

**Breakaway  
Research**

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### Company Information

ASX Code	AFR
Share Price (29 Jan 2016)	A\$0.051
Ordinary Shares	611.4m
Options (Unquoted)	13.8m
<b>Market Cap – undiluted</b>	<b>A\$31.18m</b>
Cash (Est)	~A\$7m
Debt	Nil
<b>Enterprise Value</b>	<b>A\$24.2m</b>

### Directors

Executive Chairman	Alasdair Cooke
Managing Director	Frazer Tabearth
Executive Director	Bill Fry
Non-Executive Director	Valentine Chitalu
Non-Executive Director	Phil Clark
Non-Executive Director	Ian Hume
Non-Executive Director	Wayne Trumble
Non-Executive Director	John Dean
Alt. to Ian Hume	Yan Zhao

### Company Details

Address	Suite 1, 245 Churchill Avenue Subiaco WA 6008
Phone	+618 9212 0600
Web	www.africanenergyresources.com

### Top Shareholders (as at 2 Feb 2016)

Sentient Executive GP IV Ltd	23.24%
First Quantum Minerals (Aus)	11.34%
Alasdair Cooke (+asstd entities)	8.19%
Top 20	64.03%

### 1 Year Price Chart



Source: Commsec

# African Energy Resources (AFR)

*Low risk power opportunity in an undersupplied region*

## Recommendation: Speculative Buy

### Key Points

- **Southern African countries have significant power deficits and are chronically short of reliable, base-load power, a situation which is unlikely to change in the immediate future**
- **African Energy has three potential integrated coal mine and power generation projects in Botswana, at least one at a relatively advanced stage**
- **The projects are centrally located to take advantage of the existing power grid and grid connections**
- **AFR has partnered with development companies that have the requisite skills, experience and local knowledge to finance and develop the key projects**
- **Botswana provides one of the most stable, secure fiscal and political systems in southern Africa, which should appeal to both investors and providers of finance**
- **The Board and management team has vast experience in base-load power generation projects across several continents**
- **The Company has sufficient cash to meet its moderate on-going spend over the medium term, minimising the need for any immediate equity raisings**

*African Energy is an ASX listed company developing base-load power projects in Botswana. These projects will sell power to off-takers in the Southern African Power Pool, all of whose members are experiencing long-term, large scale deficits in their power generation. The Company has access to some of the best power station fuel in a safe investment jurisdiction.*

### Company Overview

African Energy Resources Limited ("African Energy", ASX: AFR) listed on the ASX in April 2007. After an initial focus on uranium in Zambia, in May 2010 the Company discovered extensive near-surface coal at Sese, near Francistown in Botswana. After establishing a substantial coal resource, a Concept Study indicated the potential for both mine-mouth power generation and coal exports. In early 2015 First Quantum Minerals invested in the Sese project to take a controlling interest and the role of project manager. Sese remains the Company's flagship and most advanced project, but the acquisition of two further coal to power projects in Botswana provides additional near-term development opportunities for the Company.



## Investment Thesis

### Regional Shortage of Power in Southern Africa Provides Opportunities

Every country in the Southern African Development Community (SADC) is chronically short of reliable, affordable base-load power.

*Long term, large scale deficits in Southern African power generation*

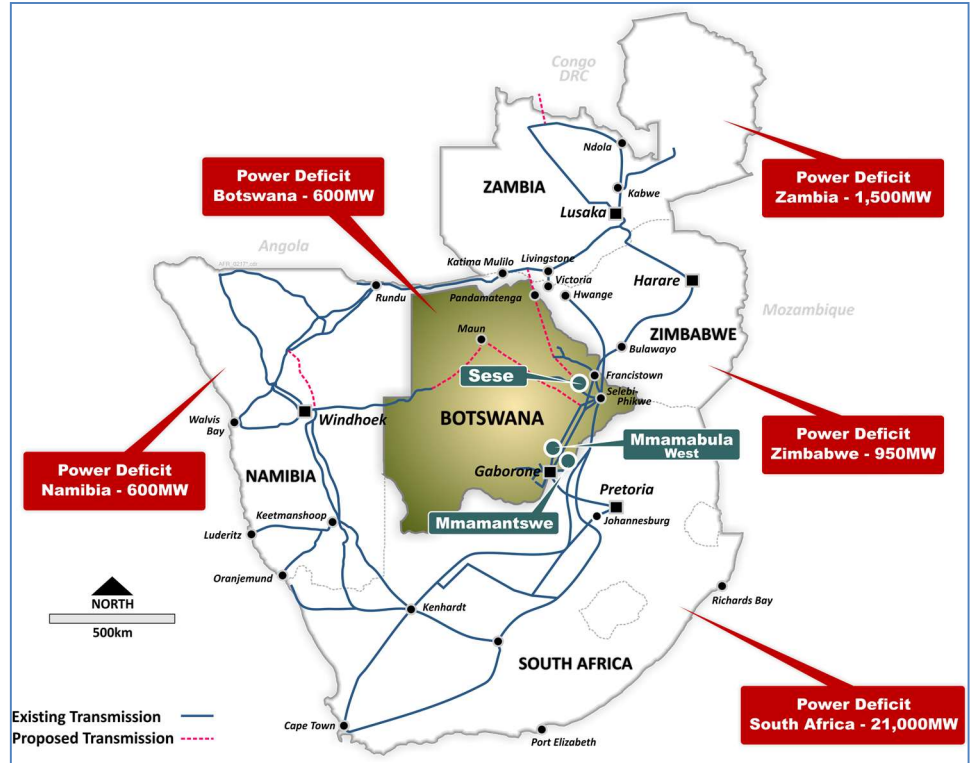


Figure 1: Southern African Power Deficits

Source: African Energy

Power blackouts in many of the countries, especially South Africa, are adversely affecting business and industry and causing major inconvenience to domestic users. Some countries, such as Zambia and Botswana, are currently reliant on expensive diesel-fuelled generation as part of their base-load, in some cases importing diesel generated power at up to 18c per kWh.

*AFR's projects centrally located to existing grid*

### AFR Ideally Positioned to Take Advantage of Regional Power Demand

AFR's Botswana power generation projects are centrally located in relation to the South African Power Pool (SAPP) transmission grid and in close proximity to grid connection. All of AFR's projects are located adjacent to the north-south railway line and are easily accessed by road.

