BRIDGING AFRICA’S ENERGY GAP

– LNG to power as a catalyst for unlocking host country value and raising large scale investment?

Africa’s energy gap remains despite decades of intervention. It is the single biggest obstacle to sustained economic development across the continent and to unlocking the last greenfield frontier investment destination on earth. Africa’s infrastructure spending leaves a large gap, much of which is investment needed for energy and particularly power.

Concurrently, the latest round of resource discoveries across the continent are profound in their size and potential – led by world scale gas reservoir finds in Mozambique, Tanzania, Egypt, Ghana, Mauritania and elsewhere underpinned by significant onshore unconventional potential in Algeria, South Africa, Libya and Botswana among others.

Can Africa use this vast natural resource as a catalyst for sustained onshore development to fulfil its growing energy demands?

This article explores the new opportunity for many countries across Africa to bridge the energy gap by taking advantage of...
current developments in the LNG market, and assesses the potential for realising onshore value while at the same time driving innovation in the raising of large-scale finances for African projects.

### LNG TO POWER

Although renewables also have a major role to play in meeting Africa’s current and future energy needs, gas can— and needs to—play a key role as part of a sustainable energy mix. Recent structural changes in the LNG market, driven in part by a wave of new supply from the U.S., have led to a shift away from the traditional tramline model towards a more flexible seller-focused market that makes LNG a compelling source of fuel. These changes to the LNG market make it possible for African countries to access gas on more flexible terms to ensure indigenous resources can be developed over time. This allows the value chain to be capitalised with the use of LNG initially with a view to monetising indigenous resources if and when applicable.

As indicated on the map below, there are examples of this approach underway in South Africa, Morocco and Ghana (amongst others) where we believe this will confer significant flexibility in meeting energy needs for the local market and crystallise indigenous development options. At the same time, those African countries with significant new gas resources can look to regional markets as part of their offtake portfolio, further strengthening regional trading ties and helping to address demand gaps in other parts of the world.

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**This article explores the new opportunity for many countries across Africa.”**
EMERGING LNG TO POWER PROJECT STRUCTURE

Key features of the project structures being considered across the African continent include:

- **Integrated gas and power value chain with power offtake as anchor customer**: Many of the projects and procurement programmes being developed across the continent take an integrated approach with the anchor offtake being a gas fired power plant selling power via a PPA to a government utility. The regasification terminal together with the pipeline transporting the regasified gas to the power station are capitalised as part of this structure underpinned by revenue ultimately derived from the PPA with the government utility.

- **Government versus private sector LNG procurement**: One of the threshold considerations for LNG to power projects is whether host governments will arrange their own LNG supply (and enter into the LNG SPA through an agency of the State) typically on a tolling model – or whether they also will expect the private sector to organise the LNG supply (and take commodity risk in addition to infrastructure risk).

- **Floating Storage and Regasification Unit (FSRU)**: A key enabler, these have become commonplace remarkably quickly and at the time of writing, there are 17 FSRU projects in operation. These units provide an excellent fit for the African context. Their modular build provides low upfront costs, they can be deployed in countries with limited gas transportation infrastructure, and their mobility allows them to meet variable demand needs (be they seasonal, erratic or transitional) in a short period of time. They can also be redeployed to the extent that project conditions change and the FSRU is no longer needed (e.g. domestic gas supply replaces imports over time).

- **Third party access**: Because the cost of oversizing the gas value chain infrastructure is marginal with respect to the overall integrated project economics – and because FSRUs tend to come in standard sizes – the anchor power demand for the project typically utilises only a portion of the built gas value chain infrastructure. This affords the opportunity for the FSRU to supply other projects with gas, in addition to the anchor power plant offtaker.

UNLOCKING DOMESTIC RESOURCE DEVELOPMENT AND ONSHORE VALUE THROUGH IMPORT

Paradoxically, LNG import to power projects, rather than competing with the development of domestic resource, can be a key driver to unlocking commercialisation. At first blush, it may appear that importing gas would compete with domestic gas resources, but stakeholders across the continent are increasingly arriving at the opposite conclusion. A well-structured and financeable integrated LNG to power project capitalises critical gas infrastructure off the back of the anchor power offtake. That infrastructure can then be utilised in the future to commercialise domestic resource, whether for domestic use or for export. US LNG provides a striking example of what is now an export industry but one that had originally been developed for importing gas.
In addition, the availability of imported gas can catalyse local demand by cultivating an onshore market, which drives local content. The ability to demonstrate meaningful value from domestic resources in the context of large-scale export projects is often a key challenge facing host governments, often resulting in domestic gas obligations being imposed on investors. LNG import projects can be a key solution in addressing this challenge and ensuring that African countries avoid the resource curse when developing export projects.

