Africa's Gas Non-Investment

Africa's Immense Gas Potential and The Funding Gaps Impeding it

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MONEDA

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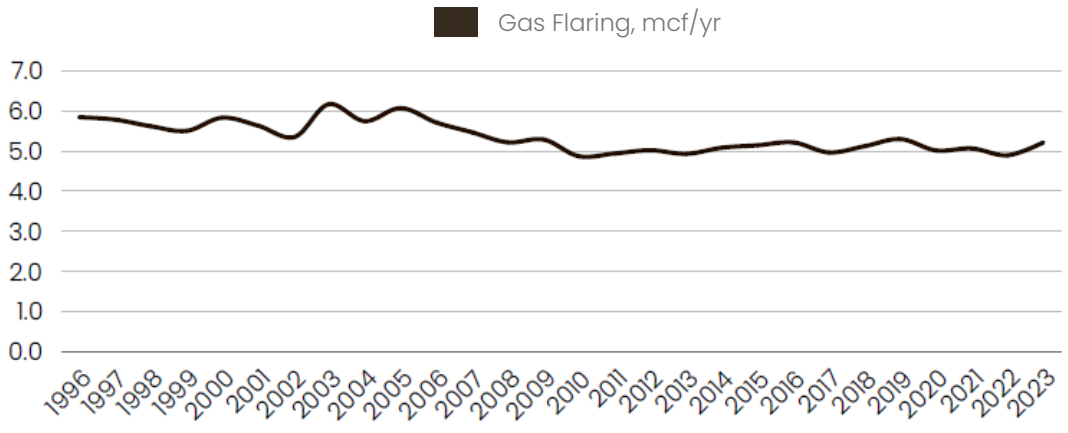
Background

Approximately 50 years ago, the world heavily depended on fossil fuels like coal and oil. However, growing concerns about climate change have led to more consciousness about greenhouse Gas emissions. Following this, strict timelines have been set by countries and multilateral organizations to half greenhouse gas emissions by 2030 and reach net-zero by 2050. Despite the acknowledgement of a need for a reduction in emissions, for economic and geopolitical reasons a rapid transition to renewable energy is not feasible and perhaps impossible for low-income countries. This dilemma has highlighted the role of natural gas as a transition fuel due to its cleaner-burning properties compared to oil and coal and its lower cost compared to renewable energy. Unfortunately, natural gas has traditionally been seen as a by-product of oil production and has mostly been flared. As a result, the road to natural gas becoming a key transition fuel requires significant investments.

For markets in Africa where the adoption of renewable energy will be naturally slower, these investments become even more important.

The volatility of natural gas makes it difficult to store and transport, thus contributing to its capital intensity when compared to other fossil fuels. This capital intensity as well as a dearth in infrastructure influenced operators' decision to flare associated gas (gas produced alongside oil from oil fields) and sometimes completely avoid non-associated gas. Logically, a low hanging fruit for oil-producing countries will be to capture natural gas that is previously destined for flaring, thus discounting the amount of investments required for full-scale non-associated gas projects. Unfortunately, African economies have yet to leverage this low-hanging fruit. For the rest of the world, between 2000 and 2023, oil production has increased by **19.17%** while gas flaring has reduced by **10.55%;** In Africa, the reverse is the case, oil production has dropped markedly but gas flaring has about stayed the same.

