submission to South Africa's IPP office in 2017

\* Refer to Prefeasibility Study results announced to ASX in May 2014



### Summary – a strong project pipeline



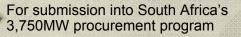


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FQML evaluating the development of an integrated mine and power station

FQM earning-in, AFR loan carried to production from ~450MW power station

**Mmamabula** 



AFR to retain significant equity position in project throughout development

**Mmamantswe** 

Agreement to sell Project to a South African developer at financial close

Potential \$20M short-term return, conditional upon SA IPP success

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## **Appendix I: Global AFR Coal Resource Statement**



#### Global Coal Resources for AFR Limited Coal Projects in Botswana

Sese Coal & Power Project: Resource Summary (Raw coal on an air-dried basis), FQML 55%, AFR 45%								
Resource Zone	In-Situ Tonnes*	CV (MJ/kg)	CV (kcal/kg)	Ash %	IM%	VM%	FC%	S %
MEASURED (Block-C)	333 Mt	17.6	4,200	30.2	7.9	20.6	41.4	2.1
MEASURED (Block-B)	318 Mt	16.0	3,820	34.8	7.4	20.4	37.4	1.7
INDICATED	1,714 Mt	15.3	3,650	38.9	6.6	18.7	35.8	2.0
INFERRED	152 Mt	15.0	3,600	39.1	6.4	19.5	34.9	2.2
TOTAL	2,517 Mt							

Sese West Project: Resource Summary (Raw coal on an air-dried basis) FQML 55%, AFR 45%								
Resource Zone	In-Situ Tonnes*	CV (MJ/kg)	CV (kcal/kg)	Ash %	IM%	VM%	FC%	S %
INFERRED	2,501Mt	14.6	3,500	40.2	6.1	19.8	31.9	2.0
TOTAL	2,501Mt							

Mmamabula West Project: Resource Summary (Raw coal on an air-dried basis) AFR 100%								
Resource Zone	Resource Zone         In-Situ Tonnes*         CV (MJ/kg)         CV (kcal/kg)         Ash %         IM%         VM%         FC%         S %							
MEASURED	N/A							
INDICATED	892 Mt	20.2	4,825	25.5	6.0	26.0	41.0	1.5
INFERRED	1,541 Mt	20.0	4,775	25.5	5.7	25.9	41.2	1.7
TOTAL	2,433 Mt							

Mmamantswe Project: Resource Summary (Raw coal on an air-dried basis) AFR 100%								
Resource Zone	In-Situ Tonnes*	CV (MJ/kg)	CV (kcal/kg)	Ash %	IM%	VM%	FC%	S %
MEASURED	978 Mt	9.5	2,270	56.5	3.9	15.8	21.8	2.0
INDICATED	265 Mt	7.9	1,890	62.3	3.3	14.2	18.1	2.1
INFERRED	N/A							
TOTAL	1,243 Mt							

\* In-Situ tonnes have been derived by removing volumes for modelled intrusions, burnt coal and weathered coal and then applying geological loss factors to the remaining Gross In-Situ Tonnes

## Appendix II:Corporate summary



<b>Directors and Senior Management</b>						
Alasdair Cooke	<i>Executive Chairman</i> , >25 years experience in project development, mining and resource sector					
Frazer Tabeart	<i>Managing Director,</i> >25 years experience in international exploration and development projects,					
Bill Fry	<i>Executive Director,</i> >25 years experience in finance, funds management and commercial management					
Valentine Chitalu	<i>Non-executive Director,</i> >25 years experience in finance and funds management, based in Zambia					
Phil Clark	<i>Non-executive Director,</i> >35 years experience in international coal industry, largely with BHP Billiton					
Wayne Trumble	<i>Non-executive Director,</i> >35 years experience in power generation and financing, including Bluewaters (WA)					
lan Hume	<i>Non-executive Director,</i> >35 years experience in international finance, one of the founders of Sentient Group					
John Dean	<i>Non-executive Director,</i> Commercial Manager at First Quantum's Sentinel copper operation in Zambia					
David Walton	<b>Project Manager,</b> >30 years experience with power development, generation and power sales/marketing					
Daniel Davis	<b>Company Secretary and Financial Accountant,</b> >12 years experience in accounting and resource sector					

ASX Code	AFR
Shares on issue	608 million
Market Cap (@ \$0.038)	AUD \$23M
Cash (31 Dec 2016)	AUD \$4.5M
Debt	Nil

#### Major Shareholders

The Sentient Group	23%
First Quantum Minerals	11%
Management	10%
Top 20 (includes above)	62%