TOWARDS REGIONALISATION AND AFRICA TO AFRICA TRADE

The existence of functioning LNG import and regasification infrastructure at critical demand locations across the African continent will enable delivery of LNG from one African country to another and thereby lay a foundation for Africa to Africa trade alongside export. Such regional LNG trade also helps to address the current infrastructure challenge caused by the lack of existing distribution pipelines—enabling ship transport rather than requiring expensive and inflexible upfront investment in pipelines to occur before any meaningful gas trade can take place.

EMERGING INVESTIBLE MODEL BUT CHALLENGES

Recent market changes make the opportunity for LNG to power more compelling and this bridge can provide a quick to market solution; however, there are a broad range of challenges that must be addressed, including pricing, scale, volume profile, available liquidity, currency, sovereign support and structural uncertainty over project timelines. Such challenges can in part be addressed by innovative financing solutions.

DRIVING INNOVATION? RAISING LARGE-SCALE FINANCING FOR AFRICAN PROJECTS

Investors consistently have made clear that capital will be available for well-structured projects that present a sound rationale. The chart below provides an overview of the financing techniques that can be used to raise capital (where DCM refers to the debt capital markets which can often be better suited to operational projects once the construction risk has been discharged).

Since energy projects often involve significant development periods, and the magnitude of investment necessitates longer payback periods, project finance is often the most appropriate financing technique. It also advocates a robust risk allocation which is even more important where you have many counterparties involved. For developing markets, Governments often play a key role in facilitating the FDI. Investors will look to the political stability of the country, the strength of the legal framework, the stance towards various forms of energy and the availability of the requisite infrastructure.

Broadly, for an LNG-to-power chain, it could either be financed as a single package in which case the risk allocation would be balanced between the LNG supply and the power plant or through its constituent parts which would require a tailored approach.

ROLE OF LOCAL BANKS

Some developers overlook available liquidity in the local/regional market often citing lack of depth in balance sheets to provide hard currency, cost of funding, shorter tenors and the like. Indeed the South African Rand debt (and equity) balance sheet has been surprisingly deep when tested in the recent renewables programme with some R140 billion (approximately US$10 billion) having been invested by Rand lenders to date. The Naira balance sheet in Nigeria also has demonstrated increasing depth (though currently under pressure) and the ability to fund for longer tenors. Granted, incorporation of such facilities requires a different approach but one should not automatically forego a source of liquidity that will have a multiple attached to it for political benefits and sustainability.
The key consideration to achieve depth in tenor and competitive cost is assessing how onshore lending can be amalgamated with other sources of finance such as multi-laterals or export credit agencies. A good example is the Egyptian Refinery Project where Egyptian banks provided long-term (15 years) liquidity through a guarantee structure in conjunction with the European Investment Bank (EIB). This was the first example of Egyptian banks coming under an EIB umbrella – the structure maximises liquidity by breaking down the loan into various components, namely commercial risk, funding and political risk coverage.

SCALE

LNG and associated infrastructure requires significant capital expenditure often upwards of a billion dollars. These projects therefore will require a “multi-sourced” financing with lenders whose requirements can be divergent. Dedicating efforts upfront to ensure the project “architecture” allows for a combination of debt sources is an imperative part of the project’s overall planning.

NEW PRODUCTS

Development banks, multi-laterals and insurers are amongst the entities actively promoting the use of new products on the continent to help broaden appeal amongst both equity investors and debt providers. Institutions like the African Development Bank and European Investment Bank along with the World Bank Group have been instrumental in opening up new sources of local and regional finance. These products include B-loans, guarantee schemes, partial risk guarantees, partial credit guarantees and financing in local currencies. In addition, entities like Harith and Africa Finance Corporation based on the continent have participated across the capital structure including on the equity side and also in mezzanine and B-loan type structures. There is also scope for institutional investors such as the Public Investment Corporation in South Africa which is currently the seventh largest sovereign wealth fund in the world.

