



Africa : The next gas hunting ground

Introduction and context

The Russia–Ukraine conflict is creating a major disruption in the commodities trading business. Russia is a major exporter of some of the world’s most important commodities. Thus, the Russian invasion and the consequent sanctions imposed by various Western countries are reshuffling the cards of the most globally interconnected markets, especially those related to crude oil, its derivatives and gas. Together with pressure from public opinion, these sanctions have also led some companies to become averse to trade with Russia, thereby potentially disrupting key supply chains.

Regarding gas imports, the European Union (EU) needs to act quickly and find sustainable alternatives to replace Russian supplies. Possessing significant natural gas resources and benefitting from an advantageous geographical position, Africa has a once-in-a-lifetime opportunity to step in and substantially increase its share of gas exports to the EU.

However, African countries need to rethink the dynamics of their external relationships. The objective is to find the right balance between accelerating the development of a sustainable and diverse local economy and exporting a strategic part of their natural resources.

The purpose of this note is to provide an overview of the gas market in Europe and Africa. It seeks to highlight the key factors that African countries should consider to ensure optimal internal and external value from the development of natural gas projects. ➔

Gas supply and demand in Europe

The energy landscape is undergoing a major transformation, as the sector is one of the main contributors to greenhouse gas emissions (Scope 1, 2 and 3). The aim is to shift the world to an electrified, low-carbon, renewables-rich and more affordable energy system.

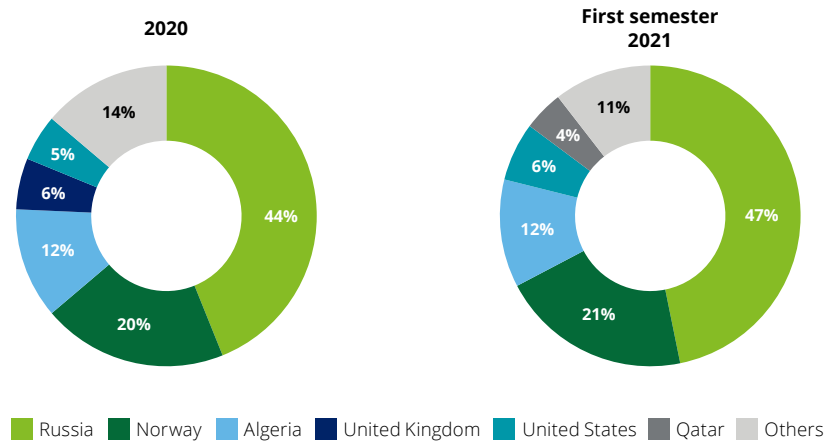
Under this transformation, the EU is leading the way by progressively phasing out fossil fuels to favour energy sources with low to zero carbon emissions. However, renewables are intermittent sources, and with the lack of short- and middle-term solutions for energy storage at scale, the EU needs to rely on intermediate solutions.

The current policy debate in the EU refers to gas as a transition fuel used to produce electricity (gas-to-power) and one of the best options to achieve the transition. Natural gas provides a bridge to reduce carbon dioxide emissions by displacing the need for coal- and crude oil-fired power plants (assuming the stability of nuclear power). Meanwhile, green technologies should be further developed and refined to achieve the net zero target endorsed by several countries and organisations by 2050.

Hence, natural gas demand is expected to peak in the next couple of decades, given the massive electrification of all sectors and current limitations in the renewable energy supply.

The total EU net gas imports throughout 2020 reached 326 billion cubic metres (bcm). Russia is the largest gas supplier, with a share of ~45% (155 bcm of pipeline and LNG combined in 2021) (Figure1). It is delivered via four distinct corridors: Nord Stream, Yamal (via Poland), Ukraine and Turkstream (via Turkey) (Figure 2).