*Botswana provides a secure/stable fiscal and political environment*

### Botswana Provides a Stable Business Environment

Botswana is one of Africa's most stable countries, with one of the longest running multi-party democratic systems on the continent. The overall security situation is much more positive than in most other states and the low operational risk is reflected in the country achieving one of the world's highest economic growth rates since its independence in 1966. Botswana is ranked number one in Africa on Transparency International's anti-corruption index and number four on the World Bank/IMF Doing Business report.

### Conditions Ideal for the Entry of Private Power Operators in the Region

Power generation in all of the nine operating member countries of the Southern African Power Pool is through state-owned entities. Despite the acute shortage of power, most



*Underinvestment by governments likely to continue...*

*...paving way for independent suppliers*

of the Governments are under considerable financial stress and the availability of funds for additional power generating capacity is limited. Furthermore, power plants currently in the development pipeline are running well behind schedule and over budget, while several of the power stations recently built are performing well below expectation. This suggests that power deficits are very likely to persist. Therefore, non-state participation in power generation in the area, initially on a supplementary basis, is likely to form part of the solution.

### **AFR Can Play a Role in the Regional Power Development**

*AFR ideally placed to take advantage of power deficits*

AFR is ideally placed for participating in power generation in the southern African region. It has resources to provide coal to an adjacent power plant at three separate and distinct projects, and is in the process of procuring Joint Venture partners to fully assess and develop the projects at no cost to AFR. The projects are all centrally located in Botswana, a country with very low sovereign risk and a proven investment history in the resources sector. This should be highly attractive to both infrastructure funds and bankers and considerably improve the chances of financing the projects.

### **Three Power Projects with Different Development Horizons**

*Three projects with different investment approaches*

The Company has three integrated power projects with different profiles. The Sese Power Project, operated by First Quantum Minerals, is the most advanced, where a proposed 80km transmission connection to the Botswana grid would allow potential power supply to Zambia, Namibia, South Africa and Zimbabwe. AFR has entered into a Binding Share Sale Agreement for the Mmamantswe Project for a sum of US\$20m, while partners are currently being sought to re-align the Mmamabula West Project to bid into South Africa's Independent Power Project procurement program and to assess the potential for direct IPP supply to large-scale industrial users.

### **Potential for Export Opportunities**

*At least one project with export potential*

In the current global resources climate, the Company is very wisely concentrating its efforts on the development of power generation opportunities in a region with significant power deficits. However, the coal resource at Mmamabula West contains high quality coal which has export potential in the longer term.

### **Coal May be Down, but Certainly Not Out**

*Renewables may be on the rise globally...*

*...but coal will still provide the mainstay in the short/medium term*

Far from being a fuel of the past, global coal production is currently 2.8 times higher than it was in 1973 and 75% higher than it was in 2000. Coal still accounts for around 29% of the world's energy supply, while its share is even higher (41%) in terms of electricity production, compared to 22% for natural gas and 22% for renewables. In the next 15-20 years, the largest shifts are expected to be the increase in the renewables share and the decline in the coal share. The likely outcome by 2035 is for a more balanced and diversified portfolio of fuels for power generation. Coal would remain the dominant fuel, accounting for more than one third of the inputs to power generation. While the global share of coal fired generation may decrease, the absolute volume of coal fired generation may actually increase. It is also worth noting that the US Congress recently passed the Electrify Africa Act under which the US will promote the development of power projects in Africa, including those based on coal.

### **Sufficient Cash to Advance the Mmamabula West Project**

*No requirement to raise cash over next few years*

First Quantum is currently sole funding the Sese Joint Venture and AFR should have no further cash commitments on the Mmamantswe Project, provided the sale agreement is completed. AFR currently has a cash balance of approximately \$7m, sufficient to meet the



expected annual burn of approximately \$2m. The availability of funds means work on the Mmamabula West Project can proceed without interruptions due to cash flow issues.

### Experienced Board & Management

The Board and management team comprises experienced resources and power business executives, who, amongst them, have developed and managed extractive resource projects and large-scale baseload power businesses in Australia, Africa, Europe and Asia.

*Board & management with power business experience*

### Peer Comparison

Excluding the expansion of capacity at the Marupule B Power Project, the only other known advanced integrated power project in Botswana is Jindal Africa's Mmamabula Energy Project. This is a planned 300MW to 1200MW capacity power station and integrated coal mine project that is intended to provide power to South Africa and Botswana. All technical feasibility studies have been completed on the project and total investment by CIC Energy on the project is in excess of C\$100m. CIC Energy Corp. was acquired by Jindal BVI Limited, a subsidiary of Indian steel major Jindal Steel and Power Limited, in 2012.

*Only one other known competitor in Botswana...*

In December 2009, CIC Energy suspended all development activities unrelated to the approval process in South Africa after South Africa's first integrated resource plan was made public and unexpectedly did not cover the time period of the Mmamabula Project. In May 2011, South Africa's second integrated resource plan was completed and again did not provide any opportunity for the company to supply power to South Africa prior to 2019, and then only in smaller amounts than the 1200 megawatts. As a result, the project remains on hold. Notwithstanding the suspension, this project is believed to be the most advanced independent power station project that can meet demand for new baseload capacity in South Africa in the medium term.

*...but advanced project on hold since 2009*

### Key Risks

- **Availability of Capital** – Unlike many smaller companies, AFR is currently not hampered by a lack of funding for everyday activities. Significant capital expenditure on power generation assets would normally be beyond the capabilities of a relatively small company such as African Energy. Funding risk is being managed through the introduction of development partners at each project which brings not only balance sheet strength but also engineering, project management skills and commercial knowledge of the local power market.
- **Securing Long Term Power Purchase Agreements** – This is a critical aspect, as Power Purchase Agreements would be a prerequisite for any funding agreement. The mitigants are the same as for financing/funding – the introduction of development partners with the relevant skills and strengths.

*Funding and power purchase agreement risk managed through introduction of development partners*

### ***Power Generation in Southern Africa***

Every country in the Southern African Development Community (SADC) is chronically short of reliable, affordable base-load power. This is becoming increasingly reflected in disruptions to electricity supply in many of the countries, causing load-shedding and adversely affecting manufacturing and industry.

