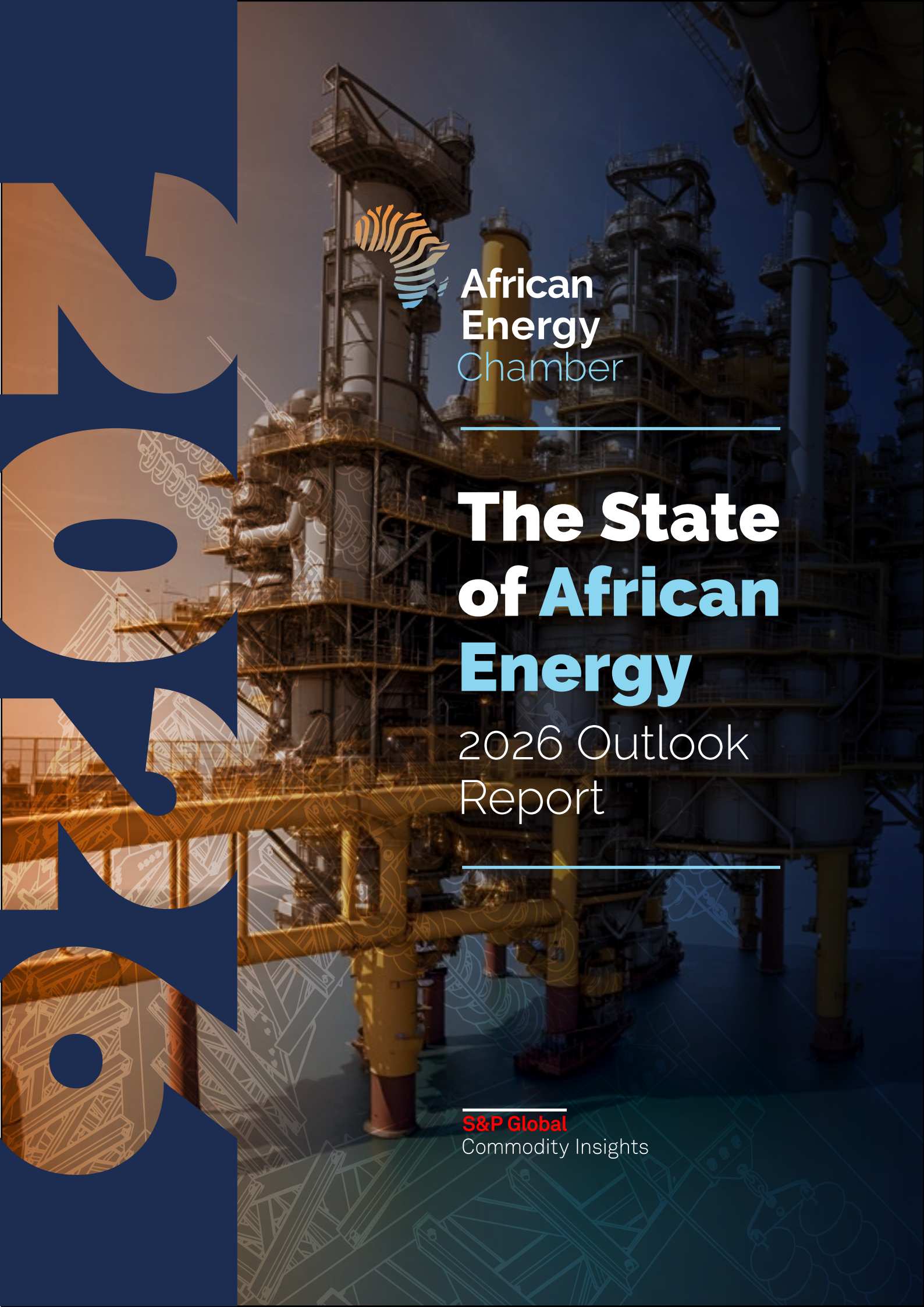
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The State
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2026 Outlook
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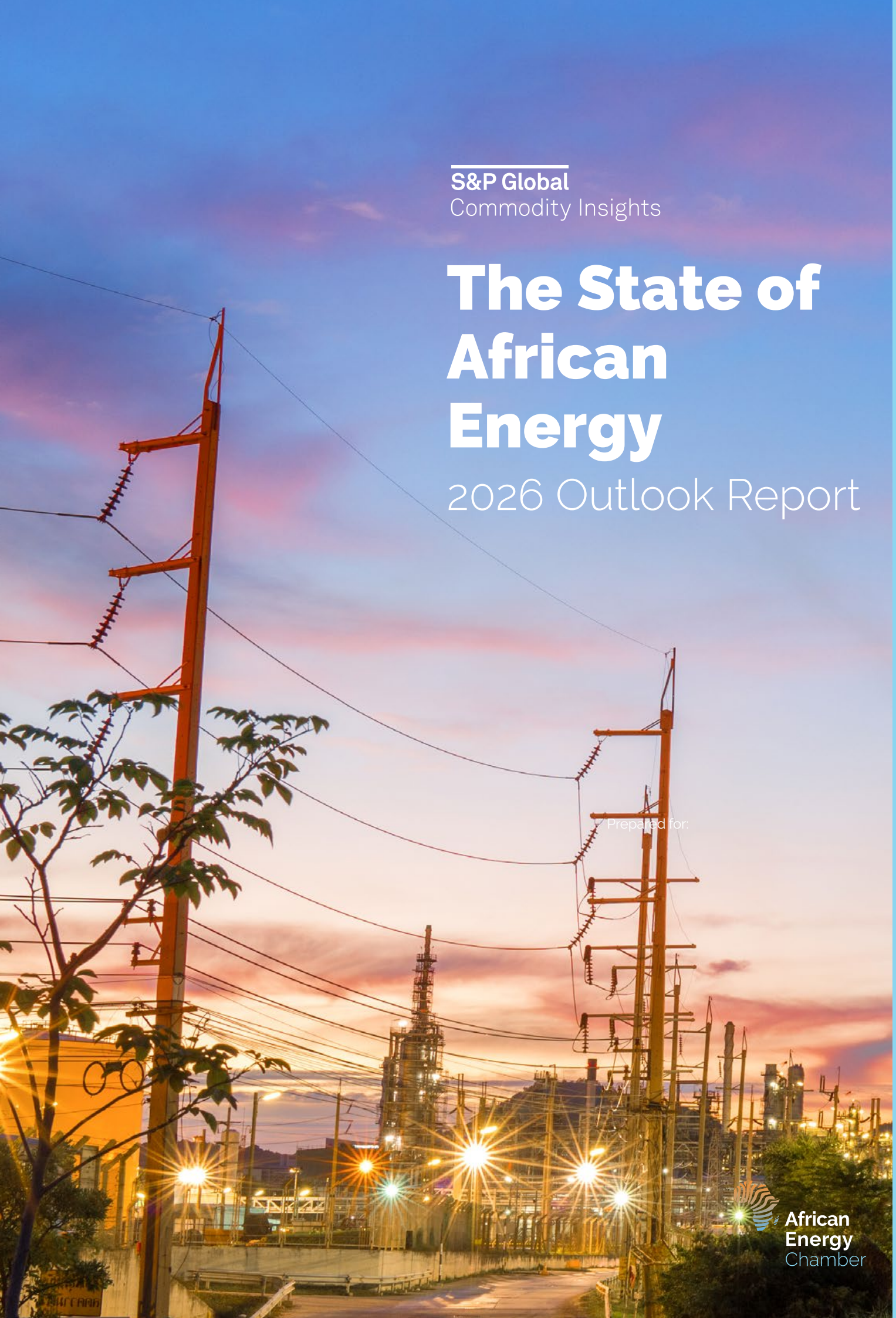
The State of African Energy