A- and B-loan structure – The multi-lateral acts as the ‘lender-of-record’, keeps part of the loan (the A-loan) and “sells” to B-loan participants who take full exposure to the underlying project credit risk in the proportion of their participations. Under this structure, the B-loan participants benefit from the multi-lateral’s Preferred Creditor Status (PCS) which provides comfort to the commercial banks should, for example, a currency convertibility event arise which in the case of LNG-to-power is a heightened possibility. This structure allows international commercial banks to lend to African projects providing long tenors and it brings flexibility since the A-loan component can be small whilst the B-loan can be disproportionately larger.

Guarantees – The use of guarantees can also catalyse the flow of significant private capital through providing credit enhancement – these are an important financial instrument to support the flow of private investment. There are a number of ways in which they can be deployed but in general they work to improve two key metrics that banks have as a key part of their credit assessment – namely, the loss given a default and the probability of a default. Reducing both of these will allow banks to “maximize” the rating of the project and allow them to provide the most competitive capital on a long-term basis.

The guarantees can take various forms ranging from first-loss pieces which serve to reduce the loss given default or can take the form of liquidity support, e.g. as a cost overrun facility, which will serve to reduce the probability of default. Liquidity lines can be deployed to cover potential cash-flow shortfalls which for LNG to power could arise due to lower demand, lower price, steep ramp-up, etc. These can be sized to cover a defined period of debt service and can also be replenished to maintain the enhancement in place during the life of the loan.
Partial Risk Guarantees – For LNG to power schemes, suppliers usually require investment grade offtakers to underpin the purchase given the size of obligation associated with committing to long-term take-or-pay arrangements. The Government or state-owned entity representing that will stand as the offtaker of the LNG or the power (depending on the structure)- usually will represents the strongest credit in an LNG to power project. If that entity does not have a strong enough credit rating, partial risk guarantees can play a key role by protecting lenders against the risk of Government non-payment, as well as associated political risks such as change in law or expropriation.

Partial Credit Guarantees – The partial credit guarantee is designed as a first-loss piece, which in effect guarantees part of the debt service to lenders or bond holders regardless of the reason for a default (see Partial Credit Guarantee figure above). This credit enhancement is significant and can reduce overall financing costs by improving ratings for bond investors or banks. The enhancement can take place via subordinated debt or unfunded partial guarantees of senior debt service payment obligations, or also through acting as an anchor investor in the bond purchase. One of the significant “additionality” parts of this product is it can also be deployed for risk at the back-end of a project such that if a local bank can only lend for 7 years but the project needs 10 years, it can be used to guarantee the back end if the local bank is unable to roll over/refinance.

Whilst many of these products are partly designed to be counter-cyclical to fill gaps when private funds evaporated during financial crises, our view is that such institutions have a continual and critical role to play in mobilizing capital. Many developers we speak to are less aware of the concept of “financial additionality” which is a key measure for development institutions over and above the more focused areas of social and environmental development.

COLOMBIA EXAMPLE

African countries can look across the “pond” to an illustrative example in Colombia where in 2011 the Government transformed Financiera Energetica Nacional (FDN) into a dynamic local development bank. FDN was overhauled to become a financier, guarantor and in some cases, an equity investor. The Government developed a robust PPP framework to allow private companies to bid for large infrastructure and energy projects with the FDN acting as catalyst and capital multiplier. The Colombian framework was developed in the space of just 2-3 years so it’s a great example for African countries where the need is immediate.

CONCLUSION – A POTENTIAL BRIDGE?

The LNG to power opportunity has come at a transformative moment. After years of being a product predominantly for premium markets, LNG has increasingly become flexible such that there is real potential for it to accelerate onshore value and drive innovation in raising large-scale capital for African projects. Given the bridging nature of the emerging LNG to power structure which will traverse short, medium and long-term timeframes, a “one size fits all” approach is not appropriate. Instead, tailored solutions taking specific country dynamics into account and fitting those into the commercial requirements of global suppliers will be needed. If the right balance can be found in project structuring, we are confident large amounts of capital can be raised. We look forward to continuing to be a part of these cutting edge projects across the African continent that will be at the forefront of these market developments.

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