

# Power Generation and Coal Export Project Developments

AGM Presentation 16 November 2018



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# AFR is developing two principal businesses



# **1.** Power Generation

- SESE JV with First Quantum Minerals Ltd
  - Unit 1 is 225MW (gross) = 188MW net sales
  - Power sales to FQM (Zambia) = 100MW
  - Power sales to third parties = 88MW
  - Low cost, low emission, reliable power
  - Can sell power at competitive tariff
  - Good return on equity (ROE) at this tariff
  - Subsequent Units have higher ROE
  - EIA recently upgraded to 500MW
  - Approved Mining Licence
  - Almost fully permitted
  - RAP (relocation) nearly complete
- MMC Mmamantswe Coal and Power Project
  - Up to 600MW for sale to South Africa
  - Conditional sale to South African developer
  - 25km from border with South Africa

# **2. Coal Exports**

### MMBW · Hig

- High-quality thermal coal at MMBW
  - Increasing global coal prices
  - Upgrade to measured resource in Q4
  - 2015 Prefeasibility study on export mine
  - Coal specs developed for power stations
  - Major market emerging in South Africa
  - Can produce Eskom quality coal
  - Can produce Richards Bay export coal
  - EIA submitted for mine and power station
  - Land rights application submitted
  - Seeking South African project partner



# **Business development over the next 6 months**



# Sese JV

- > Finalise negotiations for:
  - > PPA for 100MW sold to FQM,
  - > MOU and Draft PPA to sell 88MW balance
  - Use of system charges and
  - Wheeling costs (ie costs to transmit the power through third party countries such as Zimbabwe)
- Finalise Generation and Export Licence, which is the only outstanding major permit required
- Complete Resettlement Action Plan (RAP)
- Opportunities arising from China's Belt and Road initiative (BRI) which is being rolled out throughout Africa
  - \$30 billion to be invested across Africa with majority into infrastructure projects
  - > Requires Chinese project participation
  - Potential for low cost finance

# **Mmamabula West**

- Secure South African project partner
- > Upgrade portion of resource to Measured category
- Commence marketing for coal exports
- Finalise EIA and Land Rights approvals
- Finalise Mining Licence application

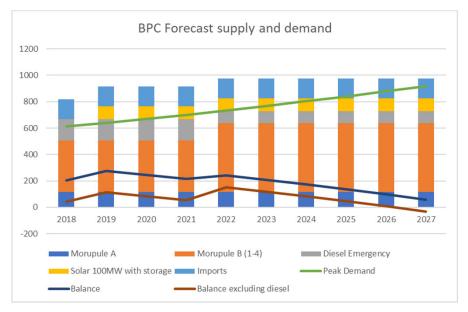
### **Regional power supply-demand trends**



- Zambia (2,734MW) and Botswana (489MW) are the key markets relevant to Sese JV. Both markets have steadily growing demand as more of the population is connected to grid power.
- Over 80% of installed generation in Zambia is hydro-electric which is not always available due to seasonal rainfall variation – Zambia has been a net importer for some years now
- Current Botswana demand can only be met by importing from Eskom AND running expensive diesel emergency units (see graph)
- Botswana will run at deficit for years to come due to Morupule-A not yet fully refurbished and Solar+Storage not yet even awarded, so well behind schedule
- Eskom has been selling its net surplus in last few years to Zambia, Botswana, and Namibia, forming a barrier to entry for new energy projects
- Eskom' surplus is very fragile: as shown by recent load shedding in Botswana, Zambia and South Africa

| UTILITY | OPERATING<br>CAPACITY<br>(MW) | PEAK<br>DEMAND<br>(MW) | PEAK PLUS<br>RESERVE<br>MARGIN (MW) | BALANCE<br>(MW) |
|---------|-------------------------------|------------------------|-------------------------------------|-----------------|
| ESKOM   | 48,463                        | 38,897                 | 44,732                              | +3,731          |
| ZESCO   | 2,734                         | 2,194                  | 2,523                               | +211            |
| BPC     | 489                           | 610                    | 702                                 | -243            |

Capacity vs demand for key utilities (SAPP published data 2017)



BPC Forecast supply and demand (BPC Annual Report 2017)