2026 Outlook Report



Prepared for:

African Energy Chamber

African Energy Chamber
2026 Outlook Report

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Foreword

Dear Colleagues,

2025 has been a year of unprecedented challenges, and the trials and tribulations have made the African Energy Chamber's work more important now than ever. We are committed to helping Africa's energy stakeholders navigate a complex and ever-changing global energy landscape. We will continue our mission to support the dynamic private sector and unlock the continent's remarkable energy potential. Africa's oil and gas industry is facing extraordinary circumstances. An ongoing energy transition and new efforts to decarbonize the world are weighing on oil demand. The shale revolution is exacerbating these pressures.

External headwinds are forcing African petroleum producers to re-examine their strategies. Conventional petroleum resources here should be globally competitive, but growth has lagged because of conditions above the ground, not below. Restrictive fiscal regimes, inefficient and carbon-intensive production, and difficulties in doing business are preventing the industry from reaching its full potential. As companies and governments delay projects and cut costs, planned capital expenditures are always under constant review. To remain competitive, African producers and governments must adapt. But how can they do it when the economic order is being remade?

We have to cut red tape to make life easier for hard-working Africans, businesses and investors to work and grow the energy sector. We know from experience this will reduce the cost of doing business, speed up approvals and make life better for Africans. We must never be ashamed of supporting an industry that has brought so much to Africa and will continue to bring people out of poverty and reduce reliance on foreign aid. In 2026, Africa will benefit greatly if we create an investment climate that supports the development of all energy resources. At the African Energy Chamber, we believe supporting the energy industry, promoting free markets, the rule of law, individual freedoms and limited government, is a duty for all Africans.

But we must not stop there, advocating for a market driven Afro-centric energy growth, with a specific focus on natural gas to expand market opportunities is something we will continue to drive. The oil and gas industry is a force for good and we must not join those forces that want to demonize hardworking people whose only crime is to work hard and play by the rules and embrace hope rather than fear mongering and embrace economic empowerment rather than development aid. That's why we believe implementing

NJ Ayuk
Executive Chairman
African Energy Chamber

programs like local content, economic diversification that support natural gas value chains, making fiscal terms competitive and reducing red tape and streamlining regulatory processes must be priorities in 2026. Our "The State of African Energy 2026 Report." addresses these challenges head-on. Building on the previous year's success, our annual report offers an even more exhaustive and comprehensive look to the year ahead for African energy growth.

The 2026 outlook details all of the major challenges facing African energy stakeholders, as well as workable solutions that will keep the industry on a strong and stable growth path. We believe the short-term outlook will improve if countries apply more competitive fiscal regimes. Emissions can be reduced by curbing flaring and monetizing gas, improving and future-proofing the carbon profile of African petroleum production. Developing gas-to-power infrastructure will increase access to affordable energy for all sectors of the economy, offering massive knock-on benefits and making it easier to do business. Reducing lead times to limit risk premiums put on long cycle projects will further bolster the industry's viability and growth prospects. It will not be easy, but these reforms are necessary. Again and again, our oil and gas sector has proven its resilience and adaptability. The Africa and the world needs oil and gas, and Africa still holds enormous untapped potential. The African Energy Chamber will remain a committed partner of choice for energy additions in Africa.

Executive summary

Africa stands at a pivotal juncture in its energy and economic development journey. With its population projected to reach nearly 2.4 billion by 2050, accounting for 25% of the global population, the continent is poised to become a central player in shaping global energy demand and supply dynamics. This demographic surge, coupled with robust GDP growth which is expected to nearly triple to $7.8 trillion by 2050, will drive a significant increase in energy consumption across power, gas, and refined products.

