

# Southern Africa Power Report Q2 2012

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## **Abstracts**

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#### Angola

BMI View: Angola depends upon hydroelectricity for the majority of its requirements, which means the country is over-dependent upon one source of energy and at risk of power shortages, as it lacks sufficient production capacity for the population's needs. Looking forward, BMI believes that solar power is one solution for rural areas where it is costly to connect villages to the grid. In addition, we welcome initiatives such as the natural liquefied gas power station being constructed in Soyo - a project promoted by five oil and gas majors - as a means of diversifying supply.

BMI forecasts that Angola's overall power generation will increase by an annual average of 9.2% between 2011 and 2016, to reach 6.76TWh. Contributing to this growth will be a 9.5% annual average increase in hydropower. We envisage Angola's net power consumption increasing from 3.65TWh in 2011 to 5.78TWh by 2016. A steady increase in GDP will support growth; following estimated real GDP growth of 5.2% in 2011, BMI forecasts average annual growth of 7.3% between 2011 and 2021.

We expect improvements to Angola's national electricity grid to result in a gradual decline in the percentage of transmission and distribution losses, falling from around 14.6% in 2011. We do not expect Angola to have to import significant quantities of electricity, nor do we expect electricity exports to be substantial.

#### Key developments for Angola's power sector include:

Five oil & gas majors are collaborating on the construction of a power station using liquefied natural gas in Soyo, on the north coast of Angola. It is expected



to begin operations in Q112.

The renovation and modernisation of a thermal power station in east Angola, in the province of Moxico, will be completed by March 2012, according to the municipal administrator, Zaqueu Isaac.

General elections are scheduled for September 2012. While President Dos Santos has promised that these will be fair and transparent, there are fears that he will be reluctant to step down after more than 30 years in power.

#### Botswana

BMI View: Botswana has experienced outages that have outraged businesses and reduced productivity, thereby illustrating that the country is unable to meet domestic electricity demand. Dependence on energy imports from South Africa means that Botswana is vulnerable to supply shortages, and this vulnerability became even clearer when South African energy provide Eskom reduced imports by 100MW in January 2012. BMI can see no evidence of a short-term solution to this problem, but looking forward, Botswana's government will have to boost its domestic power supply through the construction of new power plants.

On a smaller scale, solar power has scope for development, especially for off-grid supply in rural areas. In the five years period 2011 to 2016, BMI forecasts that Botswana's overall power generation will increase by an annual average of 26.1%, to reach 2.89TWh. We expect all of this growth to come from new or existing coal-fired power plants. Botswana's government plans to expand its domestic power production – in turn, reducing its dependence upon neighbouring South Africa for energy imports – by developing new coal-fired power facilities, such as the Mmamabula coal-fired power plant, which is being constructed by Canada's CIC Energy Corp. In terms of renewables, Botswana's government is planning to introduce a renewable energy Feed-In Tariffs (FITs) policy by March 2012.

Between 2011 and 2016, we predict that Botswana's net power consumption will increase from 3.01TWh to 4.15TWh. The mining sector is the most important consumer segment in Botswana in terms of electricity consumption. Underlying the growing demand for energy in the country will be a steady increase in GDP, which BMI forecasts average annual growth of 5.3% between 2011 and 2021, together with the continued expansion of the country's population. By 2016, we predict that Botswana's net imports



will have fallen to 1.79TWh.

#### Key developments for Botswana's power sector include:

South African energy provider Eskom reduced its exports to Botswana form 250MW to 150MW in early January 2012, as part of an agreement with the Botswanan government. This drop in imports led to prolonged blackouts, which generated outrage in the business community because of the loss of productivity that ensued.

American firm APR Energy saw its three year contract to operate the 70MW Matshelagabedi temporary power station expire at the end of December 2011, but in the light of power shortages following reduced imports from South Africa, the Botswana Power Corporation may consider extending the contract, at least until the Morupule B power plant begins operations.

In October 2011, a 90MW turbine power plant built in Orapa via a public-private partnership between mining company Debswana, Botswana Power Corporation and the Botswanan government, was handed over to the Botswana Power Corporation.

#### Mozambique

BMI View: With a growing economy, there is considerable pressure on Mozambique to meet increasing energy demands. As such, a number of projects to increase electricity production and to improve energy transmission are planned. Hydroelectricity meets the majority of Mozambique's needs, but advances are planned in renewables, with three new photovoltaic power stations planned, and in gas-fired energy provision, with the construction of a 140MW plant. The country is a net exporter and maintenance on one of the turbines at Cahora Bassa power station in early 2012 led reduced exports to neighbouring Swaziland and Botswana.