Figure 1.1 - Global Gas Flaring



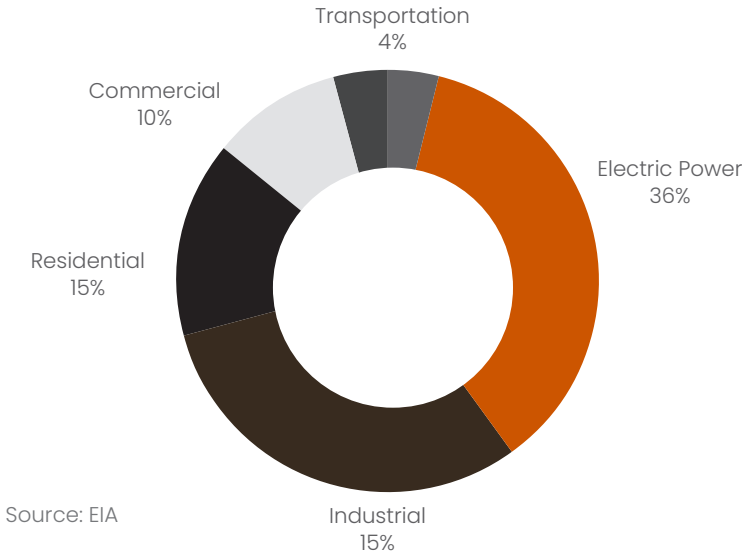
Source: Energy Institute Statistical Review of World Energy

Its diverse application is more reason why investments should care about natural gas.

In 2023, natural gas made up approximately **26%** of global energy consumption, and an IEA report indicated that its demand grew by **2.8%** during the first three quarters of 2024. A primary application of natural gas is electricity generation. It has now become so important in the global electricity mix that in some countries like Qatar, and Bahrain, **100%** of electricity is derived from natural gas.

Additionally, natural gas is widely used for cooking (as LPG), transportation (using CNG or LNG), fertilizer production, and in other key sectors in an economy. As a result, an investment in gas infrastructure can have far reaching [positive] impact in other industries - a characteristic that is not exactly shared by renewable energy. This report examines investments in the gas industry with a focus on African countries the challenges they face in becoming leading players in the natural gas industry, and their ongoing struggle to meet domestic energy demands.

Figure 1.2 - Natural Gas by Consumption, 2022



Source: EIA

The Africa Gas Landscape

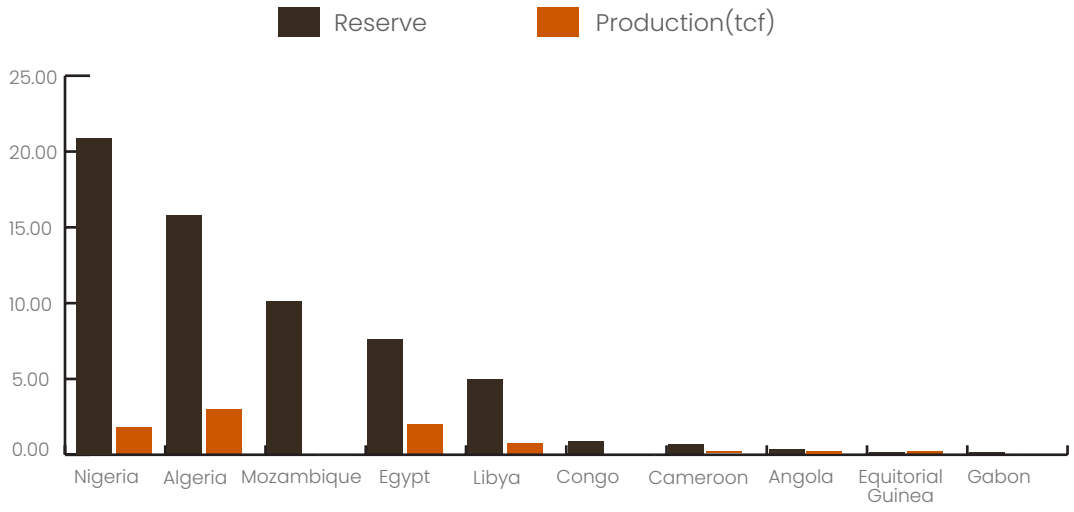
Africa's 800 trillion cubic feet (tcf) of natural gas reserves have attracted planned investments in LNG terminals, gas pipelines, and power stations across Africa valued at **$245 billion**. As will be seen further in this section, a significant fraction of them are unfortunately in danger of never seeing the light of day. These projects have been marred with inefficiencies, lack of capital, policies, insecurity and many more. The challenges exist not only in the supply side but in the demand side as well. The correlation between natural gas and other industries like agriculture (fertilizers),manufacturing, etc. means Investments in those value chains typically drive demand for natural gas. Unfortunately, Africa's slow-paced industrialization does not do gas demand any favors. In 2022, Africa's natural gas demand was **5.8 trillion cubic feet (tcf)** and in 2023 it stood at **6.2 tcf** - a **6.9%** increase. This growth pales in comparison to the **54%** growth in demand anticipated by 2025 in industrialized countries like the US (Annual Energy Outlook 2023, EIA).