Despite this growth, Africa's per capita energy consumption remains among the lowest globally, underscoring the urgent need for infrastructure development and policy reform. Power demand is forecast to grow at 3% annually, reaching 2,291 TWh by 2050, yet average consumption per person will still lag behind global averages. Africa's average power consumption per capita in 2024 was 500 kWh/year, compared to the global average of 3,700 kWh/year. By 2050, this is projected to increase to 793 kWh/year, still significantly below the global average. Similarly, Africa today accounts for less than 5% of global oil product demand despite presenting 18% of the world's population today.

Africa is endowed with abundant hydrocarbon and critical mineral resources, offering a unique opportunity to catalyse economic transformation through valorisation and downstream development. Countries like Nigeria, Algeria, Angola, Mozambique, and the DRC hold vast reserves of oil, gas, cobalt, and lithium, which if harnessed effectively can support industrialisation, job creation, and energy security. However, the continent faces significant bottlenecks due to underdeveloped infrastructure. The lack of pipelines, refineries, ports, and roads constrains domestic utilisation, leading to inefficiencies and missed economic opportunities.

For example, while Nigeria's Dangote refinery marks a milestone in reducing import dependence, it barely dents the continent's growing need for refined products. Similarly, gas discoveries in Angola, Senegal, and Mauritania offer promise, but monetisation is hindered by limited transport infrastructure and domestic market development. The "chicken-and-egg" paradox, where demand cannot grow without infrastructure, and infrastructure is not built without demand remains a persistent challenge.

Issues such as energy access, regulatory reform, regional integration, and investment competitiveness are central to unlocking Africa's energy potential and are themes cutting across all energy sectors.

This report explores these dynamics in depth, providing a comprehensive outlook on Africa's upstream, midstream, downstream, gas, power, and energy transition pathways. It highlights the continent's strategic importance in global energy markets and the critical steps needed to overcome structural barriers and realise sustainable growth.

Africa's upstream outlook

- Africa's oil and gas production is expected to reach 11.4 million barrels of oil equivalent per day (MMboe/d) by 2026, with Nigeria at the forefront in terms of remaining recoverable resources, mainly located in the Niger Delta region. But growing production will depend on a number of factors including access to opportunities, sub-surface success and the ability of host governments to adjust terms and conditions to changing investor appetites.
- Global exploration and production (E&P) capex is forecast to reach ~$504 billion by 2026, with Africa contributing about $41 billion, driven by expenditure in offshore prospects, including Mozambique, Nigeria and Angola.
- African investors may benefit from the global rig market's surplus capacity and declining rates, as low day rates are projected to persist through 2027, potentially helping move a raft of projects forward depending on project economics, contractual terms and risk.
- As explorers look to make needle moving discoveries, Africa's abundance of immature and frontier basins are increasingly attracting exploration drilling with potentially game-changing high impact wells planned in countries such as South Africa, Namibia and Côte d'Ivoire.

- Ongoing and planned licensing rounds across Africa provide significant opportunities for foreign investors over the coming year, offering onshore and offshore acreage in both mature and frontier basins. As part of renewed efforts to attract investment, the trend toward more favourable terms continues, both through targeted incentives as well as broadly revised contract terms.
- In the first half of 2025, global upstream M&A reached $51 billion, with Africa's deals totalling $2.7 billion, notably including Vitol Group's $1.65 billion acquisition of Eni assets in Côte d'Ivoire and the Republic of Congo: That trend reflects the divestment of major oil companies from mature assets into markets with significant upside, allowing independent African producers to acquire these assets and grow their portfolios.
- Above-ground risks to E&P in Africa vary from political change and activism to insecurity and shifting investor landscapes. However, host governments are generally offering improved regulatory and contractual frameworks to promote new investment, often coinciding with the release of blocks via bid rounds: Algeria, Angola, Nigeria and Libya are amongst those to have taken this approach.

Oil markets, midstream and downstream outlook

- The continent's population and economy are expected to grow at a fast pace, driving demand for refined products.
- Africa's refined product demand is projected to rise from ~4 million barrels per day (bbl/d) in 2024 to over 6 million bbl/d by 2050, a 50% increase.
- The continent accounts for less than 5% of global oil-product demand despite representing 18% of the world's population.
- Sub-Saharan Africa has by far the lowest per capita oil demand in the world.
- Significant oil trading activity now takes place around Africa, mostly to sell crude oil and purchase/import refined products. However, there is considerable opportunity to improve the efficiency of this and increase the value to Africa.
- More than $20 billion in investment is required in downstream infrastructure by 2050 to support the increasing need for refined product imports and distribution.
- The commissioning of the Dangote refinery is hugely significant for the Atlantic Basin's oil trade, but it barely makes a dent in Africa's growing requirement for imported refined products.
- Smaller projects like Angola's Cabinda refinery (30,000 bbl/d) and Uganda's Hoima refinery (planned 60,000 bbl/d) are in development but will not close the supply gap.
- LPG presents a cleaner, scalable alternative to biomass and coal—drastically reducing indoor air pollution, deforestation, and emissions while enabling healthier and more sustainable cooking across African households.
- Despite these benefits, LPG consumption in Africa remains low, under 20 million tonnes per year, and only modest growth is expected, highlighting the need for policy and infrastructure support.

Gas and LNG outlook

Africa's gas potential is significant, buoyed by a raft of exploration successes in existing production hubs and frontiers with Africa producing more than 300 Bcm of natural gas and accounting for 8.5% of global LNG supply (34.7 MMt) in 2024. Africa holds large gas recoverable volumes in Rovuma basin (129 Tcf) and Niger Delta (113 Tcf) but most of these volumes remain undeveloped. In terms of discovered undeveloped gas resources Africa ranks the second in the world.