In the five years from 2011 to 2016, BMI forecasts that Mozambique's overall power generation will increase by an annual average of 8.8% to reach 27.6TWh, with hydropower contributing to the majority of this growth. Gas-fired power generation capacity will increase – admittedly from a small base – by an average of 9.4% over this five-year period, boosted by the construction of a new 140MW gas-fired power plant.



Mozambique's power sector is heavily reliant on hydropower, which, at present, is primarily sourced from the Cahora Bassa Hydroelectric Plant (HCB) in Tete province. The plant produces 2,075MW of power, the majority of which is exported to Eskom in South Africa and Zesa in Zimbabwe, although state power utility EDM stated in early 2012 that it wants to raise its own share of energy produced from 400MW to 500MW – a move that would lead to reduced exports. However, there is scope to increase production here, with its total capacity estimated to stand at 12GW.

We envisage Mozambique's net power consumption increasing by an annual average of 8.5% over our 10-year forecast period, from 13.83TWh in 2011 to 31.02TWh by 2021. By 2016, we predict that Mozambique's power sector will develop a net export potential of 3.66TWh, but will potentially fall slightly to 3.61TWh by 2021.

#### Key developments for Mozambique's power sector include:

South African petrochemicals group Sasol announced in November 2011 that it is planning to construct a 140MW gas-fired power plant in Mozambique, as part of a joint-venture with state utility EDM. The plant, which will cost up to ZAR1.8bn (US\$220.14mn), is likely to begin operating in late 2013.

Brazilian energy firm Eletrobras announced plans to collaborate with EDM on a feasibility study for the construction of a high tension transmission line covering the 1,400km between Tete and Maputo.

The government announced plans to invest US\$35mn in the construction of three 500kW photovoltaic power stations in the country's northern province of Niassa.

#### Namibia

BMI View: Namibia faces a potential energy deficit of 80MW in 2012, and as this deficit is set to climb in the short-term, the government is working to reduce its dependence on imported energy. On a more positive note, Namibia does have the ability to generate electricity from varied sources, including oil and gas-fired plants, hydroelectric facilities and it is starting to venture into solar and wind power. In order to reduce its self-sufficiency, Namibia is working on plans for the construction of a coal-fired power station, and in early 2012 NamPower is due to issue tenders for the construction, operation and maintenance of the Kudo gas-fired power station, the viability of which



depends upon NamPower obtaining US\$1.1bn in funding.

Between 2011 and 2016, BMI forecasts that Namibia's overall power generation will increase by an annual average of 28.8%, to reach 8.16TWh. In 2016, we anticipate a significant acceleration in power generation, as new gas-fired power facilities become operational, but until then, Namibia risks power shortages as generation and import capacity fails to match an increase in demand. There are several plans for the construction of new power facilities. In July 2011, Namibia's state-owned national power utility NamPower announced plans to build a diesel-fired plant at Walvis Bay, while NamPower is seeking US\$1.1bn to partially finance an 800MW gas-fired power plant linked with Namibia's the Kudu gas field project, which is expected to become operational by 2016.

We envisage Namibia's net power consumption increasing from 4.28TWh in 2011 to 6.16TWh by 2016, signalling an annual average of 7.3% over the period. Underlying the growing demand for energy in Namibia will be a steady increase in GDP, together with the continued expansion of the country's population. Following an increase in 2011 real GDP of 4.2%, BMI forecasts average annual growth of 4.7% between 2011 and 2021. Meanwhile, Namibia's population is expected to rise from 2.3mn in 2011 to 2.5mn in 2016.

#### Key developments for Namibia's power sector this quarter include:

State utility NamPower seeks US\$1.1bn of financing to partially fund the new 800MW Kudo gas-fired power plant. NamPower plans to issue tenders for the engineering, procurement, construction, operation and maintenance of the plant in early 2012.

In December 2011, NamPower opened up its plans for a coal-fired power station in the Erongo region to public consultation.

With Namibia's power generating capacity only sufficient for just under 50% of the country's needs, NamPower faces a generation shortfall in 2012 – which some sources estimate could be as high as 80MW.