As a result, the continent mostly derives value from the gas industry by exporting outside the continent. Approximately **43%** of all gas produced in Africa in 2023 was exported outside the continent with the top destination being Europe - thanks to its proximity to Africa. In effect, investments into gas infrastructure in Africa primarily consider exports outside the continent. There are currently **12** major planned gas projects and **75%** of them are earmarked for exports rather than domestic consumption.

To put this in context...

Nigeria's NLNG plant required a capital expenditure of **$7.15 billion** to build six liquefaction trains with a combined capacity of **22.5 million** tonnes per annum. Only recently in 2022, NLNG expanded its domestic contributions by initiating the supply of LNG to the local market with an initial supply of **48.7 billion cubic feet (bcf) per year** which is just 3% of the production capacity of its six trains.

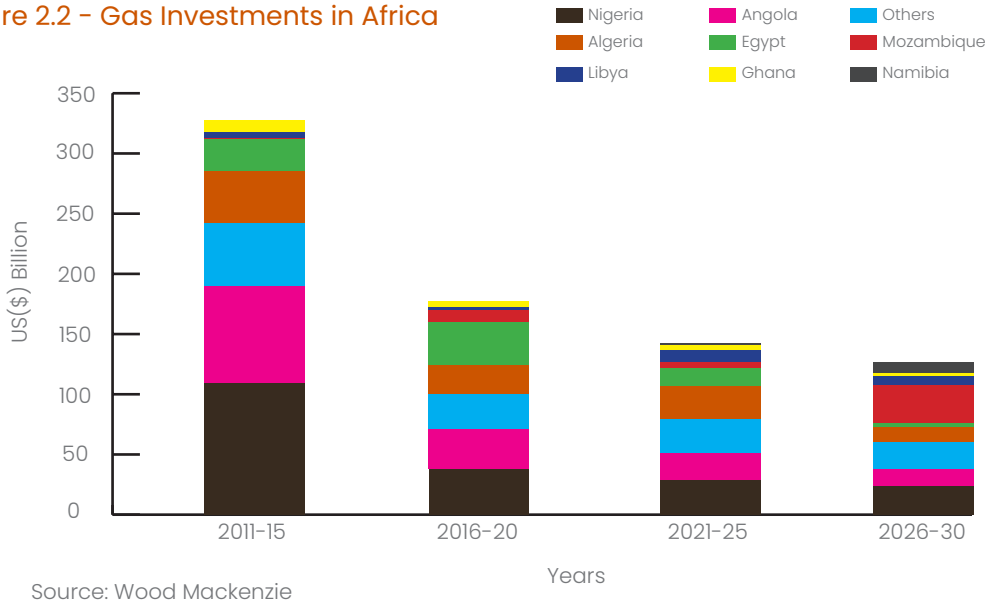
Figure 2.1 - Natural Gas Reserves and Production by Country (OPEC members), 2022