- Potential roadblocks remain however around monetising and industrialisation, with LNG offering one route to development that has the potential to bolster local industrialisation where domestic market obligations are in place. Domestic gas to power also offers a means to support energy access and economic growth, albeit diesel to gas switching will be more gradual where generation facilities are remote and small in scale. That said, getting the balance right between access to international pricing and domestic counter-party risk remains a challenge for many host governments.
- Case studies from Angola, Senegal and Mauritania provide an overview of existing challenges and opportunities for domestic gas monetising and industrialisation, the key challenges being the lack of regional gas transportation infrastructure that could link existing and emerging demand centres to gas receiving and processing terminals, and export clusters.
- New LNG (Liquefied Natural Gas) projects, including recent developments in floating LNG, are supporting gas monetising and industrialisation efforts in West Africa, often tied in with domestic supply obligations that open up counter-party risk but will also support local industry.
- The key challenges are project economics and the priority given to domestic use, as well as the paucity of regional gas transportation infrastructure that could link existing and emerging demand centres to the gas receiving and processing terminals and export clusters.
- Domestic demand in selected countries remains limited and the main consumer is the strategic power sector, limiting availability to the petrochemical and ammonia production sectors and gas-to-liquids (GTL) and small-scale LNG (ssLNG). The use of compressed natural gas (CNG) and ssLNG in transport sector is well-known in countries, such as Nigeria.

- There is also potential for gas use in in the energy-intensive mining sector in countries such as Angola and the Democratic Republic of the Congo (DRC), over the medium to longer-term, albeit hydropower will be more attractive where that is available.
- Gas flaring reduction initiatives offer the potential to convert flared gas volumes into commercial opportunities and decarbonise upstream operations in African countries. Flared volumes are still considerable, particularly in Algeria, Nigeria and Libya (7.9, 6.5 and 6.3 Bcm of gas flared in 2024 respectively).

Power and renewables outlook

- Africa's power demand is projected to increase from an estimated 1,028 TWh in 2025 to 2,291 TWh by 2050. However, per capita power use remains significantly lower than that of other regions.
- The continent is witnessing a significant shift towards renewable energy sources, with ~25 GW of capacity procured by governments as of 2024. Additionally, ~11 GW has been secured through private offtake agreements.
- Africa's commitment to renewable energy sources presents significant opportunities for investment and innovation. Over 2020-2025, the continent invested $34 billion in clean power technologies, with 52% allocated to solar energy and 25% to onshore wind.
- Natural gas is projected to account for 45% of total power generation by 2050. However, challenges related to infrastructure and supply chain issues have hindered its success to date.
- While nuclear energy presents a stable baseload power option to address energy shortage, high cost (~$120 per MWh) and regulatory uncertainties remain challenges.
- The share of power demand attributed to data centres in Africa remains small but hold significant potential. For instance, in South Africa, they are projected to account for over 5 TWh of electricity demand by 2030, while in Kenya, their contribution is expected to be ~0.7 TWh of projected demand of 19.2 TWh.
- The establishment and enhancement of regional power pools have the potential to foster cooperation among African nations. However, challenges such as transmission constraints and reliance on bilateral trade have made it difficult to fully realise their benefits to date.
- Although some countries are embracing market reforms to liberalise the power sector, challenges and delays persist, particularly concerning regulatory capacity and stakeholder engagement, which can impede effective implementation. The path to a liberalised market requires robust regulatory frameworks, which may be lacking in many African countries.

Energy Transition in Africa

- Africa contributes just 5% of global energy-related emissions despite being home to 19% of the world's population, underscoring its minimal historical responsibility for climate change and its unique position in global decarbonisation efforts
- By 2060, Africa's population is projected to rise to 28% of the global total, yet its share of energy-related emissions is expected to remain modest at just 9%, reflecting both the continent's low per capita energy use and the opportunity to pursue a low-carbon development pathway
- New emissions regulations from the International Maritime Organization (IMO) and the EU Methane Regulation are accelerating demand globally for low-carbon fuels and emissions transparency, positioning Africa as a potential green fuel supplier while also highlighting the need for investment in methane monitoring and maritime infrastructure upgrades.
- The EU's CBAM introduced a carbon price on high-emission imports such as aluminium, cement and steel, creating both a compliance risk and a strategic opportunity for investors to back decarbonisation and carbon market development in Africa, where domestic carbon pricing is still nascent.
- Africa's abundant renewable resources and strategic location position it as a competitive producer and future exporter of low-carbon hydrogen and derivatives, offering investors long-term opportunities in green industrialisation, job creation and sustainable fertiliser production, especially amidst accelerating global demand for clean fuels.
- Despite infrastructure and offtake challenges, early investments in hydrogen projects—particularly those co-located with renewables and aligned with export markets—can unlock first-mover advantages.
- Africa's upstream oil and gas sector faces high emissions intensity, with flaring accounting for nearly half of total upstream emissions in 2024. Monetising associated gas and capturing vented methane present significant opportunities for economic growth and emissions reduction, but progress is hindered by regulatory, infrastructure and financing challenges.
- International charters such as the OGDC and World Bank's GFRM are driving the momentum toward zero routine flaring and near-zero methane emissions by 2030, with growing pressure from global disclosure standards.
- Africa is poised to play a pivotal role in the global clean energy transition, supplying key critical minerals such as cobalt, copper, platinum group metals (PGMs) and lithium, as demand surges to fivefold by 2035. Beyond extraction, the continent has a strategic opportunity to move up the value chain into processing and refining, unlocking greater economic value, provided there is sustained investment in infrastructure, governance and skills development.

Chapter 01

1. Africa upstream outlook

This chapter provides an overview of upstream energy in Africa covering exploration and production (E&P) profiles, recoverable reserves, high-impact wells, key upcoming projects, upstream capex, M&A activities, licensing rounds, drilling activities and the rig market, alongside supply chain dynamics and drivers of investment attractiveness.