Figure 1
EU imports of natural gas from main trading partners
2020 and first semester 2021



Source: Country space agencies, Corporations, Monitor Deloitte analysis

Figure 2
Main Europe natural gas imports routes



Source: Bruegel

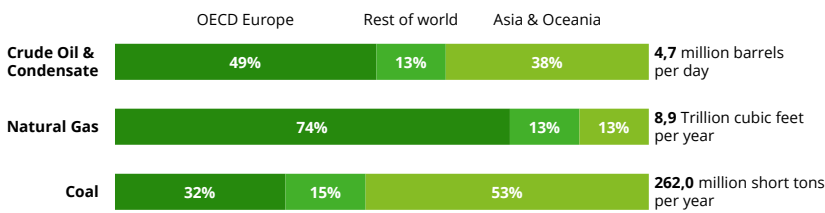
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With the Russia–Ukraine conflict and the consequent sanctions, the stability of Europe’s natural gas supply and its entire energy supply is at risk. Russia is not only one of its major natural gas suppliers but also a key supplier of crude oil, coal (Figure 3) and even some critical minerals, such as palladium, titanium, lithium, cobalt and

nickel, which are key elements for clean energy (notably required for solar modules and wind turbines). The latter issue could slow down global progress towards a clean energy future or make it costlier, creating additional stress on the demand for natural gas as a transition fuel.

Figure 3
Selected energy export from Russia

2021



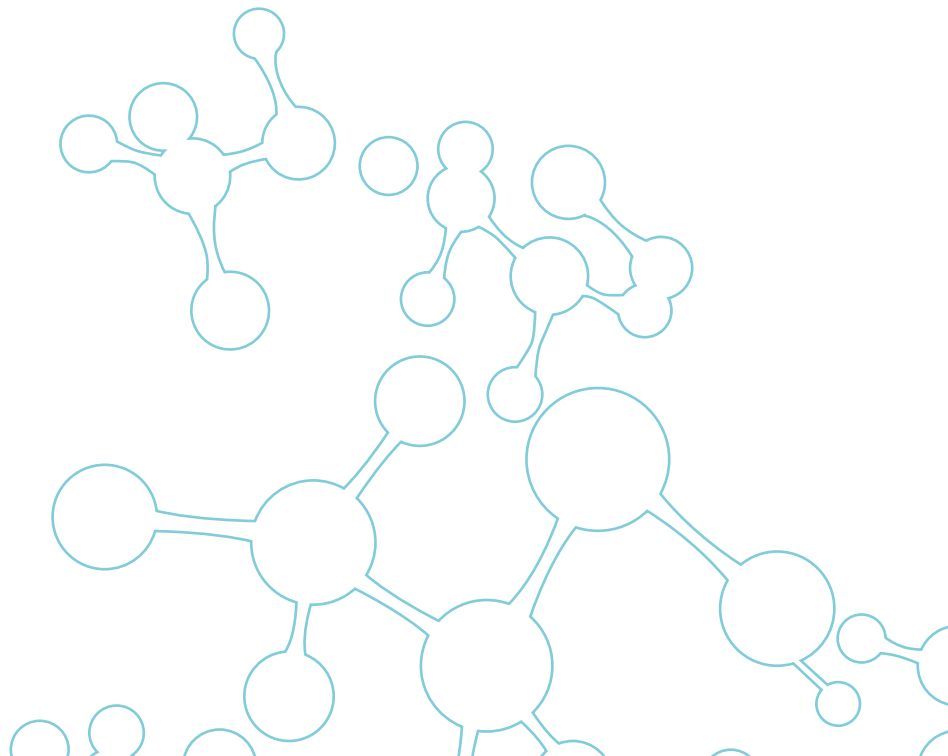
Source: U.S. Energy Information Administration

In this context, the EU needs to act quickly and guarantee the safety of its supply base. The EU Commission has published a communication^{1 2} presenting the outline of a plan to make Europe independent of Russian fossil fuels well before 2030, starting with gas. The communication also states that gas imports from Russia could be reduced by two thirds (101.5 bcm) before the end of 2022 in comparison to the 155 bcm imported in 2021.

To achieve its objective, the EU plans to combine two complementary approaches: reduce natural gas demand and diversify imports away from Russia.

The EU Commission has already proposed reducing gas demand by 38 bcm in 2022 compared to 2021 levels. This will be achieved mainly by (1) reducing energy consumption through energy efficiency and restriction and (2) evolving EU energy-mix sourcing base, notably by accelerating the deployment of renewable energies, such as solar, wind, bioenergy and geo-energy.

