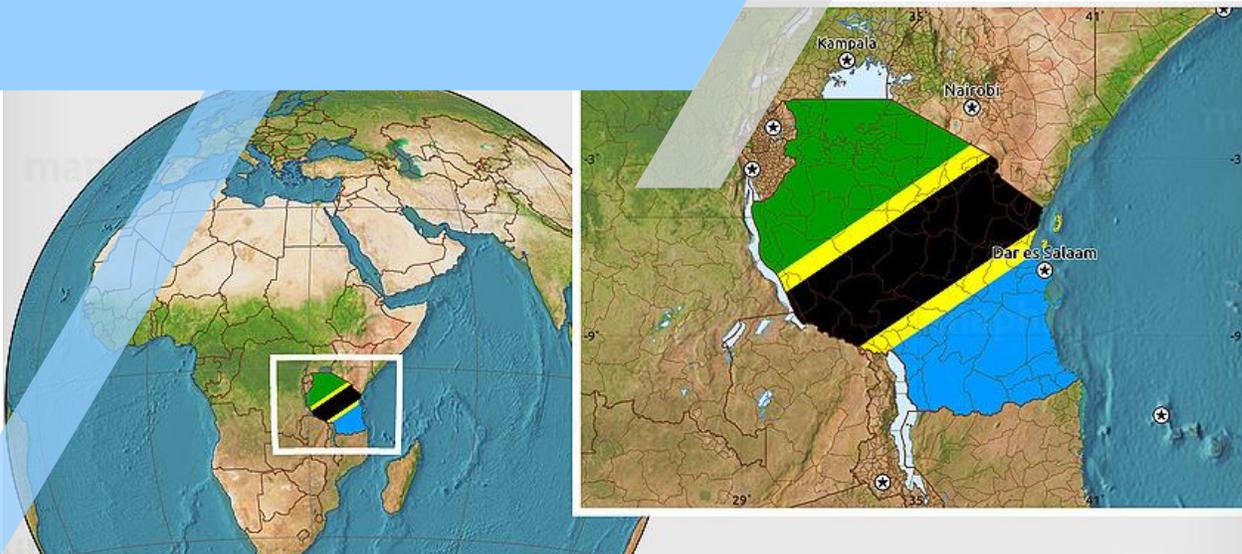


Tanzania Gas & LNG Project



1. Tanzania's large gas discoveries: a huge opportunity for the Tanzanian people

Tanzania has discovered a significant amount of gas off the coast of Lindi and Mtwara. These gas deposits are referred to as "deepwater gas" because the gas fields are over up to 100km from the shoreline at a water depth up to 2.5km. This volume of discovered gas would take 500 years for Tanzania to consume at current rates of consumption. This means there is more than enough gas for own consumption in country for current and future power generation, expansion of current industrial use of gas in industries such as cement, breweries, plastics, ceramics, glass, steel and other energy intensive industries as well as selling gas potentially to neighboring countries, developing Tanzania as a regional energy hub. Given these large quantities of gas, there is an enormous opportunity for Tanzania to export gas globally at the same time to generate income that can be used for other development needs in Tanzania. Many other countries have used their resources in similar ways to develop growth and prosperity for their people in the long term.