The Southern African Power Pool (SAPP) was formed in 1995 with the purpose of providing reliable and economical electricity supply to the consumers of each of the SAPP members, consistent with the reasonable utilisation of natural resources and the effect on the environment. There are currently nine operating members: South Africa, Botswana,

*Chronic shortage of base load power in Southern Africa*



*Southern African Power Pool set up to provide reliable & economical electricity supply*

Mozambique, Lesotho, Namibia, Democratic Republic of the Congo (DRC), Swaziland, Zambia and Zimbabwe. The bulk of power generating facilities in each of these countries are state owned. Non-operating members are Angola, Malawi and Tanzania, while the Copperbelt Energy Corp (Zambia) is the only independent transmission and distribution company within a portion of the Copperbelt. South Africa is the dominant power producer in the pool, generating almost 80% of the total output.

*Regional power generation dominated by coal...*

Power generation in the region is dominated by coal, which accounted for almost three quarters of power supply in 2009, compared to approximately 20% from hydro power, 4% from nuclear and 1.6% from gas/diesel. Like most other regions, renewables will play a more important role in the future and power projections beyond 2020 rely heavily on proposed hydro power from the Congo river in the DRC. However, the Grand Inga Scheme is unlikely to be built due to the massive cost and unreliability of rainfall. New and expanded coal-fired capacity being brought on stream in several southern African countries has been beset by technical difficulties, substantial cost over-runs and inability to achieve planned output levels.

*...set to continue in future*

It is clear that the region has a major power supply deficit and that coal will still be the dominant source of additional power in the medium term. The current power shortages are due to, amongst other factors, a lack of spending on new power generation, which, in turn, stems from a lack of funding from the state-owned power companies of the member countries. The case for power generation by Independent Power Producers (IPPs) is therefore a compelling one.

### ***Project and Activities Review***

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Against this backdrop of a power deficient region, African Energy has three integrated coal/power projects in Botswana:

- The Sese Integrated Power Project, in which First Quantum Resources has taken a controlling interest and management control, is an advanced project with the potential to deliver power into the Botswana grid and then on to Zambia, Namibia, South Africa and Zimbabwe.
- The Mmamatswe Project, which AFR is in the process of selling to a South African developer for US\$20m.
- The Mmamabula West Project, which has the resources and potential to supply coal power to the grid under an independent Power Project procurement Programme as well as export potential for coal in the longer term.

### ***Sese Integrated Power Project, Botswana – AFR 47%***

*Sese project progressively advanced since 2010*

The Sese Project, located in eastern Botswana, covers an area in excess of 100 km<sup>2</sup>. Since its discovery in 2010, African Energy has progressively advanced the 5bn tonne Sese coal and power project through a series of resource delineation drilling programs, feasibility studies and successful applications for environmental approvals, water resources and surface rights.

*Resources added through successive drilling programs*

Resource delineation drilling commenced in late 2010, with a maiden resource announced in May 2011. The coal occurs in a single seam approximately 14m thick and is close to surface. A Concept Study to evaluate the commercial viability of coal was completed in August 2011. The study recommended a formal feasibility study to assess the development of a 3-5Mtpa operation. A pre-feasibility study into a 300MW power station and captive coal mine was completed in 2013.



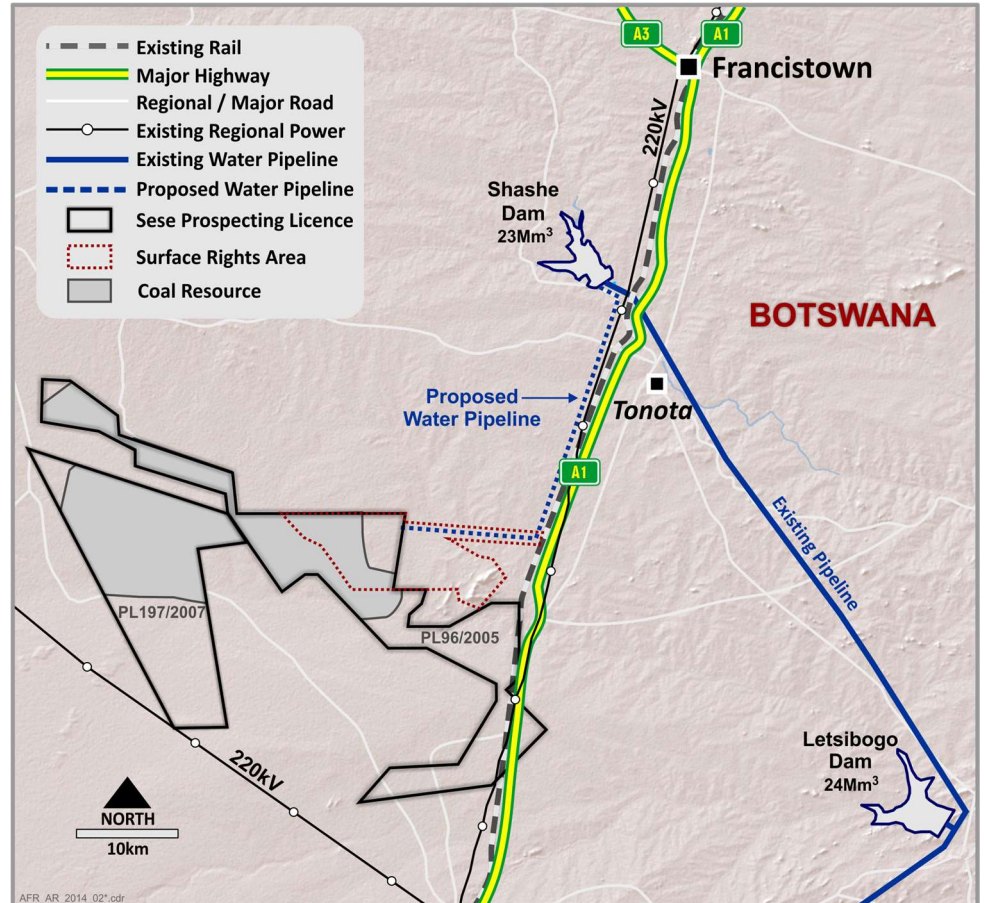
*Comprises power station complex and captive mine...*

The Sese Integrated Power Project will comprise a power station complex with its own captive coal mine. The Sese coal licence contains 5 billion tonnes of low strip ratio coal providing significant potential for expansion of generation capacity.