# **Key drivers supporting Sese development**



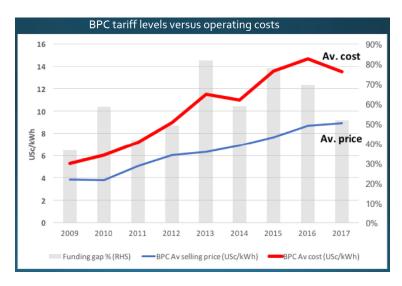
#### **1. TARIFF INCREASES ARE INEVITABLE**

- Current tariffs to residential and industrial users are not cost reflective, and must increase to make the utilities financially independent from government bail-outs
- Eskom tariff likely to escalate very rapidly over next three years and continue to rise to at least US 10c per kWh by 2022
- Likely to see significant increase in Zambian tariff's to sustain ZESCO over medium- to long-term
- Sese is able to supply at competitive tariff to utilities and still generate an attractive return on equity

#### 2. ESKOM SURPLUS IS UNSUSTAINABLE

- Eskom surplus is fragile and under pressure from rising coal costs, underinvestment in infrastructure and likely closure of older plants
- Recent strike action caused widespread load shedding in southern Africa as unions resist power station and coal mine closures – potential for major disruption
- Even a small increase in domestic demand would rapidly wipe out the surplus

| Country      | Current Tariff<br>US c/kWh |
|--------------|----------------------------|
| Botswana     | 8.5                        |
| Zambia       | 9.3                        |
| South Africa | 7.0                        |
| Zimbabwe     | 7.8                        |
| Namibia      | 11.3                       |

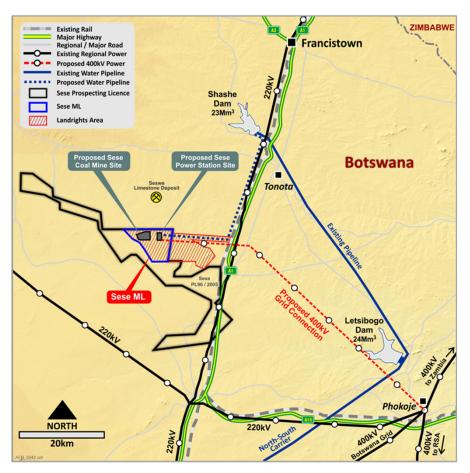


#### BPC Annual Report 2017

# Sese JV: project update

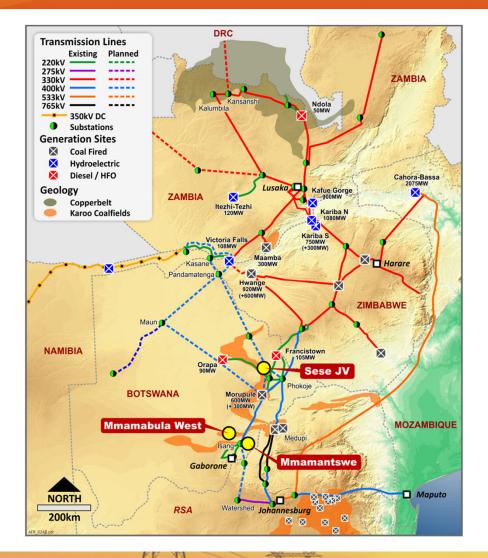


- Approved 25-year Mining Licence covering 51km<sup>2</sup> which contains enough coal to fuel multiple 450MW power projects
- Approved Manufacturing Development Approval Order sets fiscal regime for the power project
- Approved Environmental permits to allow up to 500MW of power generation and associated coal mining
- Approved water allocation from Shashe Dam and fully executed 30-year Water Supply Agreement
- Approved 50-year Land Lease Agreement covering 110km<sup>2</sup>
- Resettlement Action Plan nearing completion with 25 of 28 households resettled.
- Power Sales Agreement between Sese JV and FQM's copper operations in Zambia at final draft stage
- ✓ Financial modelling shows robust return on equity for power sales at under US 10c per kWh
- ✓ AFR's equity contribution will be loan carried by FQM