For gas diversification, the EU is planning to replace 63.5 bcm of Russian gas in 2022. But how could this be achieved and sustained given the global context?



Options for European gas supply diversification

Only limited alternatives could be considered for the mid to long term: (1) increasing the supply from existing pipelines (Norway, Algeria and Libya), (2) importing LNG from the US (shale gas), (3) importing LNG from other key producing countries (e.g. Qatar, Australia and Malaysia) and/or countries likely to increase their gas output for the global market (e.g. Mauritania, Senegal, Mozambique, Ivory Coast and Egypt) and (4) developing shale gas in Europe (e.g. France and Poland).

1. Supply from existing pipelines

Norwegian pipelines and fields are running closer to full capacity and Libya is not yet politically stable to increase production. Algeria will also struggle to offer substantial additional gas export in the near term as it is already producing at capacity and domestic demand is growing. However, given the new context, Algeria should investigate as to whether the development of its shale gas reserves could be a solution to increase its capacity in the short to medium term. Prior to the conflict, concerns were raised regarding the development of these unconventional resources (profitability not guaranteed, unattractive to foreign investors, lack of technical knowledge, pollution risks and public pressure). The expected high gas prices, the rapid development of shale assets with low risk of becoming stranded, the continuous progress of new operating techniques to control pollution risks and the development of Carbon Capture and Storage (CCS) techniques are all new factors that help make the case for investing in shale gas, especially as an international market for blue hydrogen is emerging.

2. Importing LNG from the US

The US has announced that it will increase its LNG supply to Europe, which will only cover part of the needs (additional 15 bcm in 2022, which will increase progressively to reach an additional ~50 bcm by 2030³). In any case, the EU would need additional gas quantities to offset the current level of its Russian imports.

3. Importing LNG from other key producing countries

Importing LNG from countries currently satisfying none or a fraction of EU imports, will help close the remaining gap from previous options and is also the most viable solution in the long term. This could be a once-in-a-lifetime opportunity for Africa to step in and substantially increase its share of gas exports to the EU.

4. Developing shale gas in Europe

The US Energy Information Administration (EIA) estimates that France has 3.9 trillion cubic metres (tcm) of technically recoverable shale gas resources⁴. Comparatively, it represents ~8% of the total Russian reserves, which has the largest natural gas reserves in the world⁵ (~24%). However, this is not a viable option. Since 2011, French law has banned any use of hydraulic fracturing techniques in the exploration and development of gas reserves in France for environmental reasons⁶ (strong public pressure). As a result, the Ministry of Ecology revoked all permits for the exploration of shale gas. Poland is also facing some serious challenges. In addition to environmental concerns, there are geological issues at work, combined with the absence of a coherent legal framework⁷.

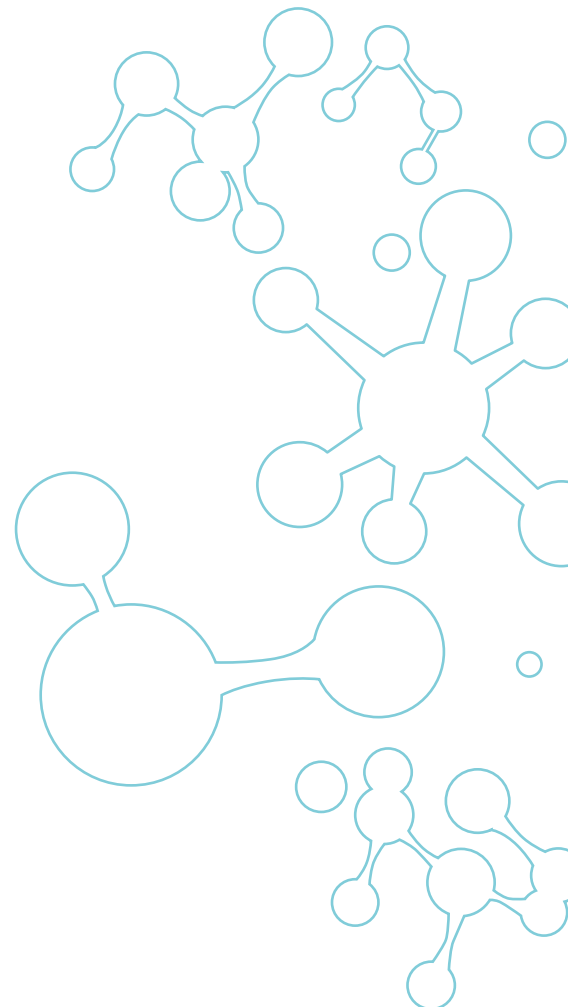
Therefore, LNG imports are considered the cornerstone of the diversification of European gas. As a matter of fact, the EU is proposing to increase the non-Russian gas supply in 2022 by 63.5 bcm as follows^{1,2}: ~80% from LNG imports and the rest from the Norwegian and North African pipelines (10 bcm) and biomethane production (3.5 bcm).