Source: OPEC

In Algeria, the Medgaz submarine natural gas pipeline connects to Spain, with a current capacity to export approximately **356.7 bcf** of natural gas annually -equivalent to about **10%** of Algeria's total natural gas production. Before 2021, this figure was more than double as the country supplied Spain via a second pipeline - the **423 bcf/yr** Maghreb-Europe Gas Pipeline. However, operations of the pipeline ceased when Algeria chose not to renew the 25-year contract following a breakdown in diplomatic relations with Morocco where the pipeline transits. In Mozambique, the Coral Sul FLNG facility, Africa's first floating liquefied natural gas(FLNG) unit deployed in deep waters, attracted an investment of about **$7billion**. All of its **3.4 million** tonnes per annum installed capacity is intended for exports outside the country. While exports are good for government revenue, in this case, it has exposed African countries to energy security issues. As investments continue to isolate the domestic market, the continent remains dependent on imports despite its immense gas production potential and relatively low demand/consumption. A typical example is Nigeria producing **2.49 trillion cubic feet** of gas in 2023 - enough to cater to the consumption of the whole of West Africa 2 times over yet **57.14%** of its LPG consumption that year were imported (**68.18 bcf** consumed; **38.96 bcf** imported). Due to the dependence on imports, the country was perturbed with gas shortages caused by import constraints like access to foreign exchange. On the other hand, projects that have been proposed in recent time have been more inclusive of domestic (or at least regional) considerations without impacting export potential. Two of the most talked-about gas projects in Africa are the Trans-Saharan Gas Pipeline and the Nigeria-Morocco Pipeline. Both projects traverse multiple countries (3 and 13 respectively) with various in lets and outlets allowing for domestic and intra-regional trade. They also both ultimately link other pipelines for gas exports outside the continent (Europe). Both projects are however representative of the state of the African gas landscape.

Figure 2.2 - Gas Investments in Africa



Source: Wood Mackenzie

They both require a combined **$38 billion** to execute but as a matter of fact, the entire oil and gas industry in Africa has attracted an average of **$44 billion** per year in investments over the last 15 years. Unfortunately, just as it is elsewhere, within the context of the gas industry this dearth in investments is a cocktail of a variety of issues that need to be addressed as a matter of urgency.

Government is in the driving seat of gas projects in Africa but *where are we going?*

Contrary to the oil sector, government-owned companies have significantly more stake in natural gas developments in Africa compared to privates. This is especially common in mature markets like Nigeria, Algeria, Angola etc. In Algeria, Sonatrach owns and operates the country's four largest gas fields which hold about **69.5%** of the country's reserves. It is no different in Nigeria where the largest shareholder in the biggest gas exporter in the country - Nigeria LNG (NLNG) - is the state-owned NNPC (with **49%** stake). In Angola, the country's largest ever investment in the oil and gas industry -the **$12 billion** Angola LNG project - has had intermittent disruptions. The pipeline network supplying the plant with feedstock(gas) is owned by the state-owned concessionaire - Agência Nacional dePetróleo, Gás e Biocombustíveis ("ANPG").The state-owned Sonangol also has a stake in the main LNG plant. On one hand, this ever strong government presence in the operations of the gas industry is seen as a way to protect the interests of the country. On the other hand, their interference has been widely regarded as a repellant of investments. A true reflection of how investments respond to government-led and private-led projects in Africa can be seen in Nigeria. The Ogidigben Gas Project, was conceived by state-owned NNPC that was inaugurated in 2015. **9years** on, the project has yet to commence, hindered by prolonged disputes between the federal government, represented by the NNPC, and host communities. In stark contrast, the ANOH Gas Processing Plant, promoted by Seplat (an indigenous, private company), tells a different story. Launched in 2019, the project successfully secured **$260 million** in debt financing and was fully completed by 2023. This pattern of delays in NNPC-led projects, often culminating in investor pullouts or a failure to attract funding, is not new. The ill-fated Brass LNG and Olokola LNG projects, proposed in 2003 and 2005 respectively, remain cautionary tales. Both projects were cancelled after years of in decision, resulting in the withdrawal of key joint partners and investors. For newer entrants into the gas industry like Mozambique and Tanzania, the story is slightly different. Projects are being driven by the International Oil Companies (IOCs) while government-owned entities take a back seat. Perhaps, it is for this reason that, in the absence of other factors, the Coral Sul FLNG project in Mozambique driven by Eni was completed in 38 months - which remains a record across the continent.