#### Zambia

BMI View: Zambia's power industry continues to depend heavily upon electricity



generated in hydroelectric plants, although the question of funding frequency emerges when questions over increasing energy production capacity are raised. In order to sustain mining, one of Zambia's most lucrative industries, the country cannot afford to have an unreliable energy supply, but upgrading of existing power stations and new projects is often late and under-funded. There has been some positive news this quarter, however, as Ndola Energy revealed plans to construct a 50MW heavy fuel power plant, and Zesco announced that it would enter into negotiations over the specifics of funding from Chinese firms to complete the construction of the Kafue Gorge Lower hydropower project.

In the five years from 2011 to 2016, BMI forecasts that Zambia's overall power generation will increase by an annual average of 6.2%, to reach 13.85TWh. Contributing to this growth will be a 3.7% average annual increase in hydropower, boosted by increased capacity at the Kafue Gorge Lower power station as well as at the Kariba North Bank station, amongst others. While BMI forecasts that annual growth in the production of hydroelectric power will be fairly steady over our forecast period, we envisage a 14.1% annual average increase in oil-fired power over our forecast period to 2016. Despite this, oil-fired power will continue to account for just 0.7% of total output in 2016. Zambia is self-sufficient in all its energy sources with the exception of oil, which is imported primarily from South Africa.

We forecast that Zambia's net power consumption will increase from 9.28TWh in 2011 to 12.44TWh in 2016, a 34.1% growth over the five-year period. Underlying the rise in energy consumption, driven by demand from the mining sector, will be a steady increase in GDP and population growth. Following a forecast increase in 2011 real GDP of 6.5%, BMI forecasts average annual growth of 6.9% between 2011 and 2021.

BMI calculates that Zambia will import 0.37TWh of power from its neighbours in 2011. Increased power generation in the latter part of our forecast has the potential to position Zambia as a net electricity exporter. Despite this, we do not forecast Zambia's electricity exports to be considerable.

#### Key developments for Zambia's power sector this quarter include:

Zesco announced that it had would finalise a financing agreement with two Chinese firms by early 2012, whereby the firms will provide the majority of funding for the final phases of the US\$2bn Kafue Gorge Lower hydroelectric project. Work began in July 2011.



In late November 2011, Ndola Energy Company announced plans to build a 50MW heavy fuel power plant in Ndola City, at a cost of US\$50mn.

Zambia's Energy Minister, Chris Yaluma, met with representatives from Chinese firm Sinohydro to request that they accelerate the upgrading of the Karina North Bank hydro plant.

#### Zimbabwe

BMI View: Zimbabwe currently replies upon hydropower and coal for its energy provision, with its power deficit covered by energy imports. Since September 2011, the government has shown a more proactive approach towards independent power providers, but even despite the issuing of 13 licences, these firms will not contribute to Zimbabwe's power production until 2015. In the meantime, Zimbabwe's authorities have to somehow meet the energy requirements of its growing mining sector. BMI believes that coal-fired power generation will gain importance in the short-term.

Between 2011 to 2016, BMI forecasts that Zimbabwe's overall power generation will increase by an annual average of 12.9%, to reach 15.08TWh. The biggest contributors to this increase will be thermal power generation, predicted to increase by an annual average of 22.5% over this period and coal-fired power generation will increase by an annual average of 22.6% over the same period. Any shortfall will have serious implications for Zimbabwe's economic development and social stability.

We envisage Zimbabwe's net power consumption increasing by an annual average of 6.6% over our 10- year forecast period, from an estimated 12.45TWh in 2011 to 24.62TWh by 2021. Underlying the rise in energy consumption will be a steady increase in GDP, together with the continued expansion of Zimbabwe's population. Following an increase in 2011 real GDP of 9.3%, BMI forecasts average annual growth of 7.6% between 2011 and 2021. Meanwhile, the population is expected to rise from 12.8mn in 2011 to 14.3mn in 2016, increasing to 15.8mn in 2021.

#### Key developments for Zambia's power sector this quarter include:

Question marks are hanging over the future of plans for a 2,000MW coal-fired power plant in Sengwa, as its promoter, RioZim, is struggling to raise funds to recapitalise its business.



ZESA has launched a tender for the supply of 600,000 prepaid electricity metres that it plans to install as part of a pilot project to help consumers control their electricity bills.

In a press release published at the beginning of January 2012, Zesa said that Zimbabwe's mining sector would be the key driver of increased energy consumption during the year.



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