LNG landscape in Europe

To secure LNG imports at affordable prices given the competition for LNG cargos with Asian markets, Brussels is encouraging the signature of long-term gas contracts (20 years minimum), which represents a significant shift from the EU initial position. It is a strong message sent to LNG producers, which need visibility and a solid guarantee before sanctioning and developing highly capital-intensive projects.

However, the EU is not properly equipped today to receive and distribute the required LNG quantities. Although the utilisation rate of its regasification capacity was ~50% in 2021 (74 bcm spare capacity left), a substantial amount is in Spain and Portugal (36 bcm spare capacity in 2021), and the existence of 7 bcm per year of available pipeline capacity from Spain to France is a serious bottleneck to distributing gas across Europe^{8,9,10}. The EU will have to rely on UK facilities in the short term. Thus, investments in LNG terminals across Europe and the accompanying network of pipelines are mandatory to build the European gas infrastructure backbone.

The transition to new energy sources, the investment required in the necessary infrastructures and the changed market conditions will have lasting effects on energy prices. Low-carbon energy will therefore come at a cost, and this will have a significant impact on European industrial competitiveness, as well as on households, particularly pensioners and those with lower incomes.



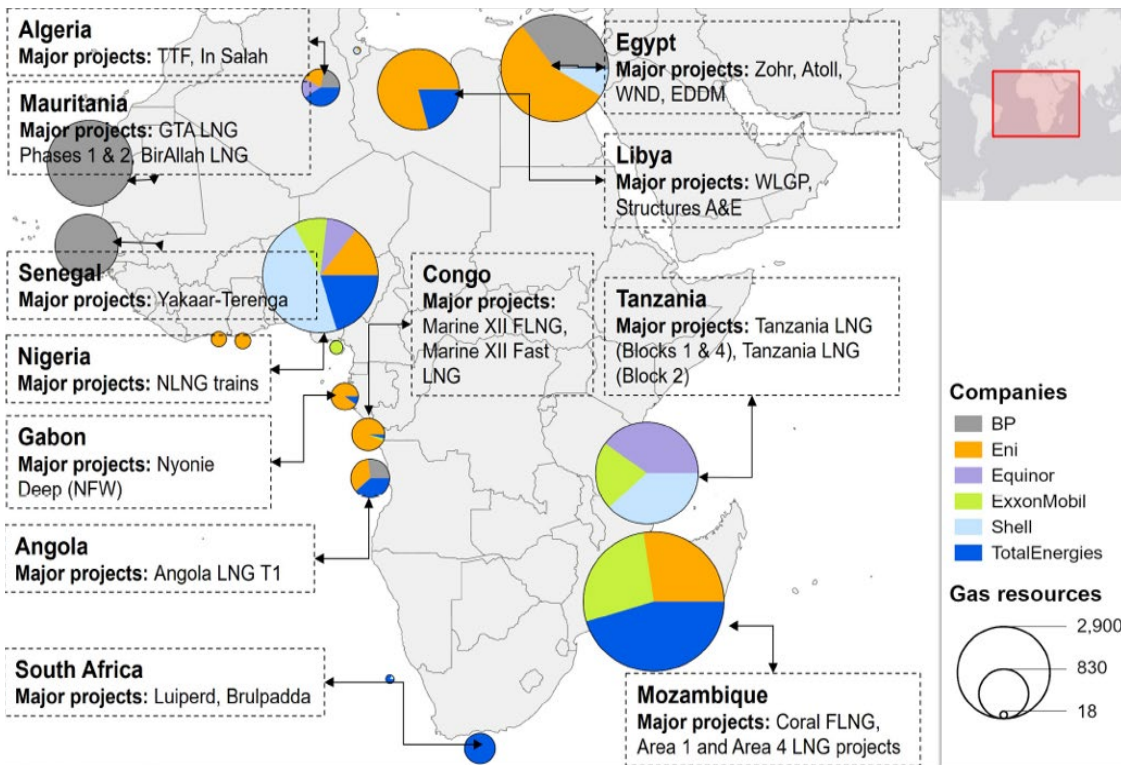
New opportunities for Africa

Africa is rich in natural resources, both renewables and non-renewables. The use of these resources for power generation (x-to-power) is vital for the continent's industrialisation and socio-economic development. Thanks to increased gas discoveries, Africa has embraced natural gas as a primary fuel for electricity generation (gas-to-power), but it now needs to accelerate the development of the necessary infrastructures.