## **Sese JV Project Business Plan**

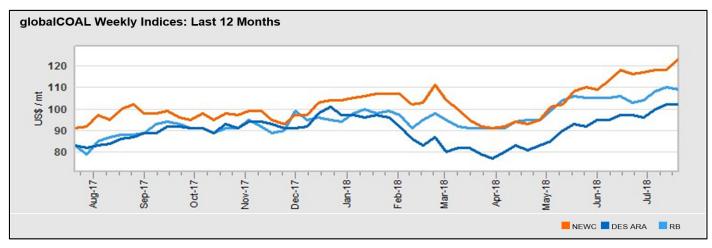




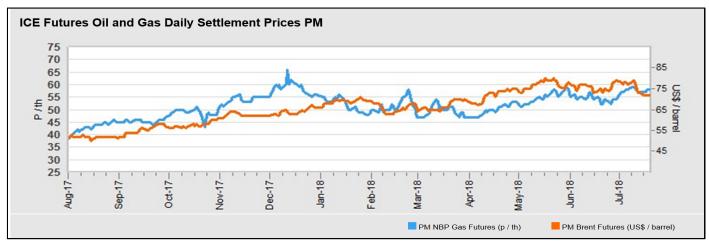
- Sese can provide reliable supply and very competitive power prices to meet the market opportunities highlighted in previous slides
- Sese is being developed by majority owner FQM, primarily to provide reliable and affordable power to its copper operations in Zambia
- > 100MW to be be imported into Zambia
- This will leave 88MW available for purchase in Botswana for BPC, local customers or export
- Most recent developments have come from the \$30 billion Belt and Road initiative being rolled out across Africa by China
  - Initial focus on major infrastructure projects, particularly power generation
  - Sese is one of the most advanced power project opportunities ready for development
  - May unlock attractive finance options for funding the construction of the project
  - Initial engagements with Chinese SOE's have been positive

# **Coal exports: 12 months of energy price gains**





Steady increase in global coal prices in three key markets: Australia (NEWC), South Africa (RB) and Europe (DES ARA)

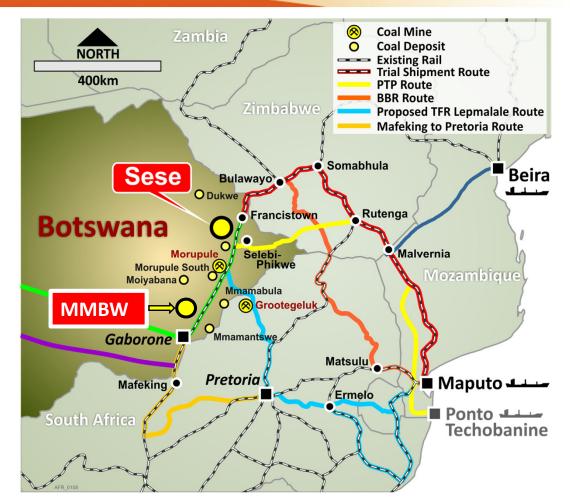


Coal price increases have generally matched the steady increase in global oil and gas prices

# **Coal export market opportunities**



- Increased prices for coal exported from Richards Bay in RSA have been sustained throughout 2018
- Flow through impact on domestic sales price of coal in South Africa
- Eskom increasingly reliant on numerous small scale (inefficient) mines in South Africa, where costs are rising and supply is becoming increasingly unreliable
- Coal prices to Eskom have increased due to these pressures
- Eskom will be forced to increase tariffs if local coal prices remain at these levels
- Opportunity for new, efficient mines in Botswana to replace high marginal cost mines in South Africa
- AFR's Mmamabula West coal project is close to rail infrastructure providing access to Eskom's power stations in Witbank and Waterberg areas



Existing and proposed rail routes linking Botswana and Eskom's power stations near Grootegeluk (Waterberg) and in the Witbank area (red ellipse)

# Mmamabula West: export quality thermal coal



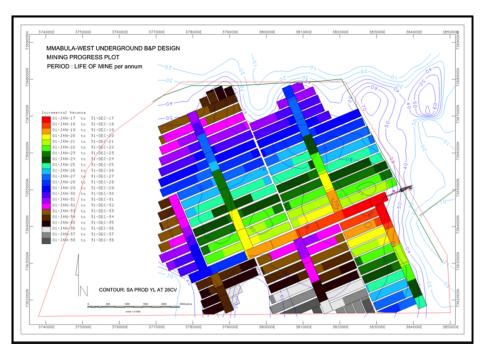




# **Mmamabula West project summary**



- Significant resources of exportable coal within the overall 2,443Mt Indicated and Inferred resource (refer Appendix 1)
- 65km from rail with direct access to South African markets, including Eskom power stations
- Prefeasibility Study published in May 2015 for a conventional 4.4 Mtpa underground coal mine and associated coal export infrastructure:
  - ➢ Initial capital cost of US \$113M
  - Can produce Eskom quality coal for US \$15/t at the mine gate + \$8/t road haulage = \$23/t loaded onto train linked to South African markets
  - Can produce seaborne export coal for US \$25/t at the mine gate + \$8/t road haulage = \$33/t loaded onto train
- > EIA and Land Rights applications submitted
- Environmental baseline studies for surface and ground water ongoing for last three years