Africa's production is projected to reach ~11.4 MMboe/d, with 37% gas and 63% liquids, by 2026, with Algeria and Nigeria leading in terms of existing production.

Global upstream M&A reached $51 billion in the first half of calendar year 2025, with Africa contributing about $2.7 billion, including a major deal involving Vitol's $1.65 billion acquisition of Eni's assets in Côte d'Ivoire and the Republic of Congo.

Global E&P capital spending is projected to reach ~$500 billion in 2025 and $504 billion in 2026, with Africa accounting for ~$40 billion and $41 billion, respectively, that is around 8% of the total.

Sub-Saharan Africa maintains its lead in the number of upcoming high-impact wells and projects driving exploration and development activities in Africa.

The global rig market is experiencing surplus capacity and declining rates in the short term; operators in Africa could potentially benefit from low day rates expected for the next few months before rising during the second half of 2026/2027 when demand is anticipated to tighten the market.

Many African countries are returning to competitive bid rounds to offer upstream acreage, to maximize interest, expedite processes and negotiate enhanced benefits. A variety of terrains and resources are on offer, often in tandem with direct negotiation.

Although upstream energy potential is growing, political and security risks still challenge operations and investments in several African countries, while unclear monetising and industrialisation pathways and questions around terms will hold some projects back.

1.1. Exploration and production (E&P) trends

Africa's upstream sector is in a phase of cautious resurgence, as mature crude producers harness new investment to offset output declines, and new E&P venues emerge as growth hotspots. Gas developments in both frontier and more mature hydrocarbon host countries will also add to output growth. Established producers, such as Algeria, Nigeria, Libya, Egypt, and Angola, dominate output but face challenges from aging infrastructure, maturing fields and competition from emerging investment hotspots such as Côte d'Ivoire and Namibia, which are attracting new investment due to recent discoveries or the hope of significant upside. The focus on frontiers and emerging basins has been accelerated in part due to attractive terms relative to more mature producing provinces and due to high prospectivity.

Recent technological advancements have significantly bolstered exploration efforts across Africa and beyond, allowing for the targeting of complex reservoirs at greater depths. While there has been an overall increase in production within the continent, certain countries face the risk of stranding substantial assets due to technical constraints that outweigh the economic viability of these resources. In this scenario, the proximity to markets and the presence of favorable tax conditions could play a crucial role in shaping investment decisions.

In 2026, Africa's hydrocarbon production is expected to remain stable at ~11.4 million barrels of oil equivalent per day (MMboe/d). New projects will boost the continent's production, which is projected to reach ~13.6 MMboe/d by 2030. North Africa is expected to contribute ~60% of this volume, with the remaining balance coming from Sub-Saharan Africa. Achieving Africa's growth potential will require attracting and building the capabilities necessary to sustain investment in high-risk exploration and technically challenging reservoirs.

1.1.1. Exploration and Development in Africa

Exploration

Recent advancements in seismic acquisition, processing technologies, and drilling capabilities have enabled exploration efforts over the past decade to target more intricate prospects at greater depths in Africa as elsewhere.

In the current Mediterranean basin, exploration activities beneath the Messinian (Upper Miocene) evaporites have resulted in the identification of over 50 trillion cubic feet (Tcf) of gas. Nonetheless, the Zohr field in Egyptian waters illustrates that reservoirs located within Upper Cretaceous reef structures present significant challenges, primarily due to the variability in reservoir facies. This complexity may also extend to other prospects of similar geological age within the Mediterranean basin, particularly in the offshore regions of Libya and Algeria.

On the Atlantic margin, the 2019 discovery of the Agogo field in the Angolan waters of the Congo Fan exemplifies a pre-salt reservoir that could provide a valuable model for identifying analogous prospects. Potential sites are expected to be found along the African margin between the Ascension and Rio Grande Fracture Zones, stretching from the Gabon Coastal Basin, offshore Gabon, to the Kwanza Basin, offshore Angola. Such a context could also be found in the northern part of the Red Sea Basin, where pre-Miocene series remain unexplored.

Onshore, recent exploration in frontier areas such as the Owambo Basin in Namibia and the Rufunsa Basin in Zimbabwe has not led to the discovery of significant volumes of hydrocarbons. In both cases, the age of the sediments or the intensity of structural deformations undoubtedly played a role in these results. As such, it would be surprising to see major discoveries being made in these two basins and, by extension, in analogue environments. Onshore successes will likely take place along infrastructure-led exploration programs in mature areas such as Algeria, Nigeria, and Egypt where chances of large discoveries remain low, but where smaller finds offer potentially commercially viable opportunities.

As exploration extends into more frontier areas, there is an urgent need for innovative fiscal structures that can address the geological challenges and pave the way for monetisation routes.

Development

While Africa's overall production is on an upward trend, certain countries face the risk of having significant assets stranded due to technical challenges in the coming years. This issue is particularly relevant for reservoirs located at great depths and usually under high pressure and temperature conditions.