Africa's natural gas reserves totalled over ~17.5 tcm in 2021¹¹. Most of the recent gas discoveries in the continent (~90%) were made by nascent players, such as Mauritania, Senegal, Ivory Coast, South Africa, Mozambique and Tanzania. Considering also its traditional key gas players (Algeria, Egypt, Nigeria and Angola), Africa provides a good option for gas supply diversification through both LNG and pipelines (Figure 4).

Figure 4
Country-specific gas resources held by selected operators in Africa

Million barrel of oil equivalent



Source: Rystad Energy Ucube, 2022

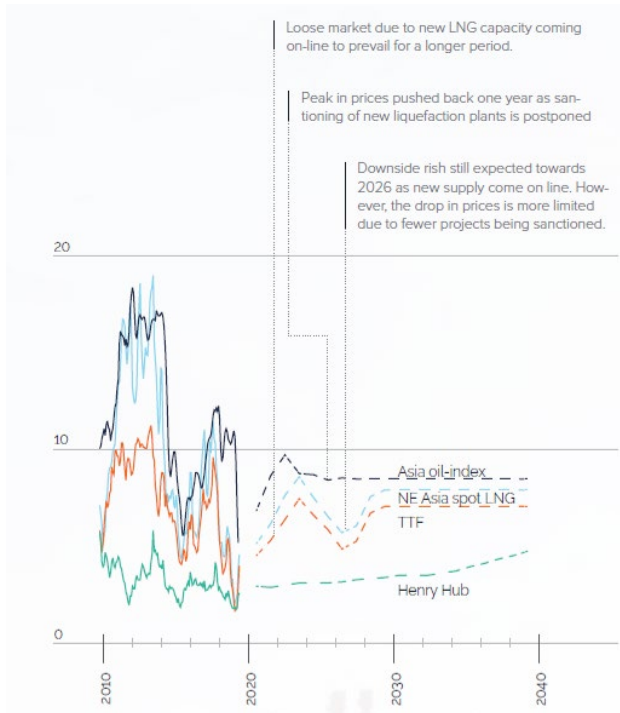
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Prior to the Russia-Ukraine conflict, there was a glut of gas on global markets, caused mainly by the LNG market, which led to depressed prices (Figure 5). This

was considered an opportunity for African countries to further stimulate domestic gas consumption for power generation.

Figure 5
Gas reference prices moving forward prior to the Russia-Ukraine conflict

USD per million Btu



Source: GasMarketCube August 2020

The question then arises as to whether African countries are ready to take up this challenge.

First, they will have to rethink their gas usage strategy quickly for the sake of value optimisation. African-producing countries need to find the right balance between, on the one hand, the development of the domestic gas market, including power generation, local and regional industrial and commercial enterprises, and feedstock for petrochemical manufacturing (fertiliser) and, on the other hand, the direct monetisation of these exportable resources to finance the necessary infrastructures supporting the economy.

