

Mining, the key to unlocking Africa's independent power producer markets

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The size of power needs in most African countries and the investment required limits the number of projects that can realistically be funded in-country. The private sector could help, particularly where it is strongest - in the extraction of natural resources. Mining companies could be a credible source of bankable off-take contracts and equity funding to make independent power projects a reality.

There is a positive correlation between infrastructure expenditure and the growth of gross domestic product (GDP). Conversely, inadequate infrastructure is cited as a key constraint to investment and growth. As a result, the provision of quality infrastructure is a necessary in any strategy for economic integration and sustainable development. Various estimates put Africa's infrastructure spending needs to meet the Millennium Development Goals at approximately USD 93 billion per year, of which the electricity sector alone is likely to account for around 44 per cent. Given on-going energy security issues, there is a clear need to increase sub-Saharan Africa's power generation portfolio. The region's total installed capacity is around 70 GW, with South Africa accounting for about 60 per cent of this.

Although investment is still dominated by the public sector, there is a shift towards the private sector. The role of independent power producers (IPPs) has been fully embraced, for example, in South Africa with its Renewable Energy Independent Power Producer Procurement Programme, in Nigeria's privatisation of Power Holding Company of Nigeria's (PHCN) 11 distribution and 6 generation companies, in Ivory Coast with CIPREL and AZITO, and in Zambia with the Copperbelt Energy Corporation (CEC). This trend is likely to continue in other African countries with an electricity deficit.

The untapped potential of the Democratic Republic of Congo

The Democratic Republic of Congo (DRC), as many other African countries, has huge hydropower potential. The catchment area around the Congo River could theoretically produce an estimated 100 GW, yet less than nine per cent of the DRC's population has access to electricity; just one per cent in rural areas. Only 2.4 GW of its 100 GW potential has been developed and installed ; and only about 1.2 GW is currently available. In the Katanga region, mining companies rely on power from the Inga hydro plants despite an average of 19 interruptions in power each month. In addition, the mines have a power deficit of approximately 900 MW. As a result of the frequent power outages, around 40 per cent of firms in the DRC own and operate thermal generators as an alternative energy resource. This should only be a short-term solution as their continued use translates into higher operating costs at the mines.

Several factors suggest that the DRC electricity market could become a significant platform for investment in Africa. Only 48 per cent of the DRC's estimated installed capacity of 2.4 GW is currently operational, and there is a sustained demand for power from mining companies. The DRC's

mining sector is anticipated to expand by an annual average of 13.7 per cent until 2015, by when it is expected to be double its 2010 size, driven by increasing copper production and the development of world-class gold deposits. This is likely to translate into a robust demand for power in a country in which 85 per cent of electricity is consumed by high-voltage users, including mining companies.

The country has a significant hydro-power potential. Excluding the Western region, which has 1.9 GW installed and 64 GW of hydro-power potential, the majority of the existing hydro-power plants, generating 467.2 MW, are in the southern part of the country. There is significant hydro-power potential there, too – Katanga, for example, has an estimated 1.6 GW of hydro-power potential, which could be used as feedstock for any potential projects that mining companies want to develop. Established mines and mining companies boast good credit ratings and reliable US dollar cash flows. Their requirement for significant base-load power means that there will be ready long-term off-takers for base loads from independent power projects. This would offer a level of comfort to potential lenders, who typically ask for corporate guarantees from the parent company. Furthermore, an IPP could offer mining companies significant security of supply. A high percentage of metals and mining companies' electricity needs are currently supplied by generator. However, with diesel prices expected to reach around USD 3.82 per gallon (USD 0.84/l) in 2014 (EIA, 2013), given current market conditions, any power project metals and mining companies might decide to develop could be easily economically justifiable.

Several factors, however, often affect a country's ability to solve its electricity problems, primarily limited financial flexibility. The potential development of power projects such as the 4.8 GW Inga III would help alleviate this, with South Africa expected to off take approximately 2.5 GW of its future production capacity. Yet the investment requirement is measured in billions of USD – how should the DRC, and, by extension, any other African country, go about realising this type of investment in the next decade or so? Given the size of the DRC's economy, with its GDP being expected to reach an estimated USD 23.9 billion (CGF 21,947 billion) in 2014 (IMF, 2013), it will be challenging to fund major domestic power infrastructure on the government's balance sheet alone. Further, the small domestic banking sector has relatively low liquidity to support this size of investment – the DRC's 20 approved banks currently have an inadequate level of liquidity or tenor for long-term project financing. This is not helped by the fact that the DRC has not been assigned a credit rating by any of the four rating agencies, and as a result the commercial banks' tenor is likely to be short.

Are independent power providers the most appropriate solution?

The refurbishment of old hydro plants and the development of new ones are quite urgent if the current need for power is to be met, in, for example, Katanga. Mining houses need to make a concerted, and if needs be, co-ordinated effort to engage with the local electricity producer, Société nationale d'électricité (SNEL), to solve their problems. Given the high hydro potential and the limited off-take risk in power-purchase agreements (PPAs) signed with strong mining companies, IPPs could be part of the solution.