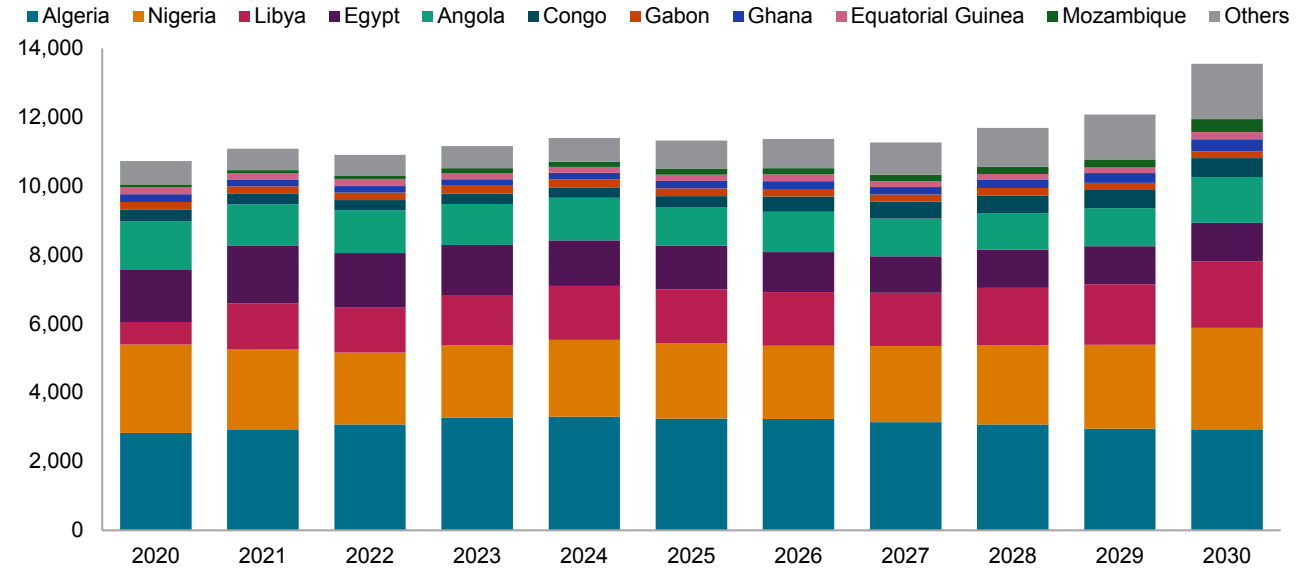
In the Mediterranean region, key assets facing potential risks include Egypt's Hoda, Notus, and Satis discoveries within the Nile Delta Basin. Together, these discoveries represent over 520 million barrels of oil equivalent (MMboe) in recoverable reserves.

On the Atlantic margin, two notable assets warrant attention: Sierra Leone's Jupiter discovery, with recoverable reserves of 250 MMboe located in the Sierra Leone-Liberia Basin, and Angola's Catchimanha discovery, which holds 160 MMboe in recoverable reserves within the Kwanza Basin.

This reality underlines the importance of weighing the challenges associated with developing complex reservoirs with fiscal and contractual conditions, an increasingly critical balancing act that will determine the viability of projects. Recent findings indicate that three major discoveries – Brulpadda and Luiperd in South Africa's Southern Outenique Basin, as well as Venus in Namibia's Orange Sub-Basin all face commercial constraints due to restrictive fiscal terms, – monetising and industrialisation challenges, and with geological complexities associated with the hydrocarbon types in these reservoirs.

1.1.2. Hydrocarbon production outlook

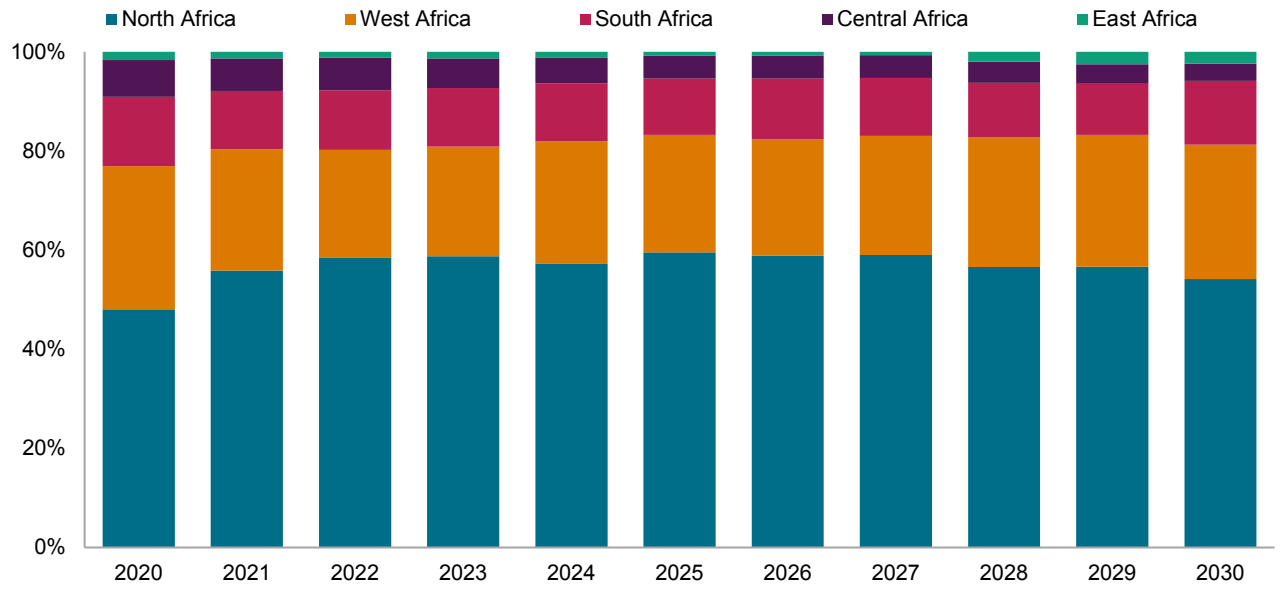
Figure 1. Africa's hydrocarbon production by country (thousand boe/d), 2020-2030



As of June 2025
Source: S&P Global Commodity Insights

Sub-Saharan African production is expected to grow towards 2030, boosted by new projects in countries such as Côte d'Ivoire, Mozambique, Namibia, Uganda, while North African output will likely remain stable over the period.

