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Power Generation in Africa
MOZAMBIQUE
A CASE STUDY

Although Mozambique has definitely found itself sitting on a significant amount of natural gas, the proposed development of these resources goes far beyond the export of gas to foreign, more developed markets. In fact, the government of Mozambique has realized that the gas discoveries in the Rovuma Basin are a game changer with the potential to take the country to a whole new level of economical and industrial development. Development – and not only in terms of revenue – appears to be the main driver of the country's policy to exploit the Rovuma gas, and the government has sought to approach this issue in an integrated manner, and developed a document that lays down the strategies and the priorities for the use of natural gas in the country: the Natural Gas Master Plan.

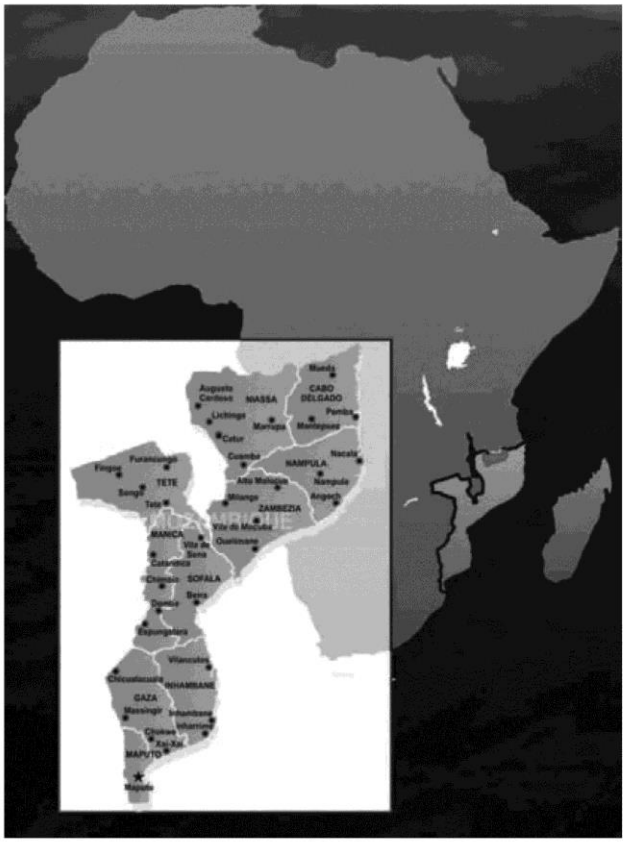
The Natural Gas Master Plan

In addition to LNG – the obvious priority to start generating cash flow for the State coffers – power generation is seen as pivotal for the country's development strategy. Small and medium (gas fired) power plants and large combined cycle plants are being considered. Having reliable power available is, of course, crucial for industrial development and this is regarded as a priority by the government. Additionally, there is a large regional market (organized around the Southern African Power Pool) that can also play an important role in using the gas for power generation.

The Natural Gas Master Plan, approved by the Council of Ministers in 2014, aims to be a strategic guiding instrument for the national use of natural gas, in order to ensure the most effective and advantageous benefits thereof for the country and its population, and to promote its sustainable development.

According to the Natural Gas Master Plan, the natural gas market can be divided into three major sectors: (i) use of natural gas for power generation; (ii) large industrial consumers; and (iii) small and medium enterprises.

The Natural Gas Master Plan states that the use of natural gas for power generation is of particular importance as the supply of electricity with good quality and adequate safety levels is a basic need for the development of any project, regardless of its size.



On the other hand, the large industrial consumers sector would typically fall under the "mega-projects" legislation due the investment amounts involved. Large industrial consumers use gas as a feedstock for the production of fertilizers (urea), methanol and liquefied gases, or in manufacturing processes for heating, electricity, aluminum smelting, steel mills, petrochemical plants, refining, etc.

In turn, small and medium scale enterprises, which tend to be located in urban areas, employ gas for industrial and commercial use in small

quantities, mainly for process heating, drying, cooking, etc. This sector also includes use in road transport.

Additionally, the Mozambican government considers that it is necessary to ensure that part of the natural gas being produced in the Rovuma Basin (which holds most of the gas resources discovered in the country) is used for the industrialization of Mozambique at a price that allows the viability and competitiveness of the industries to be created.

According to the Natural Gas Master Plan, in order to ensure the sustainability of the exploitation of Mozambique's natural gas resources, the government has been perfecting the institutional, political and legal frameworks applicable to the energy sector.

Institutional Framework

There are several bodies currently responsible for regulating oil and gas activities in Mozambique.

The Ministry of Mineral Resources (MIREM) is the government's institution responsible for promoting sustainable use of natural gas in the country. MIREM develops and implements policies relating to the exploration and production of mineral resources, including hydrocarbons. In addition, the National Petroleum Institute (INP) regulates and oversees all upstream oil & gas related activities.

On the other hand, Empresa Nacional de Hidrocarbonetos (ENH), the national oil company is the entity responsible for participating in the prospecting, exploration, production and trading of petroleum products and represents the State in petroleum operations.

Moreover, there are many ministries that may also play a key role in the sustainable use of natural gas for power generation and gas use, such as the Ministry of Energy (which is responsible for the regulation of downstream production and distribution operations), Ministry of Trade and Industry, Ministry for Coordination of Environmental Affairs, Ministry of Planning and Development, and Ministry of Finance, among others.

Policy Framework

Over the years, the Mozambican government has adopted several policies in order to promote the development and sustainable use of the country's energy resources. A few key examples include the Energy Policy, the Strategy for the Development of the Natural Gas Market in Mozambique and the country's Energy Strategy.