*...to produce 300MW power*

The most recent development concept is centred on an initial 300MW power station (2 x 150MW CFB boilers) with a captive 1.5Mtpa coal mine and related infrastructure, including an access to the main highway and regional transmission grid. Additional 300MW developments may be proposed as further capacity is contracted.

*Close to existing infrastructure*



**Fig 2: Location of Sese Project, Botswana**

**Source: African Energy**

*First Quantum Minerals becomes development partner in 2015...*

In January 2015, a Joint Venture Agreement was executed with First Quantum Minerals Ltd to develop power generation capacity at Sese. This agreement provides the company with a development partner with a strong track record in developing large-scale capital projects. It also provides a sound financial partner who is responsible for providing the necessary funding for the project development.

The key terms of the Joint Venture Agreement with First Quantum Minerals (“FQM”) are as follows:

*...initially earning 51%*

- FQM made an initial investment of \$8m to acquire a 51% interest in African Energy Holdings SRL, a wholly owned subsidiary of AFR. FQM is now the project manager for the Sese Project.
- First Quantum will invest a further \$12m within 18 months to earn an additional 24% stake.
- The \$12m funding is being used to investigate the development of a fully integrated mine and power station at Sese.
- Once First Quantum has earned its 75% stake, AFR’s 25% interest will be funded by First Quantum and loan carried through to the start of commercial operations.

*...moving to 75% through further funding*



*...allowing 25% free carried interest*

- AFR's 25% carried interest will be financed under the same terms as First Quantum's majority stake and First Quantum will arrange the full financing for each project. AFR is therefore not required to contribute any further capital for this advanced project.

Since taking management control of the project in January 2015, First Quantum has commissioned a number of technical studies to confirm project parameters which will allow the finalisation of a cost estimate for a fully integrated IPP.

*First Quantum has commissioned a number of technical studies since assuming control*

- The coal resources in Block-C alone are more than adequate for 2,000MW of power generation for 35 years.
- A study of transmission options has confirmed that the existing interconnected grid and the commercial protocols of the Southern African Power Pool are both suitable for the evacuation of power from Sese into the Botswana transmission network as well as wheeling power to neighbouring countries. A power plant at Sese can be integrated on a single circuit line from Sese to the existing Botswana Power Corporation sub-station at Phokoje.
- Engineering consultants have recently completed a review of the power station feasibility work completed to date and provided recommendations on key technology selection decisions and preliminary power plant design considerations.
- An application for a large scale Mining Licence will be submitted in the first half of 2016, followed by applications for Generation and Export licences.
- An application for a Manufacturing Development Approval Order will also be submitted, which is intended to set the fiscal, commercial and legal framework for the project.

*Mmamantswe Project only 20km from South African border*

### ***Mmamantswe Coal and Power Project, Botswana (100%)***

The 1.24bn tonne Mmamantswe Project, acquired by African Energy in mid-2013, is only 20km from the South African border and is close to the regional power grid. Technical studies have demonstrated the suitability of the coal for fuelling a power station similar to those in the adjacent Waterberg coalfield in South Africa. Almost 79% of resources are in the Measured Category, with the remainder in the Indicated Category.

*Approved EIA for 10Mtpa coal and 2000MW power*

Mmamantswe has an approved Environmental Impact Assessment for up to 10Mtpa coal mining and up to 2,000MW power generation. The project has a nearby 8GL/a registered water well field which could provide sufficient water for a project of this size.

*AFR registered 600MW power into most recent IPP*

South Africa's Department of Energy has issued a Request for Proposals to developers of projects for the first bid window of a 2,500MW coal baseload Independent Power Project (IPP) procurement programme, which is open to cross-border projects. The first bid window is for 1,600MW, of which 600MW can come from cross border parties. African Energy registered a 600MW power project at Mmamantswe into this program and immediately began a search for a development partner.

*Binding share sale agreement to sell project for US\$20m*

On 21 December 2015, African Energy announced that it had executed a binding Share Sale Agreement (SSA) under which a subsidiary of the Company would sell the Mmamantswe Coal and Power Project to TM Consulting (the Developer) for US\$20m, subject to certain conditions being met.

*Developer to sole fund IPP proposal*

The most important condition of the SSA is that the bid consortium wins a tender to build a power station for South Africa and takes this to financial close. This requires them to sole fund bid preparation and submission of a bid in response to a Request for Proposals in respect of South Africa's Coal Baseload Independent Power Producer procurement program.