Political and Regional Instability has also destabilized gas investments

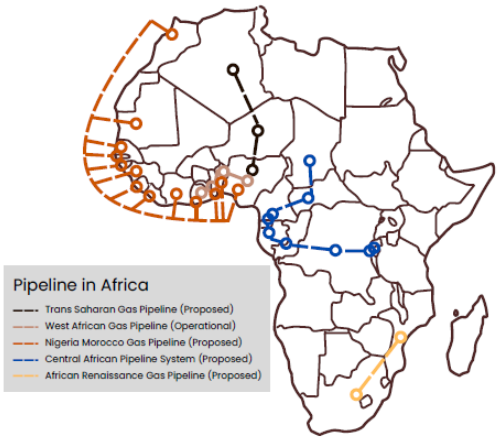
The Trans-Saharan Gas Pipeline (TSGP) was first proposed in the 1970s to connect the Warri region in Nigeria to Hassi R'Mel in Algeria. The project is driven by two state-owned companies - Algeria's Sonatrach and Nigeria's NNPC. It was not until 2002 before an MoU was signed by both parties and only 7 years later before the MoU included a third country - Niger Republic. Till date, the project is yet to fully take off. First, a terrorist attack in Algeria in 2013 targeted the Tigantourine gas facility -one of the important sources of gas for the pipeline. Just when the project was starting to regain some momentum

after that incident - thanks to demand created by Europe's gas crunch created by the Russia-Ukraine conflict - a military coup occurred in Niger. This coup led to sanctions by ECOWAS on Niger causing a rift between two key participants in the project.

A similar situation can be seen in Mozambique with the Cabo Delgado gas project. This project, operated by TotalEnergies, began after the discovery of a vast natural gas reserve off Mozambique's northern coast in 2010.

A final investment decision of approximately **$20 billion** was made in 2019. However, progress on the project has stalled due to ongoing attacks by insurgents in the nearby town of Palma, which have resulted in numerous casualties. In 2021, these attacks forced TotalEnergies to declare force majeure, completely halting the project. To address the security crisis, Rwanda deployed over 4,000 troops under an agreement with the Mozambican government to stabilize the region. The cost of restoring order is yet to be disclosed, and the project remains on hold. On another edge of the African coast, Nigeria's NLNG's ability to reach its full potential has been limited by insecurity and pipeline vandalism. Over the last two years, reports of vandalized pipelines have taken center stage affecting both oil and gas supply. At the height of the issue, in January 2023, NLNG cancelled 10 export shipments after production was disrupted. NLNG itself reported in 2023 - this came only three months after a force majeure was declared by the company.

Figure 2.3 - Proposed and Operational Pipelines in Africa



Source: Moneda Intelligence

Financiers are becoming allergic to African gas projects.

Natural gas projects are on the receiving end of the bad PR its cousin - oil - is getting from global financiers. A growing consensus among major lenders to the oil and gas industry is reshaping the funding landscape. Banks like Barclays have announced they will no longer directly finance new oil and gas projects and are also imposing broader restrictions on lending to energy companies expanding fossil fuel production.

Barclays is not acting alone but is joining the ranks of HSBC, BNP Paribas, and others tightening oil and gas lending policies.These institutions are rather diverting their available funding to renewable energy projects, targeting **$1 trillion** in sustainable financing by 2030 to combat global warming.

MONEDA Intelligence

Again, Africa is worst-hit because of its dependence on investments from outside the continent. There is a global wave of financiers cutting off funding for fossil fuels and although oil projects are the target, some residual impact affects gas projects. As at November 2024, over 40 banks from across the world have announced that they will be boycotting investments in the East African Crude Oil Pipeline (EACOP) connecting Uganda and Tanzania. The Kudu gas project in Namibia has been delayed for **13 years** due to its inability to secure financing. In Mozambique, the US EXIM bank is reassessing its previous commitment of **$4.7 billion** to TotalEnergies' Mozambique LNG project. This wave of financial redirection signals a significant challenge for Africa's energy aspirations.