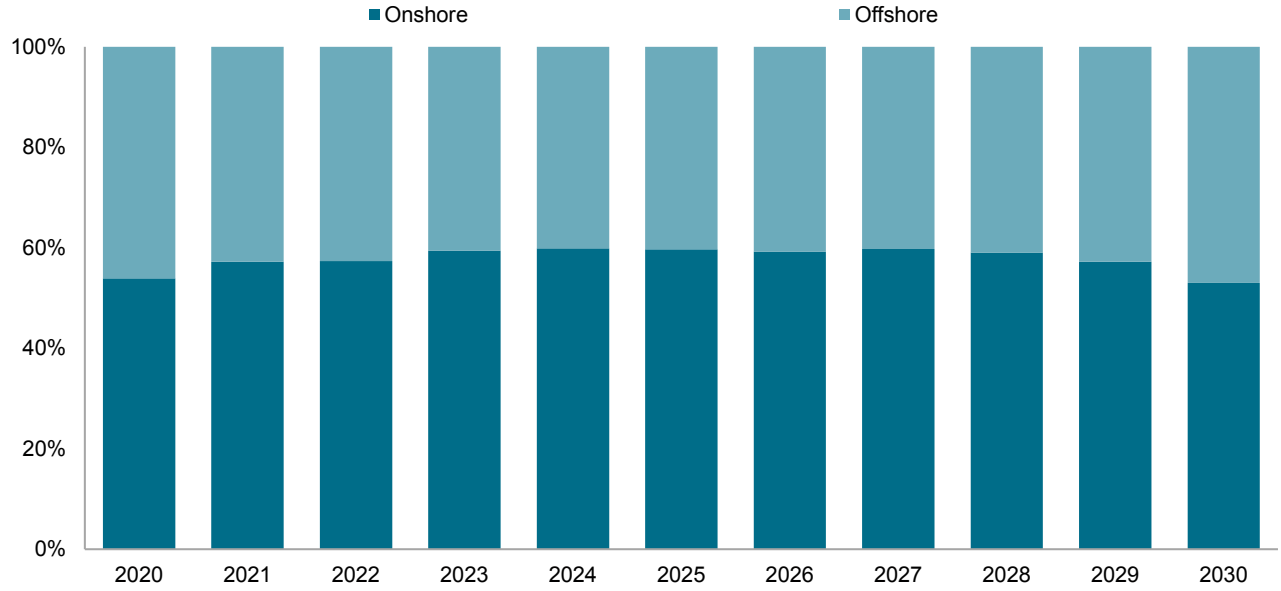
Figure 2. Africa's 2020-2030 production percentage split by regions



As of June 2025
Source: S&P Global Commodity Insights

The balance between onshore and offshore production has swung towards onshore in 2025-26 but will move back to parity by the end of the decade. Although offshore developments, especially in deepwater basins, are gaining share, onshore fields remain a key contributor to Africa's hydrocarbon supply, particularly in the likes of Algeria and Libya.

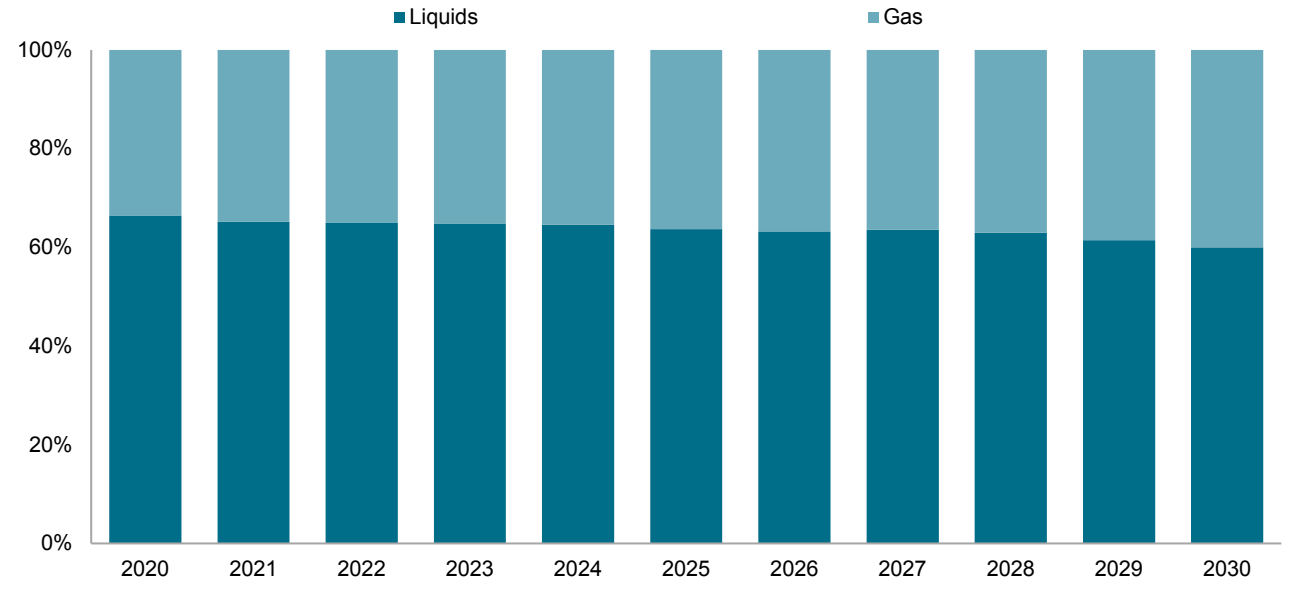
Figure 3. Africa's 2020-2030 production percentage split by asset type



As of June 2025
Source: S&P Global Commodity Insights

Africa's liquids (crude oil and condensates) production has accounted for over 60% of overall hydrocarbon output in the last five years. By 2026, liquids production is expected to be ~63%, with natural gas production accounting for the remaining 37%. By 2030, liquids production is expected to remain stable, supported by the further development of mature fields and potential new upstream projects. Growth in liquids output will depend on investment flows, regulatory stability and operators' efficiency in bringing new discoveries online. In parallel, natural gas production is projected to see higher growth, driven by rising global demand for cleaner energy sources. Africa's strategic role as a gas supplier, especially to Europe and Asia, is likely to expand, underpinned by new LNG (Liquefied Natural Gas) export infrastructure in countries like Mozambique, Nigeria, and Senegal (see Chapter 3 for further details).