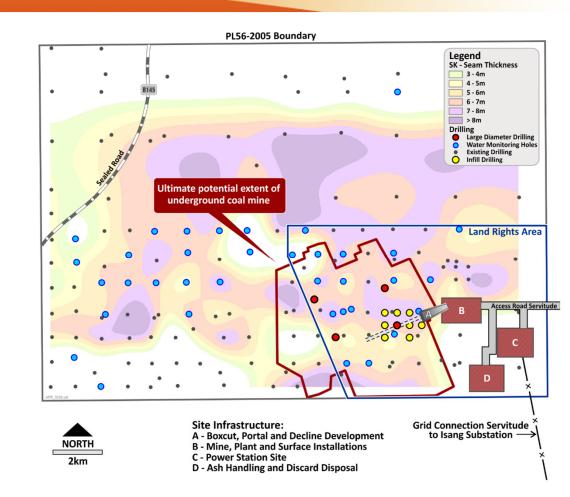


20-year Life of Mine mining schedule for proposed 4.4 Mtpa conventional underground coal mine on the lower A-Seam at Mmamabula West

# **Mmamabula West development plan**



- Upgrade ~70Mt portion of the Indicated resource to Measured Resource to underpin bankable feasibility study
- Pursue EIA and Land Rights applications
- Apply for Mining Licence once EIA and Land Rights approved
- AFR seeking to market MMBW coal to South African markets, including Eskom
- Eskom's policy is to only buy coal from black South African majority owned businesses (>50% BBBEE)
- AFR is actively seeking a South African partner to take a majority position in the project enabling access to coal sales opportunities to Eskom and other industrial users
- Progress being made in a challenging environment – updates will be provided in due course



### **Summary**



- > Power generation in southern Africa is still a robust business and well worth pursuing as tariff's will inevitably increase
- > China's \$30bn Belt and Road initiative may provide a significant financial stimulus that can work in Sese's favour
- Good levels of interest from Chinese SOE's from initial engagements
- > AFR seeking to market Mmamabula West coal to South African markets, including Eskom
- AFR is actively seeking a South African partner to take a majority position in Mmamabula West enabling access to coal sales opportunities to Eskom and other industrial users
- > Progress on all fronts being made in a challenging environment updates will be provided in due course
- > AFR has maintained a healthy cash position through reductions in corporate costs and sales of non core assets
- Currently AUD \$3.3M in cash and AUD \$0.9M in liquid assets provides adequate funding to pursue successful outcomes for Sese JV and Mmamabula West

# **Appendix 1: Global 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 65%, AFR 35% |                 |            |              |       |     |      |      |     |
|---|-----------------|------------|--------------|-------|-----|------|------|-----|
| 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 65%, AFR 35% |                 |            |              |       |     |      |      |     |
|--|-----------------|------------|--------------|-------|-----|------|------|-----|
| 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  | 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 2: 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>Executive 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                |  |  |  |  |  |
| lan Hume                               | <i>Non-executive Director,</i> >35 years experience in international finance, one of the founders of Sentient Group |  |  |  |  |  |
| John Dean                              | Non-executive Director, Project Feasibility Manager at First Quantum's Cobre Panama operation                       |  |  |  |  |  |
| 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                        | 627 million |
| Market Cap (@ \$0.018)                 | AUD \$11M   |
| Cash (30 Sep 2018)                     | AUD \$3.4M  |
| Debt                                   | Nil         |
|  |             |
| Major Shareholders                     |             |
| Sentient Equity Partners               | 23%         |
| First Quantum Minerals                 | 14%         |
| Management                             | 10%         |
| Top 20 (in <mark>cl</mark> udes above) | 66%         |
|  |             |