One step forward, two steps backwards...

The current investment in domestic gas infrastructure falls short of meeting Africa's needs. With **43%** of the population lacking access to modern energy, insufficient investments leave infrastructure underdeveloped, limiting the distribution of natural gas for local consumption. Investors in gas projects have focused on exports primarily because of profitability and the security of assets. However, it is without a doubt that investments into the sector that trickle down to the average African is of very little value. What is worse is that it puts Africa's energy security at risk.

CNG - Africa's way to boost domestic demand and encourage gas investments.

Some initiatives have been launched by some African countries who look to encourage more investments into easing the supply of gas for domestic needs. One of the most recent and most notable is Nigeria's CNG initiative. The program was primarily launched to utilize CNG as a substitute to PMS which became expensive due to fuel subsidy removal. It has inadvertently looked to encourage investments into CNG stations and associated infrastructure to encourage domestic consumption. Unfortunately, the program is yet to catch on - mostly on the demand side as citizens are put off by the high initial cost of conversion. Egypt also shares in this ideology and has looked to drive the adoption of CNG but has also been met with similar challenges. Both initiatives are largely government-driven. About half of the investments in CNG in Nigeria were spending from government's purse. In Egypt, presidential directives allocated **£68 million** for vehicle conversion to CNG and a further **£11 million** was invested via the Egyptian Micro, Small, and Medium Enterprise Development Agency (MSMEDA).

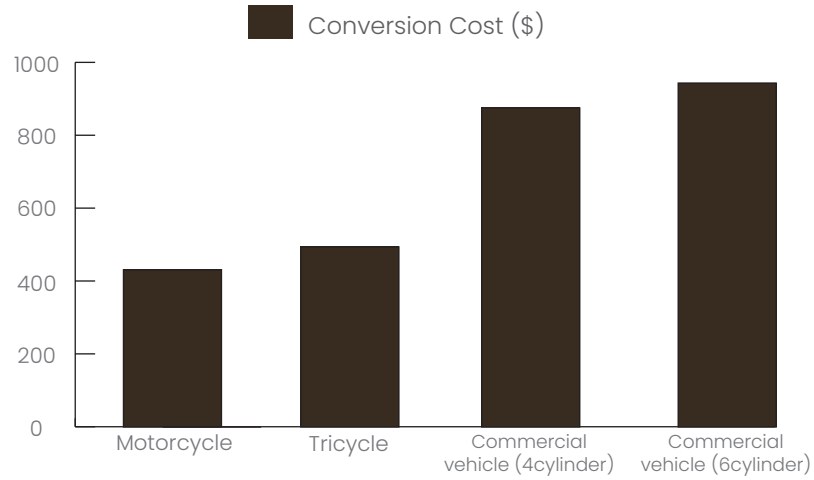
Some other ways the governments have pushed for the adoption of CNG in the respective countries include:

1. Tax incentives: 5-year tax holiday for CNG companies in Egypt; tax exemptions on imported equipment in Nigeria; VAT waivers on domestic LNG,CNG & LPG sales in Nigeria.

2. Subsidies: 100% free conversion for commercial vehicles in Nigeria; **50%** subsidy on conversion fees for private vehicles.

Despite the efforts by the governments to drive these initiatives, unfortunately, the adoption rate of CNG has not yet matched the investments. While CNG is cheaper for transportation when compared to petrol or diesel, for majority of the citizens, its initial cost of conversion is just not worth it. Following its investments, the Nigerian government projected to convert 1 million cars in three years - one year later, only 100,000 cars have been converted.

Figure 3.1 - CNG Vehicle Conversion Cost



Source: Mordor Intelligence

We spoke to Moneda people to get more insights into the adoption of CNG. Here's what they said...

Akintunde Marinho
VP BD, Marketing & Communications

Focus on power generation, not vehicles....