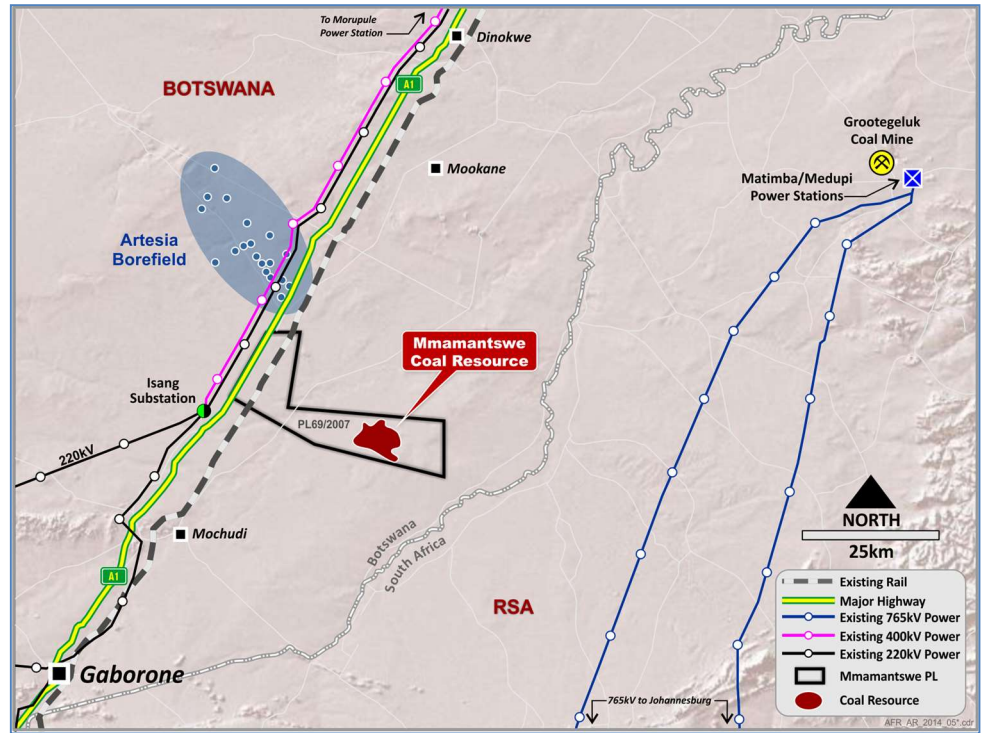


Figure 3: Mmamantswe Project Location

Source: African Energy

This will include the completion of an agreed work program to keep the Mmamantswe Prospecting Licence in good standing. African Energy is not required to provide any funding in relation to either the submission or the License upkeep. This will relieve African Energy of any financial commitments to this project over the short to medium term.

### Mmamabula West Coal and Power Project, Botswana (100%)

*Mmamabula West acquired because of size and export quality coal*

The 2.4 billion tonne Mmamabula West export coal project was acquired in late 2013 on the basis of its large size and export quality coal. Mmamabula West comprises two 4m to 6m thick coal seams, with the upper K-Seam averaging 105m depth below surface, and the lower A-seam 130m depth.

*Pre-feasibility conducted on 3Mtpa coal exports*

A Prefeasibility Study for an underground mine based on a 200Mt portion of the A-Seam within the Indicated Resource was completed in March 2014. The study evaluated a 4.4Mtpa ROM operation producing up to 3Mtpa of 6,200kcal/kg export coal over a 20-year mine life. The study envisaged industry standard bord-and-pillar extraction of the best quality section of the A-Seam using a fleet of up to five continuous miner sections with conventional coal processing by dense media separation. The initial capital cost estimate for an owner operated mine and processing plant was US\$113m, with an estimated ROM operating cost of US\$17/t.

*Project now being re-aligned to bid into IPP procurement program*

The geometry and coal quality of the Mmamabula West Project provides options for power generation and/or export of coal. With the current oversupply of export thermal coal, the slump in the coal price and logistics of exporting coal from Botswana, AFR is realigning this project to bid into South Africa’s IPP procurement program. The potential for direct IPP supply to large-scale industrial users and mining houses is currently being evaluated. Surface rights are being prepared and water supply options are being studied. The EIA is being amended and a grid connection study is in progress. The indicative development plan is shown in Figure 4 below.



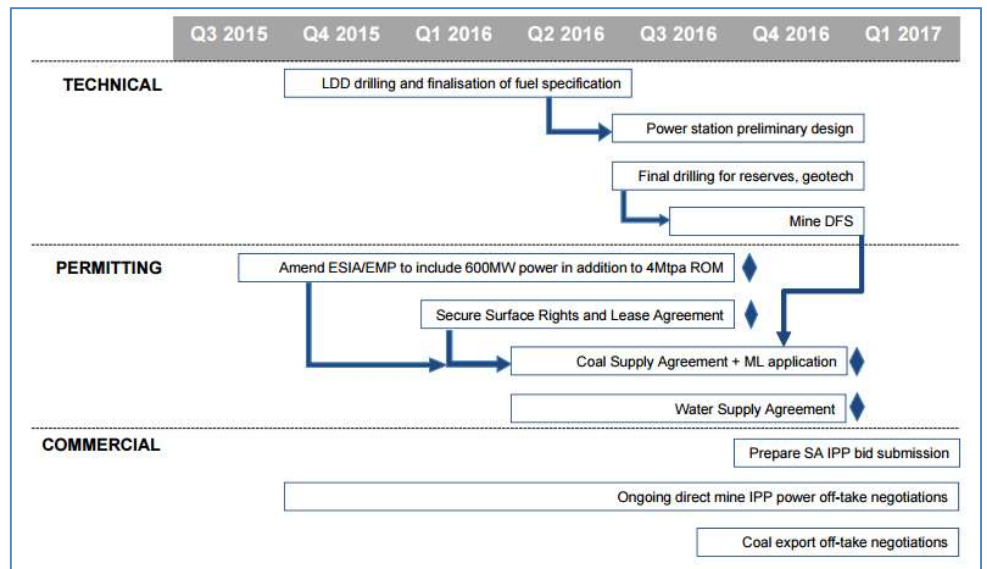


Figure 4: Mmamabula West - Indicative Development Plan

Source: African Energy

The Company is currently the sole developer of this project, but is in discussions with several international developers that have expressed interest in participating in the project as a joint or lead developer.

### Corporate

#### Share Buy Back

Share buy-back of up to 5% of share capital announced in November

On 9 November 2015, African Energy announced that it planned to undertake an on-market share buy-back of up to 5% of the Company’s total share capital over the following twelve months. The share buy-back was approved at the AGM on 20 November 2015.

The initiative is undertaken as part of the Company’s ongoing capital management strategy, taking note of the low market capitalisation when compared to Net Tangible Asset (NTA) backing and particularly the then-current cash backing of \$7.6m. The total number of shares to be purchased will depend on market conditions and volumes, but the Board has resolved to limit purchases to 31m shares at a maximum share price of 15 cents and incur no more than \$1m for on-market purchases.

### Power Generation and Coal – A Global Perspective

#### World Energy Outlook

UN goal of universal access to energy by 2030

Despite efforts already made, an estimated 1.2 billion people – 17% of the global population – remain without electricity and 2.7 billion people – 38% of the global population – put their health at risk through reliance on the traditional use of biomass for cooking. While UN goals are seldom achieved, it is nevertheless interesting to note that the UN Sustainable Development Goals embrace a goal on energy, including the target to achieve universal access to energy by 2030.

IEA estimates energy growth of 33% to 2040...

The International Energy Agency (IEA), in its ‘World Energy Outlook 2015’, estimates that energy use worldwide is set to grow by one third over the next 25 years in its ‘central scenario’. This growth is expected to be driven primarily by India, China, Africa and the Middle East and Southeast Asia. Non-OECD countries collectively account for all the increase in global energy, with collective consumption in the OECD countries continuing to decline from the peak reached in 2007. Declines over the period to 2040 are led by the European Union (-15%), Japan (-12%) and the United States (-3%). Preparations for the



...almost exclusively from non-OECD countries

..