Second, most African countries currently lack proper gas infrastructures for both domestic distribution and export. Numerous projects (e.g. LNG terminals and pipelines) have been on the backburner for a long time for various reasons. With the

new market dynamics, it is an opportunity for these countries, with the support of international players, to accelerate the development of such projects.

Lastly, in such a situation, time is crucial. African countries need to act rapidly and demonstrate their eagerness and readiness to take up this challenge to the rest of the world. This can be achieved by (1) quickly developing transparent, stable and gas/energy-friendly policies that make Africa attractive for potential foreign investors (given that legislation, bureaucracy and corruption are recognised as the main obstacles to doing business on the continent) and (2) by continuously communicating their ambitions, new policies and the plans to achieve their ambitions.

Sustainable development of Africa

The current context is conducive to making investments and developing the gas markets and infrastructure in Africa. However, several considerations need to be made in order to ensure sustainable development on the continent.

1. Design a broader energy policy and regulatory framework with a long-term vision

African governments should quickly develop an ambitious energy policy and regulatory framework with more competitive and stable fiscal regimes and a streamlined process to promote sustainable economic development and attract foreign investors (e.g. private and sovereign wealth funds, international energy companies). The policy and framework should not only focus on the development of fossil fuel resources but also include and commit to how the country will gradually shift towards cleaner and affordable energies. As such, African governments should systematically enable the deployment of renewables and low-carbon technologies (e.g. blue and green hydrogen, ammonia), Nature Based Solutions (NBS) and Carbon Capture, Utilisation and Storage (CCUS). These solutions will initially be financed by revenue generated from the oil and gas industry.

Governments also have the responsibility of providing clear guidelines in terms of domestic gas consumption versus exports. The purpose is to stimulate further investments in local infrastructures, ensuring the gradual implementation of local content criteria.

2. Focus on electrification to develop the continent

It has been proven that electrification will enable rapid industrialisation and economic development on the continent. Developing gas-to-power is a reliable, low-carbon and cost-effective solution.

Africa should also rely on renewables for electrification, as the continent is rich in renewable energy sources (mainly hydro, solar, wind and geothermal). This is one of the best options to bring electricity to

rural and remote areas, as renewables can be stand-alone points of power generation (e.g. remote solar farms) or be used to complement existing forms of electricity. Gas could also be paired with these energies, such as wind and solar, to manage intermittency and ensure reliable access to energy.

Finally, electrification together with LPG will help reduce deforestation, as the use of woodfire for cooking will be limited.

3. Develop low-carbon oil and gas projects to secure revenue over time

As we are moving towards the peak oil demand, most oil and gas countries need to start thinking about their exit strategy. The production cost is expected to be high, as the carbon price will be added; consequently, only assets with low carbon emissions would potentially be profitable. The nascent oil and gas countries in Africa will have a competitive advantage, as international oil companies will initially develop oil and gas assets with low carbon emissions and, in the future, further down the value chain, with CCUS and blue hydrogen or ammonia production. This must systematically be part of regulators' expectations, ensuring profitability in the long term and thus securing continuous investments in sustainable development projects over time.

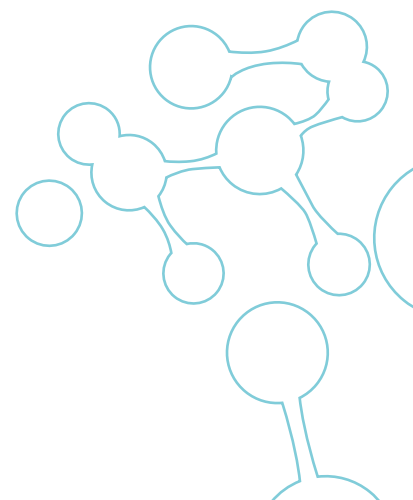
4. Partner with the right investors to ensure local development (global projects)

In the past, many African countries struggled to attract investment for building gas infrastructure. With the new context, international oil and gas companies are now reconsidering Africa as a viable alternative. African governments should seize this opportunity to put in place a framework that will allow, in addition to the delivery of oil and gas projects, the development of infrastructures that support the broader local economy, such as power generation/distribution and water management. This can be enabled by partnering with responsible international companies that are socially conscious and already have a strong ESG culture in place.