"CNG should complement, not replace, PMS and be directed towards power generation and developing industrial parks. Safety regulations are crucial, given reports of CNG car explosions, and conversion costs may outweigh the benefits of maintaining PMS vehicles. Prioritizing CNG for power and industrial use could be game changer as this will have a triple effect on the economy in terms of processing".

Nkechi Amangbo
VP Liquidity, Commodities, Global Markets

We are not just ready...

"We are yet to build the necessary capacity. In the Western world, we see significant investments in making EV charging stations the norm,along with constant research for improvements. My concern is whether we are truly ready and if this is the right time, as I find it unsafe to carry a gas tank in my car trunk. While it's commendable that we're working to utilize our gas resources, we haven't adequately invested in the required infrastructure. Additionally, what standards are in place to ensure safe production and minimize hazards?"

Obinna Nwaolikpe
Director of Sales Operations

This is a warped priority and merely a short-term fix

"The world is shifting towards renewables, and EVs are increasingly entering the market. Investing in a technology with such a short life span is not economically viable. There are significant concerns about the limited availability of stations and the higher maintenance demands compared to PMS vehicles. To me, this feels like a warped priority and merely a short-term solution, because there are morepressing issues that natural gas can tackle, like poor electricity which is common in most African countries".

Our View

Africa is yet to reach its gas potential because of a myriad of issues - the chief of which is access to investments in the sector. The industry has attempted to fight back with new policies, initiatives and proposed projects, however without the right amount of investments coupled with a concerted effort of all stakeholders, these initiatives have largely remained dormant or, worse, unsuccessful. We estimate that the African gas industry requires about **$88 billion** in investments per year over the next **5 years** in order to cater to domestic needs as well as export opportunities. Unfortunately, financing from traditional sources have dried up as investments are now being diverted to"greener" projects. It is important that the role of natural gas as a transition fuel should not be overlooked. As such, it has become evident that to drive development in the gas industry, Africa will have to look elsewhere for investments

Investments for Africa, by *Africans*

There is a growing awareness for Africans to mobilize African capital and we believe Africa's gas projects need to capitalize on this. The most talked about initiatiative towards achieving this is the African Energy Bank (AEB) which is being promoted by the African Petroleum Producers Organization (APPO) in partnership with Afreximbank. The AEB,which is slated to commence operations by 28th of January 2025, is a **$5 billion** which looks to support oil and gas projects. The fund will be made up of **$1.5billion** from the promoters (APPO & Afreximbank), **$1.5 billion** from **18 member** countries (at **$83.33 million** each) and **$2billion** from other private equity investors.
The size of the fund is a fraction of the investment required by the gas industry, however, it can combine with other sources to provide capital that is accommodating of the peculiarities of the African continent. Another of such sources, which unlike AEB has been much less talked about, is the African Public Pension Funds (PPF). Africa's PPF are currently estimated to hold about **$700 billion** - a significant fraction of which are deployed to securities outside the continent. Countries like Norway and the Netherlands have adopted the financing of domestic energy projects through PPF and there is no reason African countries cannot do the same. We believe redeploying capital from PPF to key gas projects on the continent can result in real, positive impact for African economies.

Funding is a step in the right direction, however to reach our *full potential* all stakeholders must be involved.

While it is important for funding to be deployed to the African gas markets, it is just as important for this funding to be inclusive. The trickles of investments into the gas industry in Africa over the last couple of years have largely targeted top-level operators and isolated bottom-level players. As it is across the entire upstream energy sector, the gas industry is comprised of operators, multinational contractors, major indigenous contractors and SMEs. The amount of investments getting to the players reduces exponentially as we go lower in the hierarchy. The success of projects requires the collective efforts of all the stakeholders and as such, investments need to back all players - regardless of their level in the hierarchy.

Policies have a *role to play* in putting together the pieces of the puzzle.

Policies have always been used as a tool to encourage investments across different aspects of any economy. In the African gas space, policies have had a trilemma of attempting to attract the much-needed investments while having little to no impact on government revenue and local content. Recently, the bulk of the focus has been on attracting investments as this has been on a steady decline.