Several commercial considerations need to be taken into account when deciding to develop independent power projects in the DRC or any other African jurisdictions with similar challenges. In the face of perceived political uncertainty, for example, potential lenders will most likely ask for guarantees from either the government or the off-taker's parent company. The relative stability in the south of the DRC and the strength of the mining sector should, however, strengthen investors' and lenders' confidence in Katanga, especially if the World Bank's Partial Risk Guarantee can be used. It is evident that the scale of any potential power project is a function of the demand from the energy-intensive users such as mines in their catchment area. In the case of the DRC, it is possible that the mining houses might need to help fund development costs, perhaps against a reduction in the long-term tariff to make the projects fundable. There are, however other considerations. Given the likelihood that there will be multiple shareholders in most African independent power projects, it is often assumed that a project financing structure is optimal. Assuming a robust contractual structure – gearing levels of 30 per cent equity to 70 per cent debt are usual – many developers and

financiers will need to see the off-taker's PPA risk as being better than that usually on offer in the host country for domestic projects. In addition, it can be anticipated that such a power project would typically be funded by a wide number of lenders, including African and international banks and export credit agencies (ECAs), with the IPP being evaluated on counterparty credit quality and debt-service coverage ratios. It should also be noted that the choice of the engineering procurement construction (EPC) company could have an impact on the lender universe that the IPP would be able to tap into. For example, an EPC company originating from a country with a state-funded, policy-oriented company would not only open up that country's debt market to the IPP but also allow for an ECA-type financing structure with its associated ECA. These agencies typically provide up to 100 per cent political and 85 per cent commercial risk cover. A commercial bank such as Standard Bank, which has the ability to provide equity raising, financial advisory and debt arranging services, could then provide the ECA with the residual commercial risk guarantee.

Potential transmission risks are also a likely concern. Although the World Bank recently approved an estimated USD 201.5 million to expand the DRC's transmission capacity, maintenance issues have hampered the effectiveness of the country's transmission network, which has losses of approximately 60 per cent. This situation is similar to that in many other African countries, with transmission issues remaining a constant risk. The fact that many African countries often lack an effective domestic wheeling framework just compounds the issue. Lastly, the non-cost-reflectivity of tariffs is often viewed as a commercial restraint in many African electricity markets. In the DRC, the current average tariff is about USD 0.04 /KWh (Africa in Fact, 2012), well below what is required. Given security of supply issues, it can be anticipated that the development of a power plant for either own use or commercial purposes may result in energy-intensive users paying a higher tariff to any IPP. Given investors typically ask for the tariff to be calculated on a levelised cost of energy (LCOE1) basis, an availability payment structure² appears to be the most appropriate. We also note that LCOE typically takes into account the weighted average cost of capital (WACC) of the developer and the country's inflation - the DRC's consumer price index is projected to rise by around 8 per cent in 2014 (IMF, 2013) - to determine the minimum price of electricity at which a power project generates enough revenue to pay its costs, including a sufficient return to investors.

Some commercial banks such as Standard Bank have the experience and know how to put together and fund large power projects in Africa, including in the DRC. If the mining houses and SNEL were to succeed in Katanga, then the beneficiaries would not just be the mines themselves, but also the broader population, as there would be surplus electricity available to local industry and the general population, which in turn would be a major stimulus to the local economy and the wider development of the DRC itself. Mining companies have the opportunity to play an increasingly enabling role as both potential off-takers and power project sponsors in many African electricity markets. Over the past decade six of the world's ten fastest-growing countries were African, partly the result of the commodities boom. The demand for power is expected to continue to increase in the short to medium term given the need of BRIC countries to access Africa's vast reserves of minerals and other natural resources needed to fuel their own growth. The scale of the power requirements in the majority of African countries and the size of investment required means that the number of power projects that could realistically be funded in-country is limited. Part of the solution is to look to the private sector, and where the private sector is strongest, namely in the development and extraction of natural resources. Based on this, mining companies would be a credible source of both sufficiently bankable off-take contracts and equity funding to make independent power projects a reality, and where better to start than in natural resources-rich regions such as Katanga. Several privately developed power projects are expected to come online within the coming years in such countries as Guinea (Conakry), Mozambique, Ghana, South Africa, and Zambia etc. Their development must be an absolute priority for in-country decision makers; and the speed with which these projects come to fruition needs successful dialogue with Africa's buoyant mining sector.

Footnotes

¹ The LCOE is an economic assessment of the cost of the energy-generating system including all the costs over its lifetime: initial investment, operations and maintenance, cost of fuel and cost of capital.

² The availability payments are intended, among other things, to provide the generator with revenue to cover the cost of capital, including a normal rate of return, and the non-variable operating and maintenance costs.

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