LNG Filling Stations to Play a Critical Role in the Adoption of LNG as a Fuel in Africa
About Megathos Law Practice

- Megathos Law Practice has seasoned attorneys, consultants, and entrepreneurs.

- As Policy consultants
  - We reviewed the National Gas Policy 2016 for the Ministry of Petroleum Resources in Nigeria.

- As Attorneys
  - We were listed in “Who is Who Legal” for 2015 for work done in Intellectual Property (IP): Our “… Olufola Wusu is noted for his “dynamic practice” and “commercial acumen”. He is praised for his “first-rate skills” in assisting clients…”

  - We have advised on IP in oil and gas joint ventures, marginal fields, production sharing contracts, gas and LNG. We have reviewed and negotiated international project agreements, gas sales and purchase agreements, tolling agreements, access codes, term sheet and gas pipelines as a service for an international gas pipeline project running through four African countries.

  - Our team member once served as the Legal Advisor/Company Secretary for an oilfield service company with operations in six African countries (Angola, Gabon, Equatorial Guinea, Ghana, Mozambique and Nigeria). Responsibilities included Oil and Gas advisory, Regulatory compliance, Local content advisory, Contract drafting and Negotiation, Dispute resolution management, internal and external policy review and Advisory on Oil and Gas IP.
INTRODUCTION
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History of LNG...

The first commercial liquefaction plant was reportedly built in Cleveland Ohio in 1941. In January 1959, the world’s first LNG tanker “METHANE PIONEER” carried its LNG cargo from Lake Charles Louisiana to Canvey Island, United Kingdom. This event established the fact that large quantities of LNG could be transported across the sea safely and possibly established LNG as an “Energy Transportation Industry” that makes gas available to markets near or far. Algeria became the world's first LNG exporter when it delivered its first cargo to the UK in 1964.

What Is LNG About?

LNG makes make “liquefied natural gas” available to the international market and our local markets too. Affordable transportation of gas has always been an issue; the cost of laying the pipelines alone was a major issue then came in LNG which reduces the size of the gas volume by a factor of 600. LNG can be transported by Ship, Rail, Truck and all the other ways a liquid can be transported.

The growth of Small Scale LNG...

The term Small Scale LNG, refers to the semi direct use of liquefied natural gas in its liquid form, as opposed to the traditional model of regasification and subsequent introduction into the gas transmission grid via pipeline. Small Scale LNG seems cheaper, better and faster.

Uses of Small Scale LNG

Small Scale LNG plants supply LNG to end-users in places where traditional infrastructure like pipelines do not reach, or to consumers requiring LNG.

There are three major end uses for Small Scale LNG: marine fuel (bunkering), fuel for heavy road transport, and power generation in off-grid locations.

The National Gas Policy in Nigeria has made provision for Domestic use of LNG

Nigeria, like other African countries, has opened up its domestic market for LNG consumption. The Federal Executive Council of Nigeria on the 28th of June 2017 approved
the new National Gas Policy (“NGP”). The NGP is designed to catalyze growth of the gas industry in Nigeria.

Prior to the NGP, Nigeria’s focus has been on oil, the NGP is designed to monetize the abundant gas assets Nigeria has and help accelerate Nigeria’s industrialization as gas has many by products. An in-depth review of the NGP reveals the NGP provides a bit of balance and makes provision for LNG for domestic downstream applications:

**Possible Domestic uses of LNG**

LNG for Transport

LNG as a fuel for heavy duty vehicles like Mining Equipment, Trains, Tractors, Trucks and Buses

LNG as fuel for Ferries and Ships LNG for Shipping

LNG for Agriculture

LNG for Power

LNG as a gas source where no pipeline gas is available LNG as a backup supply for natural gas pipeline network

**Major pricing systems in LNG contracts**

While price plays a role in the decision being made by consumers to switch to LNG, there are other factors responsible for the adoption of LNG as a fuel. There are three major pricing systems in LNG contracts: Oil indexed contract, the JCC (Japan Crude Cocktail) Contracts, used primarily in Japan, Korea, Taiwan and China, and Take-or-Pay Contracts based on a combination of oil products and other energies used primarily in Continental Europe and Market indexed contracts used in the USA and the UK.