In Algeria, the introduction of Law No. 19-13 in 2019 establishes a favorable frame work for exploration and production activities, which includes a single royal rate of 10%, in place of the previous **5.5%** to **25%** range, tax reductions, exemptions from customs duties and VAT on imported equipment.

Meanwhile, Nigeria enacted the Petroleum Industry Act (PIA) in 2021 which provided several incentives to potential investors in gas projects in the upstream and midstream sector. Unsatisfied with the results, three years later, the Nigerian President signed executive orders further deepening the incentives for investors in gas projects and plugging project approval inefficiencies. Some of the incentives include a 5-year tax-free period for gas pipeline projects for non-associated gas (NAG), greenfield developments in onshore and shallow water locations, and a **25%** gas utilization investment allowance for qualifying expenditures on plant and equipment incurred by gas utilization companies.

Unfortunately, these regulations have failed to yield significant results in terms of new investments showing that investors are yet to be moved by their provisions. We believe governments need to get the collaborative efforts of players in the industry as well as the citizens of the country in order to find the best compromise for its policy trilemma. In our view some of the concerns of investors in Africa are the inconsistent nature of policies. The largest drop in investments in Nigeria's oil and gas industry occurred during the decade where the Petroleum Industry Act was being discussed without being passed into law. Investors spent that decade being edgy and unsure of what the policies will be. As a result, they were unwilling to commit to projects for fear that policies will go on to impact profitability. Even more importantly, investors are concerned about their investments returning to them. In Nigeria, policies limiting how much investors can repartraite have significantly lowered investors' confidence. In Egypt, the government's inability to settle Eni for its investment into the Zohr gas field has not only halted further investments into the field, it has also cut the field's production to the lowest it has ever been since discovery.

These are some of the concerns that governments need to pay attention to when drafting regulations in a bid to encourage investments in the gas industry. They need to utilize policies to been ablers rather than key operators themselves. This way, they can encourage the free flow of healthy investments (forth and back) that will assure the growth of both the top level operators and the bottom-level players in the gas industry.

Appendix

Table 1.0: Major Gas Projects by Investment

Name	Country	Category	Capacity (bcf)	Cost	FID year/ Start year	Status
Tanzania LNG Terminal	Tanzania	Terminal	480.28	$42bn	2025	Proposed
Nigeria - Morocco Gas Pipeline	Nigeria - Morocco	Pipeline	1059.45	$25bn	2024	Proposed
Rovuma LNG Export Project	Rovuma Basin, offshore Mozambique	Terminal	635.67	$23bn	2025	Proposed
Mozambique LNG Project	Cabo Delgado Province, Mozambique	Terminal	1099.7	$20bn	2019	Proposed
Gas Revolution Industrial Park	Ogidigben, Delta State, Nigeria	-	-	$20bn	-	Proposed
Trans Sahara Gas Pipeline (TSGP)	Nigeria - Niger - Algeria	Pipeline	1059.45	$13bn	2030	Proposed
Angola LNG Terminal	Angola	Terminal	249.68	$12bn	2013	Operating
South Valley Gas Pipeline	Egypt	Pipeline	423.78	$9.3bn	2009	Operating
Nigeria LNG Train 7	Nigeria	Terminal	370.12	$7bn	2021	Constructing
UTM FLNG Facility	Nigeria	-	136.36	$5bn	2024	Proposed

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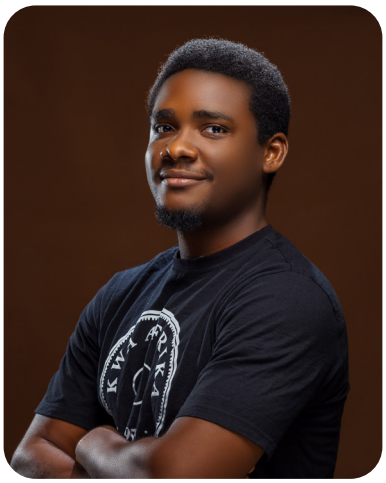

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