5. Ensure capacity building

Some countries might not have the institutional capacity or skilled workers needed to successfully develop not only the gas market but also the energy sector more generally. Hence, capacity building on energy is key to bridging this gap, building the required capabilities and maximising the impact and value. This can be achieved via education, vocational training and technology transfer.

Training should be delivered through a combination of physical/virtual classes and supervised on-the-job training. Technology transfer ensures the proper transmission of expertise that is new to the country to the local workforce via the sharing of skills, knowledge, data and technologies between foreign investors and locals.



Conclusion

The international gas market is undergoing a major transformation as a result of the Russia–Ukraine conflict and the high demand in Asia (such as in China and India). African countries should take this opportunity to strengthen their positions in the gas market, notably by promoting a policy framework in favour of international investments. The framework should enable a fast decision-making process, ensure a stable and transparent fiscal regime and promote a global energy vision based on close collaboration across government departments/ministries. This would demonstrate the viability of African countries as partners for a new energy paradigm.

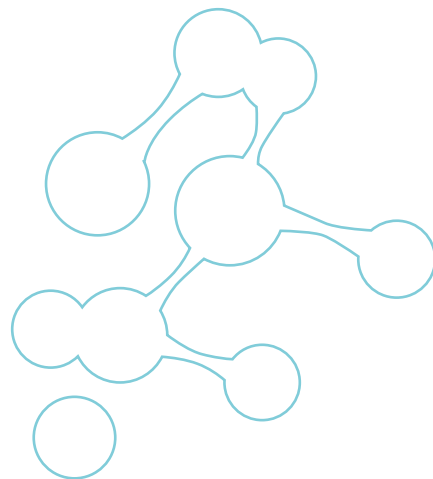
However, they should rethink their gas project development strategies, as the world energy landscape is changing rapidly. According to the Intergovernmental Panel on Climate Change (IPCC), the oil demand is expected to decrease from ~100 million barrels per day (mb/d) in 2020 to less than 25 mb/d in 2050, and the natural gas demand is expected to fall from ~4.0 tcm to 1.7 tcm in 2050 in order to limit the temperature increase to +1.5°C. Only a few countries will still export oil and gas in 2050 (most probably the Middle East). This will

leave African countries with less than 30 years to draw the full benefits from their resources internally and externally.

Therefore, they should quickly reorganise and restructure their entire energy sectors, with the vision of making natural gas and crude oil as their foundation for the short to medium term. The objective is to generate steady revenue streams that will fund the development and deployment of certain renewable energies in the medium to long term for the domestic market and for exports (e.g. hydrogen and ammonia). This will guarantee a smooth shift from fossil fuels while securing continuous earnings and fostering sustainable economic development.

In addition to pipelines, Africa should aim to create virtual energy corridors with Europe. These corridors will initially feed the EU with LNG and then new energies, such as blue and green hydrogen.

Undoubtedly, African countries hold the cards in their hands!