Similar views on growth in the BP Energy Outlook 2035...

...with a more balanced portfolio of fuels for power generation

recent Paris Climate Summit have provided good guidance for future policy intentions. They provide a boost to lower-carbon fuels and technologies in many countries, bringing the share of non-fossil fuels up from 19% of the global mix today to 25% in 2040. Among the fossil fuels, natural gas – the least-carbon intensive – is the only one that sees its share rise.

The other authoritative source on global power supply and demand, the BP Energy Outlook 2035 (published in February 2015), paints a very similar picture. Power generation is expected to account for an ever-increasing share of primary energy consumption as the world continues on a long-term trend of electrification: the share rises from 42% today to 47% by 2035. Power generation is the one sector where all fuels compete and so will play a major role in how the global fuel mix evolves.

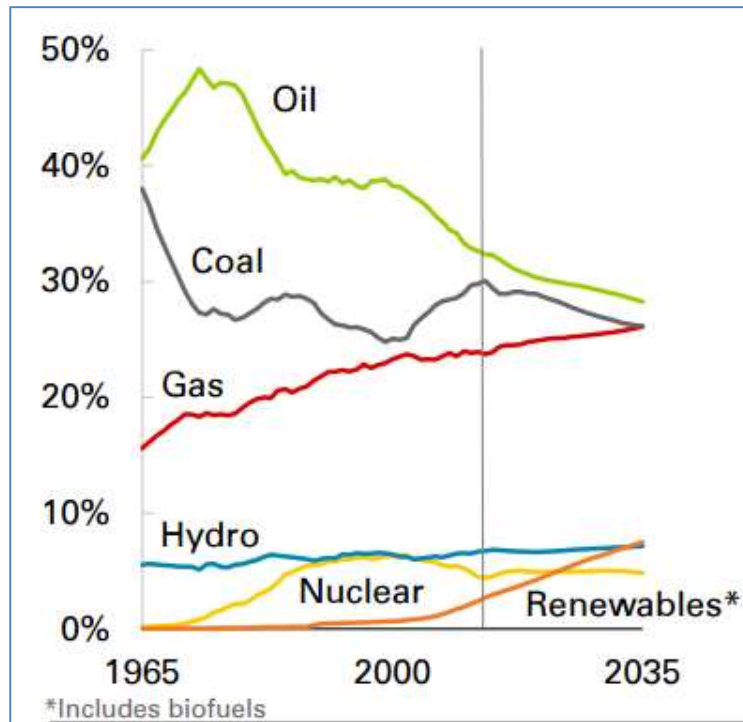


Fig 5: Shares of Primary Energy

Source: BP Energy Outlook 2035

There have been some rapid shifts in fuel shares in power generation in the past: oil gaining in the 1960s and losing in the 1970s; nuclear picking up in the 1970s/80s and falling in the 2000s; gas rising through the 1990s and 2000s. In the outlook period, the largest shifts are the increase in the renewables share and the decline in the coal share.

The outcome by 2035 is expected to be a more balanced and diversified portfolio of fuels for power generation. Coal remains the dominant fuel, accounting for more than a third of the inputs to power generation, but that share is down from 44% today and the gap between the shares of coal and of other fuels narrows significantly.

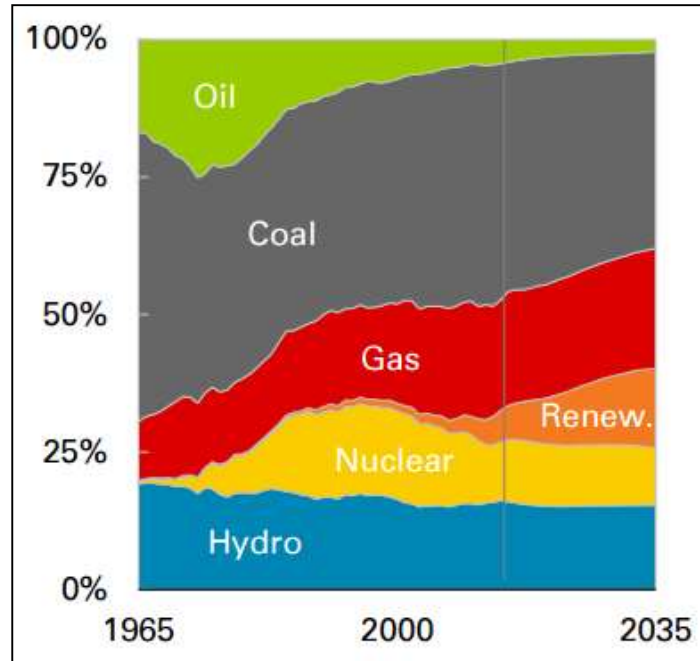


Fig 6: Primary Inputs to Power

Source: BP Energy Outlook 2035

### The Role of Coal

*Strong growth in renewable over next 20 years...*

*...but from a very low base*

*China to remain the largest consumer of coal...*

*..and most other forms of power*

*From BP...China has steepest decline in coal for power...*

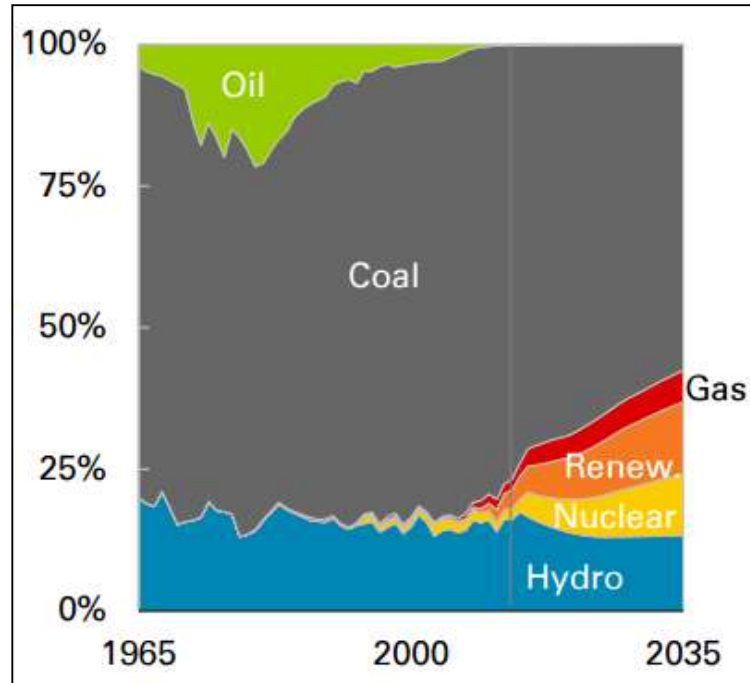
*...but still the highest coal share in primary energy*