The Strategy for the Development of the Natural Gas Market in Mozambique, which was approved by Resolution No. 64/2009, of November 2, 2009 aims to maximize benefits of natural gas for Mozambique, reduce imports and preserve the environment. According to this strategy there are two potential uses for natural gas in Mozambique: (i) use of gas as fuel; and (ii) use of gas in major projects.

The strategy states that natural gas may compete with the majority of fuels used in the industry or for the generation of electricity in areas close to pipelines. On the other hand, it also states that if new discoveries of natural gas are made, there are projects which require high amounts of natural gas that may eventually become attractive for implementation in Mozambique such as (i) the production of ammonia and fertilizers; (ii) methanol production; (iii) iron and steel; (iv) production liquid fuels (GTL – Gas to Liquids); (v) production of liquefied natural gas (LNG) for export and/or transport to other places along the coast of Mozambique.

In addition, the Energy Strategy was approved by Resolution No. 10/2009, of June 4, 2009 and aims to ensure the availability of power in Mozambique and meet the challenges posed for the sustainable socio-economic development of the country.

The Energy Strategy proposes the continuation and acceleration of the country's electrification efforts, prioritizing rural areas through the Expansion of the National Network of Energy Transport (RNET – Rede Nacional de Transporte de Energia) and alternative energy sources, including by the use of low cost solutions and the reinforcement of the collaboration between institutions such as the State-owned utility, Electricity of Mozambique (EDM – Electricidade de Moçambique) and the Energy Fund (FUNAE – Fundo de Energia), as well as the introduction of a percentage value in the investment packages in order to finance equipment and electrical goods capable of stimulating the productive and efficient use of energy (for instance, low cost and high efficiency bulbs).

This strategy also states that it is crucial to ensure the fulfilment of Mozambique's electricity needs by implementing major power generation projects. According to the strategy, electrical energy must be valued internally before its export is considered. This will avoid situations similar to the Cahora-Bassa dam, which exports most of the energy produced, when the country has a clear energy deficit.

In turn, the Energy Policy, which was approved by Resolution No. 5/98, of March 3, 1998 establishes several objectives such as (i) to ensure a reliable supply of energy with the lowest possible cost in order to fulfil the current energy consumption and the economic development needs; (ii) increase the availability of energy for the domestic sector, especially mineral coal, lamp oil, gas and electricity; (iii) export of energy products; (iii) improve the efficiency of energy use; (iii) institutional development; (iv) creation and review of legislation applicable to the energy, electricity and petroleum sectors.

In terms of powers and attributions, the Council of Ministers is responsible for the award of concessions with an installed nominal capacity equal to or higher than 100 MVA, while the Minister supervising the energy sector is responsible for those between 1 MVA and 100 MVA.

The policy also states that the government of Mozambique aims to extend the national electricity network in order to improve the living conditions of the Mozambican population, providing a reliable technical service with costs that are compatible with the economic needs as well as the increase of exports.

Legal Framework

Law No. 21/97, of October 1, 1997 (Electricity Law) applies to production, transport, distribution and trading of electricity in

Mozambique, as well as its import and export, into or from the country. The statute sets out the key provisions to be included in concession contracts that are awarded for the development of power projects. The Electricity Law establishes that the State, its institutions or other public legal persons, have a leading role in promoting the enhancement of existing capabilities, to enable an increasingly wider access to the benefits of electricity, and contribute to the economic and social development of the country and the region. Importantly, it also acknowledges the role of the private sector in the public power utilities sector.

Private investors (including international investors) wishing to enter the power sector in Mozambique may apply for the negotiation and entering into of a concession contract, foreseeing the terms and conditions applicable to the project. However, in order to encourage competition, a public tender may be organized for such purpose. Under the law the concessions may have a term of up to 25 years (except in the case of hydro power projects, where the maximum term is 50 years), renewable, thus giving investors sufficient time to recoup their investment and make an adequate return. Freedom of access to existing infrastructure (for instance transmission infrastructure) is also guaranteed, upon payment of non-discriminatory fees. As for the national transmission network, it is currently being operated by EDM, the Mozambican State-owned utility.

In terms of powers and attributions, the Council of Ministers is responsible for the award of concessions with an installed nominal capacity equal to or higher than 100 MVA, while the Minister supervising the energy sector is responsible for those between 1 MVA and 100 MVA. A regulatory agency, the National Electricity Council (*Conselho Nacional de Electricidade*), was also created under the Electricity Law and ancillary regulations, with wide powers in terms of supervision and organization of the sector.

Conclusion

The major gas discoveries in Mozambique, especially in the Rovuma Basin, have the potential to make an important contribution to national development. However, in order to ensure the country's economic and industrial development, it is crucial that the Mozambican government ensures that there is reliable power available in the country and strikes the right balance between the amounts of natural gas exported and the quantities retained for power production.

The Natural Gas Master Plan seems to be a step in the right direction as it clearly indicates that having reliable power available in Mozambique and the country's economic and industrial development is regarded as a priority by the government. This said, the possibility of attracting world class players to the market will depend on certain factors that are, at least in part, within the powers of the government. Among other factors, the gas sales price, approval of a contractual framework capable of contributing stability for investors, and the negotiation and entering into of adequate power purchase agreements that give investors certainty of recovering their investment is crucial to ensure the success of power projects.

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**Ricardo is a Partner at Miranda & Associados' Lisbon headquarters, and is responsible for coordinating the firm's Timor-Leste office. He is Co-Head of the Firm's Energy and Natural Resources Practice Group and frequently advises energy companies in setting up and carrying out their operations in Africa and South East Asia. Edna is a trainee and a member of the Energy and Natural Resources Practice Group at Miranda & Associados.*

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