Glossary

BCM: Billion Cubic Meters

CCUS: Carbon Capture, Utilization and Storage

EIA: Energy Information Administration

ESG: Environmental, social, and governance

EU: European Union

GCC: Gulf Cooperation Council

IPCC: Intergovernmental Panel on Climate Change

LNG: Liquefied Natural Gas

LPG: Liquefied Petroleum Gas

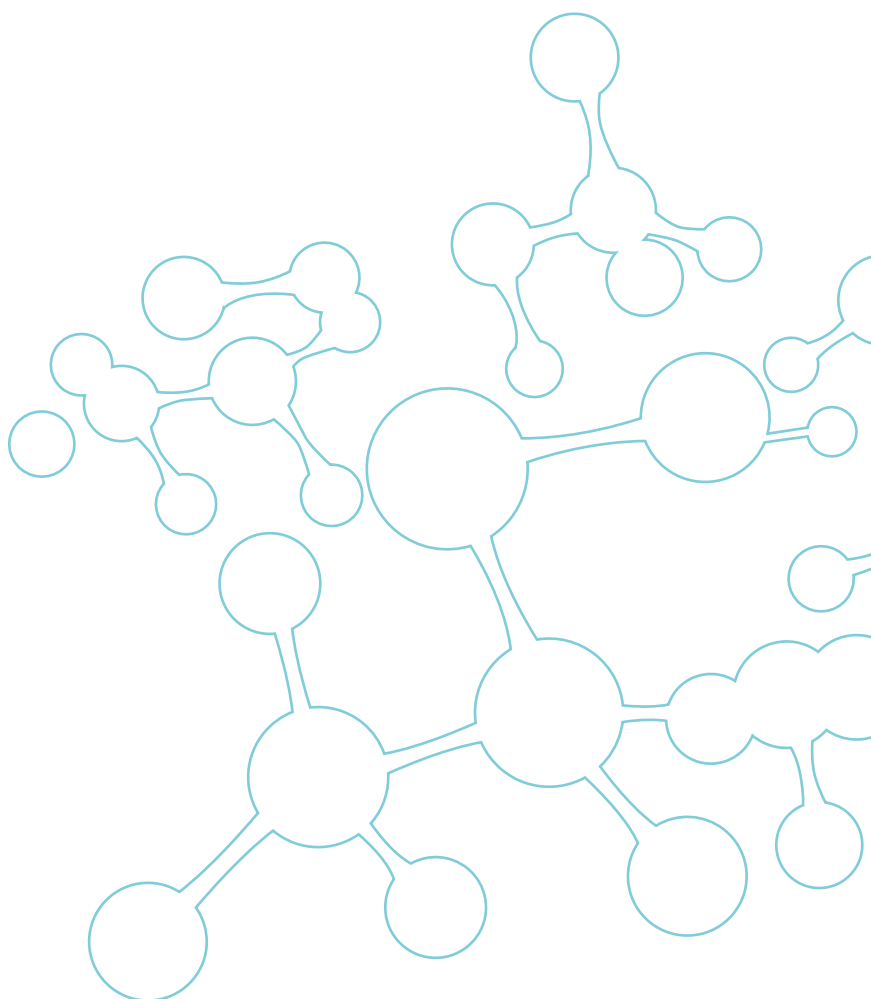
mb/d: million barrel per day

NBS: Nature Based Solutions

TCM: Trillion Cubic Meters

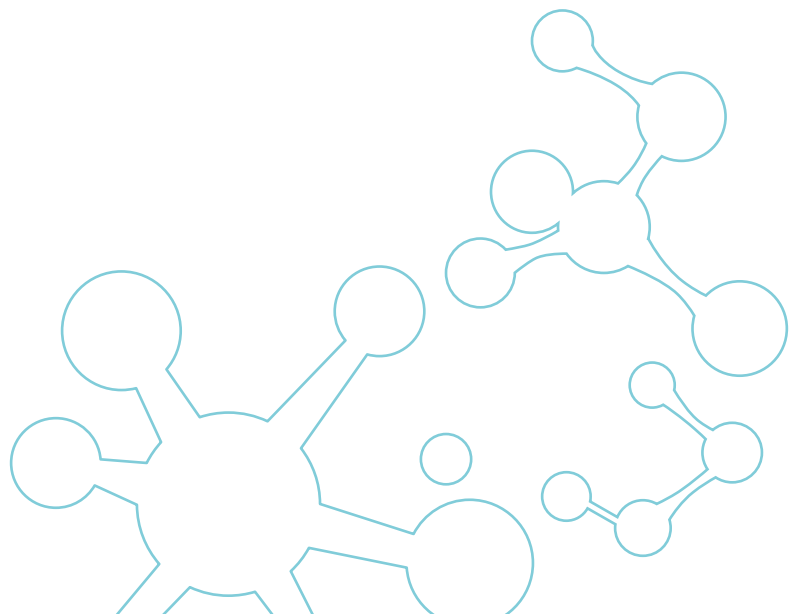
UK: United Kingdom

US: United States



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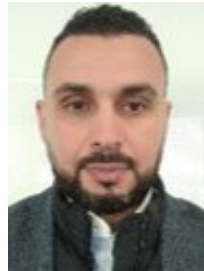
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