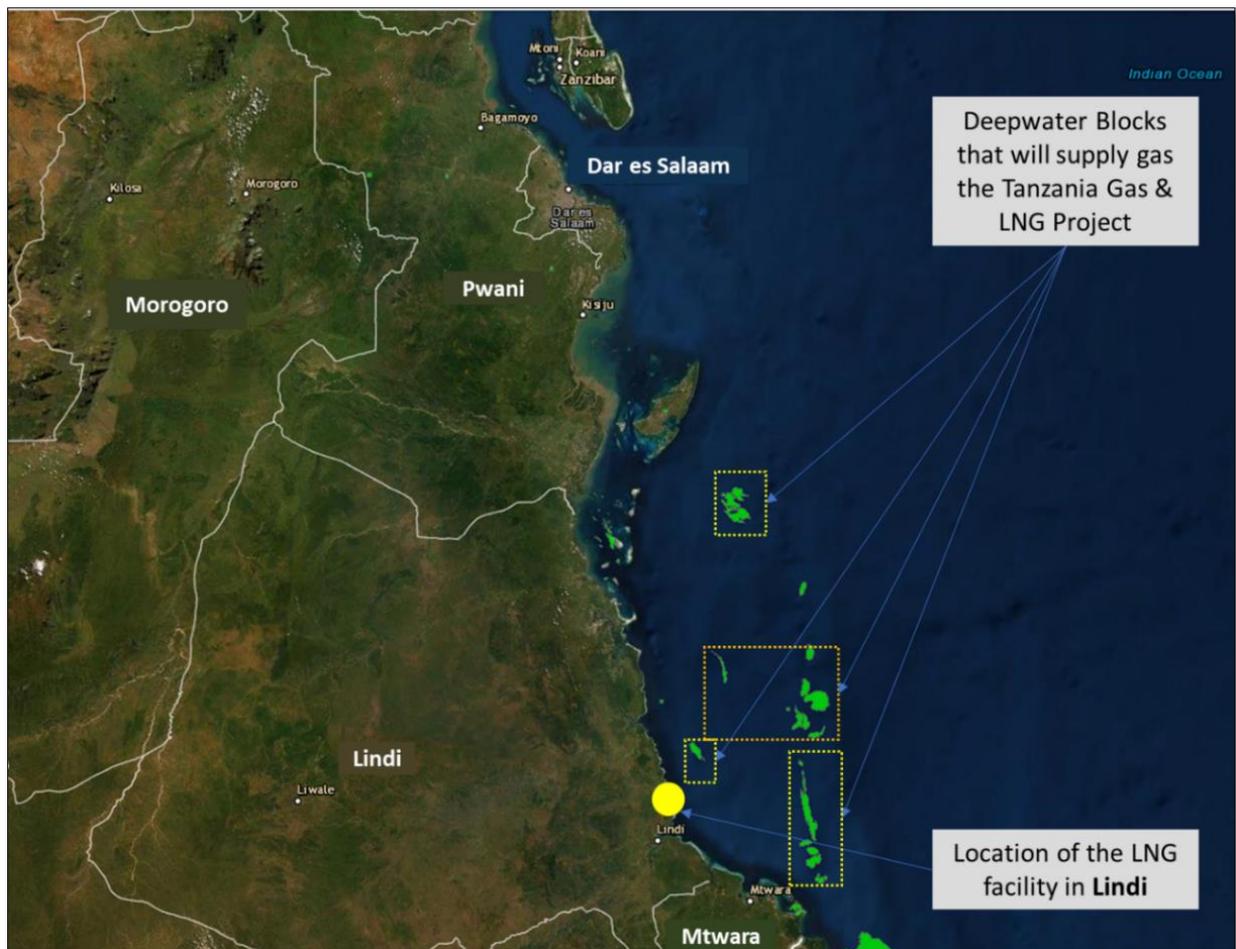


Figure 1: Overview of the Tanzania Gas and LNG Project

Up until now investors involved in the deepwater gas development have been working with TPDC on behalf of the Government and ~9 Trillion TZS (\$4 billion) has been invested by all these industry players in exploration and appraisal activities to find and assess the gas. However, to seize the opportunity and further develop the Tanzanian domestic gas sector and monetize the rest of the gas by exporting to the highest paying international markets, a further large investment is required to develop offshore facilities to bring the gas to shore and build onshore facilities to process the gas ready for domestic use and export. This investment is estimated to be in the order of tens of Trillions of TZS (billions of US dollars). Like building a large residential property development requires an anchor tenant to provide the base revenues to substantiate the investment, the international gas market will act as an “anchor customer” to unlock further domestic gas market growth while generating a large amount of tax revenues which can be used to boost Tanzania’s economy.

In order to be able to transport and sell the gas on the global market and particularly the Asian markets that offer the highest price, gas is cooled down at the onshore facility to -162C causing the gas to turn into liquid (hence Liquefied Natural Gas or LNG). As the gas turns into liquid, it shrinks around 600 times, equivalent to reducing a football down to the size of a marble. In this way the gas takes up less space and allows the gas to be transported by ships to countries such as India, China, Japan, and Korea.