**3 critical that can influence the use of LNG as a transport fuel:**

1. The lack of LNG filling stations

2. The high cost of vehicles or conversion kits.

3. A low level of consumer acceptance

“LNG Filling Stations” play a critical role in enabling the adoption of LNG as a fuel

Factors responsible for influencing “fuel switching” by a consumer include; price of LNG, impact of LNG on the environment and the availability of LNG Filling Stations. Regardless of the fact that LNG has many beneficial applications, include being used as a fuel for buses, trucks, trains and ships.
The move to LNG can create cost savings, reduce greenhouse gas emissions, and decrease dependence on foreign oil. Notwithstanding the above, the availability of LNG Filling Stations continues to play a critical role in consumers making the switch to LNG as a fuel. Regardless of the number of benefits of using LNG as a fuel, in the absence of access to LNG, consumers will be unable to switch to LNG as a fuel. Reports have it that, with one tankful, an LNG truck can go up to 1500 km.

“LNG Filling Stations” First vs. Natural Gas Vehicles First

Some argue that there needs to be a proliferation of “Natural Gas Vehicles” before the establishment of LNG filling stations. Others believe that LNG Filling Station need to be widespread before there will be clear adoption of LNG as a fuel. In reality, both parties are right; it will take the widespread building of LNG Filling Stations, to support the proliferation of Natural Gas Vehicles. Strategic deployment of LNG Filling Stations can help create an LNG road haulage market in a smart and quick way.

LNG Bunker Vessels as “LNG Filling Stations” of the Sea

For the shipping industry, LNG Bunker vessels help provide, LNG for LNG Ships that need to replenish their LNG Supply. In essence, LNG Bunker Vessels serve as the LNG Filling Stations of the Sea.

“LNG Filling Stations”; what are the benefits of LNG as a Fuel?

The continued use of LNG as a fuel has helped reduced the environmental impact of transportation. With relatively stable prices, LNG has helped rein in inland transport costs by ships and by reducing fuel costs which are the main cost factor of inland barging (up to more than 50% of the total transport costs). LNG use has led to reduced air emissions, higher efficiency of a modernized fleet and increased price competitiveness on the part of fleet owners.

Possible LNG market forecast

However, 7 (Seven) factors may drive the LNG market in the next 10 (ten) years:

Accessing new users, reaching new markets, lowering shipping costs, slow or quick post-covid economic growth, increasing energy efficiency, excess LNG supply and development of indigenous LNG liquefaction technology.

A changing LNG market

The LNG market is rapidly evolving, from the 20 year long term contracts to spot markets, LNG was dominated by sellers using take or pay contracts to a buyer’s market, where buyers have been able to renegotiate the price of LNG shipments.
New volumes of LNG are entering the global LNG market from the United States (which used to be a major importer) and Australia, with a slowdown in expected economic growth in Europe and Asia. The LNG spot market is making a strong showing as more buyers shun long term contracts in favour of spot contracts.

As more ships are switching to LNG, in order to comply with IMO 2020 regulations, LNG bunkering seems to have come of age, as different countries are encouraging the use of LNG as a fuel for trucks, buses, ships and even trains.

### Surge in the use of Natural Gas Vehicles

From the time the first LNG Station emerged in Europe 10 years ago, there are about 300 LNG filling stations plus over 10,000 LNG trucks in operation in Europe. Africa remains a very attractive market for LNG trucks and filling stations as it is largely under served by LNG Filling Stations and LNG Trucks. As it stands, African countries like Nigeria, plan to rapidly roll out LNG buses, trucks, ships nationwide. To facilitate the effective deployment of natural gas vehicles, a number of LNG stations will be needed.

### Conclusion

The use of LNG as a transport fuel is growing. However, demand for LNG as a fuel is sure to rise rapidly, catalysed by the increasingly by the operations of IMO 2020 Regulations mandating strict emissions control for the shipping industry, stringent energy deficit in some parts of Africa, and the oil and gas industry’s ability to reinvent itself as it seeks new markets to serve. To help encourage the rapid and widespread adoption of LNG as a fuel, there is a clear need to ensure stakeholder support for the deployment of LNG Filling Stations to support Natural Gas Vehicles deployment.

Regardless of the uncertainty in the global LNG market, LNG as a fuel may very well be the game changer in Africa’s quest to monetize its abundant gas resources.

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We solve Legal and Business problems, advice Startups, SMEs.


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