While there appears to be general agreement that power consumption will increase over the next three decades, there is considerable debate regarding the likely mix of sources twenty five years hence. Much of the anticipated change is based on a significant increase in renewables, particularly solar and wind, thanks largely to sustained political pressure regarding CO<sub>2</sub> emissions from fossil fuels and its possible effect on climate. While wind turbines currently have the edge on solar power on costs, this would be reversed if the new generation of battery storage capacity proves to be successful in terms of costs, reliability and safety. There is little doubt that the growth in renewable will be significant, but in many countries, particularly the non-OECD states, it will be from a very low base. Studies show that while coal's share will decline over the next 20-25 years, absolute coal fired generation capacity is likely to increase. This is especially true in developing regions.

IEA modelling suggests that China, which has for some considerable period been the largest consumer of coal for power generation, will continue to be the largest producer and consumer of coal over the next 25 years. It is also expected to deploy more renewable power generation than any other country by 2040, overtake the USA as the biggest consumer of oil and have a larger gas market than the European Union by the 2030s. This is in spite of experiencing a structural shift in its economy from manufacturing to services.

BP reaches similar conclusions in its 2015 energy update. According to BP, the share of coal as a source of energy declines across all sectors in China over the next 20 years. In power generation, the largest coal consuming sector, coal's share is forecast to decline from 77% in 2013 to 58% by 2035, as renewables and nuclear gain share. The loss of market share in industry is more modest, falling from 59% to 46%. As a result, China records the steepest decline in the share of coal in primary energy between 2013 and 2035. Nevertheless, in 2035, China still has the highest coal share in primary energy at 51%.

India, is expected to contribute the single largest share of growth in energy production over the outlook period – around one quarter of the total energy demand. India today is home to one-sixth of the world's population and its third-largest economy, but accounts for only 6% of global energy use.



**Fig 7: Inputs to Power in China**

Source: BP Energy Outlook 2035

*India expected to contribute single largest share of growth in coal-fired generation*

One in five of the population – 240 million people – still lacks access to electricity. India is entering a sustained period of rapid growth in energy consumption.

Policies are in place to accelerate the country's modernisation and develop its manufacturing base, population and incomes are on the rise and it is anticipated that an additional 315 million people will live in India's cities by 2040, Demand for coal in power generation and industry is expected to surge, increasing the share of coal to almost half of the energy mix and making India by a distance the largest source of growth in global coal.

### **Breakaway's View**

Breakaway believes that African Energy represents a fairly unique investment opportunity.

*Investment returns should aligned with utilities & infrastructure plays*

Despite having significant thermal coal resources at three separate projects, AFR should not be viewed as an exploration, mining or resource company but rather as a potential independent integrated power producer. This means that investors should take a longer term view of the Company and consider returns in line with utilities/infrastructure projects and companies.

*Excellent opportunity to produce and sell power into a power deficient region*

African Energy is developing, in partnership with experienced developers, multiple sizeable base-load power projects in Botswana. These projects will sell power to off-takers in the Southern African Power Pool, all of whose member companies are experiencing long-term, large scale deficits in their power generation. This is largely due to severe underinvestment by the respective government-owned power companies over an extended period. There appears to be little likelihood of any significant change in the situation in the short to medium term, providing opportunities for independent power producers to develop power assets and sell electricity into the existing grid.

*AFR extremely well placed to take advantage of situation*

African Energy is extremely well placed to take advantage of the situation: coal resources, three integrated power projects, a management team with the right mix of experience, central location in relation to the regional grid and operating in a country with a strong economic track record and low political/sovereign risk. Furthermore, there appears to be very few direct competitors.

*Speculative Buy*

Based on the above, we rate African Energy as a SPECULATIVE BUY.



## Directors and Management

### *Executive Chairman* **Alasdair Cook**

**Mr Cooke** is a qualified geologist who throughout his career has been involved in mineral exploration and corporate development, including six years spent with BHP Minerals Business Development Group and more than fifteen years managing public resource companies.

Mr Cooke is a founding partner of the Mitchell River Group, which over the past ten years has established a number of successful mining projects and resources companies, developing greenfield mines in Australia, Africa and South America. Mr Cooke is currently Chairman of African Energy Resources Ltd and Energy Ventures Ltd and a Director of Anova Metals Ltd.

### *Managing Director* **Frazer Tabcart**

**Dr Tabcart** is a graduate of the Royal School of Mines with a PhD and Honours in Mining Geology. He has more than 25 years' experience in international exploration and mining projects, including 16 years with WMC Resources. Whilst at WMC, Dr Tabcart managed exploration portfolios in the Philippines, Mongolia and Africa, gaining considerable experience in a wide variety of commodities and operating with staff from diverse cultural backgrounds.

Dr Tabcart was appointed Managing Director of the Company in November 2007 after serving two years as General Manager. Under his stewardship the Company discovered and delineated the coal resource at the Sese Coal & Power Project and has since managed the strategic direction of company to focus upon the delivery of multiple coal-fired power stations, captive coal-mines and an export coal mine. He has overseen the acquisition of Mmamantswe and Mmamabula West Coal Projects that has grown the resource inventory of the Company to 8.7Bt of thermal coal.

### *Executive Director* **Bill Fry**

**Mr Fry** has more than 20 years corporate experience in the mining and resources industry, specialising in accounting, management, business development and general corporate activities. He has vast experience in project evaluation and development, project funding, management, finance and operations. Over the past 15 years, Mr Fry has been a Director of several private and public companies with activities ranging from funds management, minerals exploration, mining and quarrying.