The development of this offshore gas will have all the characteristics of a mega project; large investment, vast complexity, long lasting impact to the economy, employment and wider society. Compared to other large projects that are either planned or already completed in Tanzania, this development would be by far the largest investment project in the country to date. Tanzania is on a journey to achieve its aspiration to become an industrial hub of Eastern Africa. This development will serve as an important ingredient in supporting Tanzania’s vision of industrialization as it will offer a large amount and variety of long-term benefits to Tanzania (see figure 2). The key ones to highlight are:

- **Employment:** The project will create tens of thousands of direct and indirect jobs for Tanzanians as well as business for local companies that will be providing goods and services to the project during the development, construction and operational phase of the project.
- **Industrialization:** Development of the deep water gas will unlock more gas that can be used in country for various uses such as power generation, as a means to increase access to electricity across the country and supplying gas to various industries that use it for industrial processes for example in aluminum, textiles, papermills, edible oil production, carbonated drinks, flour mills and many other industries that require stable and secure energy supply.
- **Financial:** generating large amounts of revenues annually for the Government and therefore the Tanzanian people, to support development activities in Tanzania.

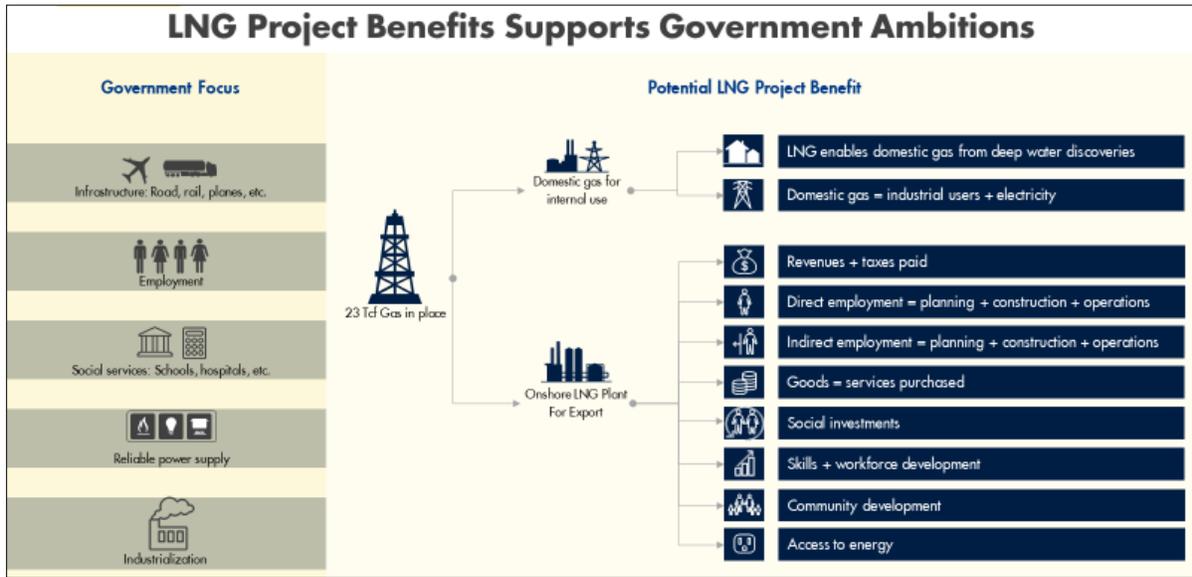


Figure 2: Benefits of Gas & LNG Development for Tanzania

2. How Tanzania can fit in the globally competitive LNG market

The gas which is not sold in the domestic market, will be globally exported as LNG. Tanzania’s LNG project therefore will be competing against other gas exporting projects around the world and the price for which Tanzania sells its gas must be competitive against those competing projects. The diagram below illustrates the competition for Tanzania in the global LNG market showing how exporting regions are competing for the same markets.

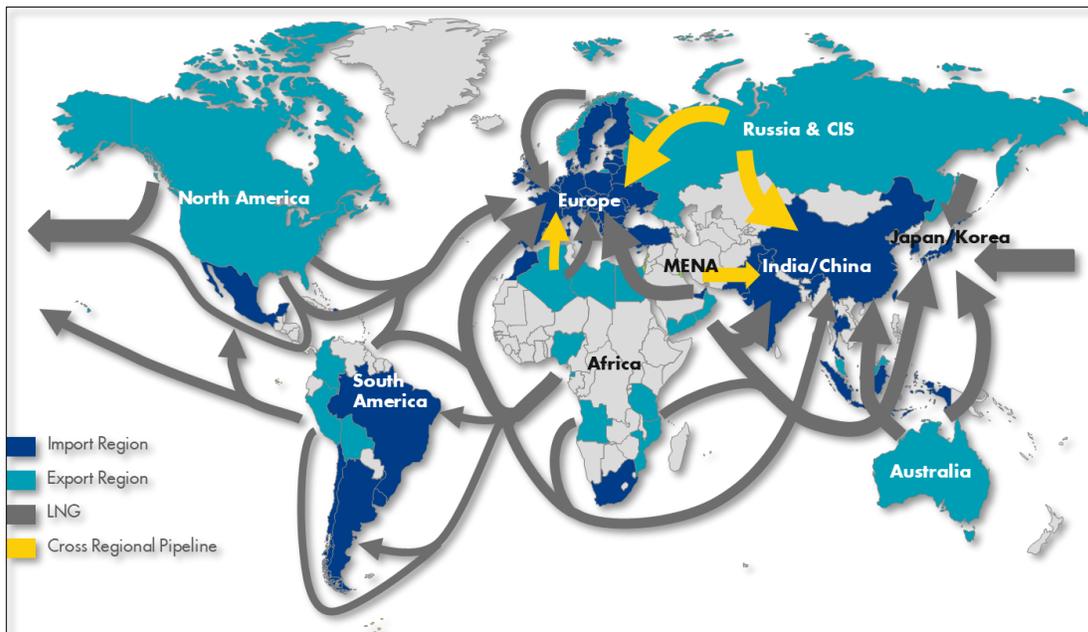


Figure 3: LNG Global Market – Illustration of the global and competitive nature of the LNG market

Despite the current low oil price environment which is expected to persist only in the near term, there can be a very lucrative market for Tanzania LNG if the project can be developed competitively since the demand for LNG is still expected to grow in the next 20 years. Over the longer term this growth represents around 4% growth per year. Demand is expected to outstrip supply after the mid-2020s, opening a gap that Tanzania LNG can fit into.

Moreover, now is the time for Tanzania to develop these resources, as when we look at the very long term, world markets could move more towards renewable energy causing hydrocarbon resources (oil & gas) to lose some of their value. Although this is expected only after many decades from today, LNG projects take time to develop and run for many decades as well, hence now is exactly the right time for the project to be developed to fit in the demand gap described above.

The driver for this demand is population growth, demand for clean air through reduced emitted particles as well as CO₂ emissions and declining domestically produced gas in most countries. The Asian markets which offer the highest price for gas will account for over 70% of new demand. Tanzania's proximity to these markets puts its gas at an advantage against competitors.

Properties of natural gas in terms of lower carbon intensity as well as lower pollutant compared to oil and coal and its portability of LNG for transport over long distances makes gas a very good replacement energy source for the low carbon future. The natural composition of Tanzanian gas has very low CO₂ content compared with the other projects it is competing against. This inherent characteristic of the gas will give Tanzania gas a competitive edge over other projects when measure on its CO₂ content. The project has the potential to have the lowest CO₂ footprint of any new LNG project currently under development, especially if renewables sources of energy, such as solar and hydroelectricity, are integrated into the design of the project.

Considering all the above, one can conclude Tanzania has a great opportunity to unlock economic growth and capture benefits from LNG exporting in the global market. To enable progress with the opportunity there are two key factors Tanzania should focus on:

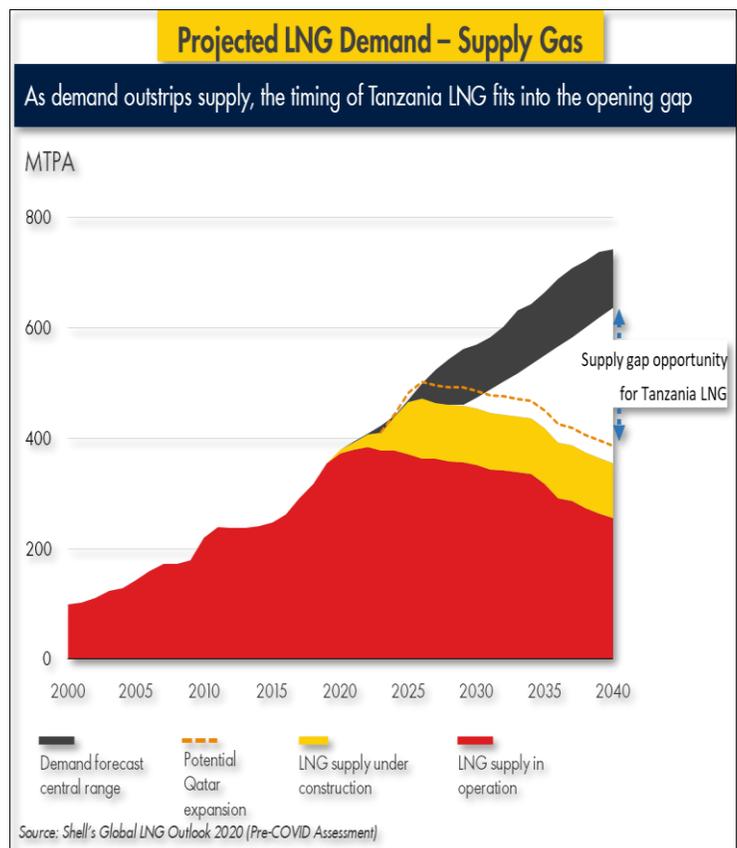


Figure 4: Projected LNG Supply - Demand Gap to 2040

- **Being able to be price competitive for the LNG Tanzania produces** - The Government should work closely with TPDC and investors to develop the most efficient and cost-effective LNG project that enables the Tanzanian LNG price to be competitive against what the competition can offer as illustrated by the diagram below. The price of the LNG leaving Tanzania for the international market is made up of two components, cost and profit shared between the government (in the form of taxes and share of production) and investors. The Government and investors need to work hand in hand to deliver the most competitive LNG to market against projects such as those in US, Qatar and Mozambique which have very low cost of production given the larger quantities of gas and highly competitive fiscal systems.

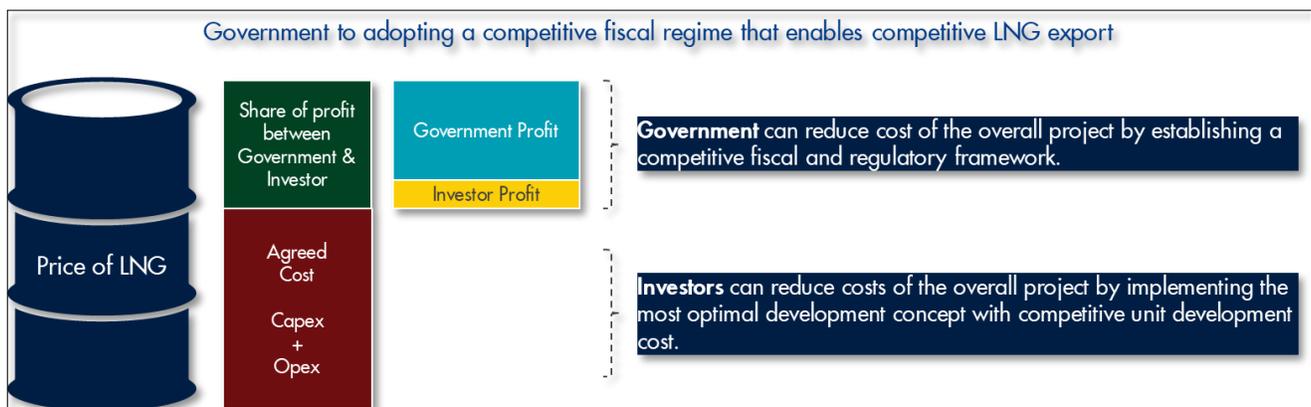


Figure 5: Levels to Improve Competitiveness of an LNG Project

- **Establishing and maintaining a stable and predictable regulatory framework** – LNG investments are made for long term projects which will last for multiple decades. Therefore, giving investors long term certainty of their investment in country is of key importance. This involves having binding agreements that are honored throughout their term and mechanisms for resolving disagreements between parties that follow established international norms.

3. Conclusion

Development of the deep-water gas has potential to transform Tanzania with the job opportunities it will create for Tanzanians, the gas it will provide to power the country's industrialization and the revenues the Government will get from the project. There is more than enough gas for own consumption in country for current and future use for both power and use in industries as well as selling to global LNG market that is projected to grow vastly in the next 20 years. In order to make this development a reality, the Government and investors must continue to work hand in hand and act quickly to capture this opportunity and ensure that the project is cost competitive and has a stable and predictable regulatory regime.