Mr Fry has been a Director of African Energy Resources since listing and is responsible for the Company's commercial and financial business programs. He is currently a Director of Anova Metals Limited, Energy Ventures Limited and Mitchell River Group.

### *Non-Executive Director* **Valentine Chitalu**

**Mr Chitalu**, who is a Zambian national and resident, is a Chartered Certified Accountant, Fellow of the Association of Chartered Certified Accountants (UK) and holds a practicing certificate from the Zambia Institute of Certified Accountants. He also holds a Master's Degree in Economics, Finance and Politics of Development and a Bachelor's Degree in Accounting and Finance.

Mr Chitalu has had both an international and local career over a period of fifteen years in the fields of private equity, privatisation, merchant banking, corporate finance, accounting, auditing, development economics, capital markets and business/private sector development in transitional economies. He has a significant interest in private sector development in southern Africa and is extensively networked in the region.



Mr Chitalu has worked for Meridien Financial Services as Manager, Corporate Finance and the Zambia Privatisation Agency as Chief Executive Officer and most recently as Central African Director with CDC (formerly Commonwealth Development Corporation). He currently holds directorships in various private entities.

Mr Chitalu has been a non-executive director of African Energy Resources since listing and has assisted African Energy through his extensive business and Government contacts in the region.

*Non-Executive Director*  
**Phil Clark**

**Mr Clark** is a mineral resource executive with 33 years global experience including directorships, executive, technical and operational management aspects of the mineral resources industry. Mr Clark started his engineering career in 1977 at BHP Billiton's Illawarra Coal business and has had numerous operational and planning roles in the Illawarra, Hunter Valley, Bowen Basin coalfields and Zimbabwe. In 2003 he became Vice President Health Safety Environment & Community for BHP Billiton Energy Coal operations with a focus on improving mine safety and environmental performance in developing countries. In 2005, Mr Clark became Vice President Resource Development for BHP Billiton Energy Coal which includes target identification, acquisition and project development of new resource opportunities globally. In addition to Mr Clark's role as a Non-Executive Director he is also currently overseeing the Company's concept study on the Sese coal project in Botswana.

Mr Clark is currently a Director of the not-for profit organisation Engineers without Borders Australia and a Committee Member of the Australasian Institute of Mining and Metallurgy.

*Non-Executive Director*  
**Ian Hume**

**Mr Hume's** career in the resources industry stretches back several decades, primarily in the fields of managed fund investments, capital raising and project development. He currently sits on the boards of Silver City Mines; TSX-listed Golden Minerals; and ASX-listed Iron Road.

Mr Hume was a Founding Partner of The Sentient Group ("Sentient"), an independent private equity investment firm that specialises in the global resource industry. He remains an independent advisor to Sentient, following his retirement from the fund in 2008. Sentient manages in excess of US \$2.3 billion in the development of metal, mineral and energy assets across the globe. Sentient's current investment portfolio includes projects in power generation, energy storage, potash, and base, precious and ferrous metals mining, covering countries as diverse as China, Brazil, Canada, Papua New Guinea, Finland, Australia, Kenya and Botswana.

Prior to the founding of Sentient, Mr Hume was a consultant to AMP's Private Capital Division, working on the development of a number of Chilean mining investment joint ventures, as well as advising on a number of specific investments across a range of commodities and locations.

*Non-Executive Director*  
**Wayne Trumble**

**Mr Trumble** is a senior executive with 35 years of specific industry expertise in electricity, investment and construction.

For the twelve years to 2013, Mr Trumble was the Executive General Manager of Griffin Power Pty Ltd, reporting to the Board of the Griffin Group, where he led Griffin's move from fuel supplier to electricity generator. He was responsible for preparation of strategy and the development, execution and operation of Griffin's \$1.2 billion Bluewaters coal fired project, providing 436 MW of base load power in Western Australia. Mr Trumble led the team responsible for all aspects of the project development and construction including all required environmental approvals, negotiations of turn-key EPC contract, off take contracts, grid interconnection and approval of project financing to a level of \$1.0 billion.



Prior to working at Griffin, Mr Trumble was the Managing Director of TransAlta Energy where he was responsible for the commissioning and operation of the 105MW Parkeston Power Station at Kalgoorlie.

Mr Trumble currently sits on the boards of renewable energy service provider Energy Made Clean and energy focussed consultancy firm, Balance Resources.

*Non-Executive Director*  
**John Dean**

**Mr Dean** is an employee of First Quantum Minerals (FQM). Since joining FQM in 2011 he has fulfilled various roles within its mining operations including at FQM's Sentinel Copper Mine, its new flagship mine in Zambia. Prior to joining FQM, Mr Dean worked as an analyst in the energy and natural resource industries, possessing expertise in the valuation and commercial analysis of upstream oil and gas projects, as well as experience in electricity, natural gas, and crude oil markets.

Mr Dean graduated with honours from the University of Louisville in the United States with a Bachelor of Science in Business Administration, and was later awarded a Masters of Business Administration with distinction from the University of Oxford.

Mr Dean will lead the team responsible for the development of power generation projects at the Sese Coal & Power Project under the recently signed joint venture with FQM.

*Alternate Director to Ian Hume*  
**Yan Zhao**

**Mr Zhao** is an employee of Sentient Group where he has worked as part of the investment team since 2008. Prior to joining Sentient, Mr Zhao worked at Actis Capital in London, where he supported and worked on a wide range of investments with a special focus on natural resources. Prior to this, Yan was an auditor in KPMG, involved in due diligence work on several Chinese companies listed in Hong Kong.

Mr Zhao holds a Master in Finance from London Business School and a BSc in Economics from University of International Business and Economics in China. Yan has the certificate of CGA-Canada, ACCA and CFA level III candidate.

**Analyst Verification**

We, Grant Craighead and Basil Burmeister, as the Research Analysts, hereby certify that the views expressed in this research accurately reflect our personal views about the subject securities or issuers and no part of analyst compensation is directly or indirectly related to the inclusion of specific recommendations or views in this research.

**Disclosure**

Breakaway Investment Group (AFSL 290093) may receive corporate advisory fees, consultancy fees and commissions on sale and purchase of the shares of African Energy Resources Limited and may hold direct and indirect shares in the company. It has also received a commission on the preparation of this research note.

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