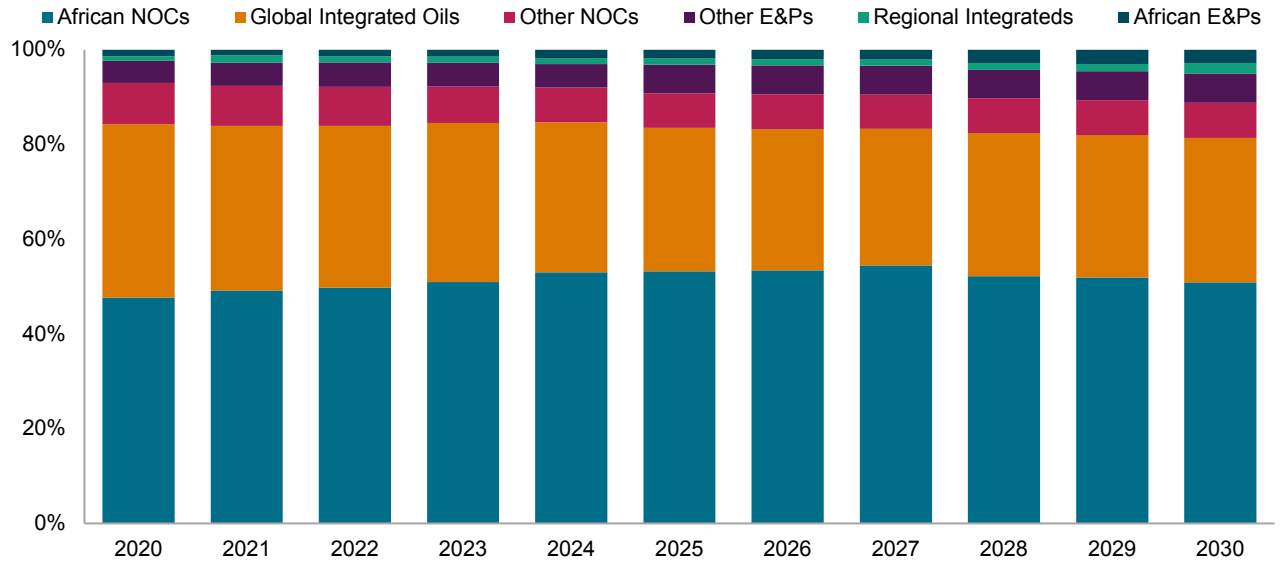
Figure 4. Africa's 2020-2030 production percentage split by hydrocarbon type



As of June 2025
Source: S&P Global Commodity Insights

African National Oil Companies (NOCs) currently account for ~53% of the continent's total oil and gas production, while global International Oil Companies (IOCs) account for ~30%. This reflects a growing trend of resource nationalism and a desire by host governments for strategic autonomy. Countries across the continent are increasingly empowering their national oil companies to take on more operational roles, moving beyond regulatory oversight to active participation in exploration and production activities. For example, Nigerian National Petroleum Company Ltd (NNPCL) is in the process of expanding its technical capabilities to operate major assets either independently or through joint ventures.

Figure 5. Africa's hydrocarbon production percentage split by type of operator, 2020-2030



As of June 2025
Source: S&P Global Commodity Insights

Spotlight on the top producing countries

Algeria: is a mature oil and gas producer with growth potential, particularly for gas. Current production occurs onshore in the southern part of the country. State-owned Sonatrach is the primary producer, accounting for ~75% of total liquids production and over 80% of total gas production.

In 2024, hydrocarbon exploration was focused on near-field activities, with 14 hydrocarbon discoveries reported for the year. The most active companies in exploration drilling during this period were Sonatrach and Eni, with key areas of focus being the Hassi Messaoud and Berkine basins. Algeria's 2024 production was ~3.3MMboe/d with an almost even split between liquids and gas production, and crude oil production being about 1.38 million barrels per day (MMbbl/d). Production is expected drop slightly to ~3.2MMboe/d in 2025. In 2026, oil production is anticipated to remain stable at ~1MMbbl/d, while gas production is expected to be ~10 billion cubic feet per day (Bcf/d).

Several gas gathering projects are underway, sometimes combined with efforts to decarbonise upstream operations, such as the installation of photovoltaic power at Eni's Bir Rebaa North (BRN) complex. New gas developments planned to start in 2026 include Tin Fouye Tabankort Sud and In Amenas II. While these measures will provide some additional sales gas, they are not expected to significantly change total commercial gas production. Over the next five years, total hydrocarbon production is expected to remain approximately 3 MMboe/d.

The Algerian government's targets are more ambitious: It aims to boost oil and gas production to support economic growth and fund diversification strategies, with a stated goal of increasing gas production to 200 billion cubic meters (Bcm) annually within the next five years to maintain a substantial export cushion. Of this volume, 100 Bcm would be for exports.

Nigeria: remains one of the largest producers in Africa with average production of about 2.3 MMboe/d over the last five years. Throughout 2024 onshore crude oil production steadily increased, supported by extensive security programs targeting pipeline theft and vandalism. In early 2025, Nigeria's upstream sector reached a critical juncture, with the onshore Niger Delta now predominantly managed by indigenous operators such as Renaissance Africa Energy, Seplat Energy, and Oando, as major IOCs refocused on deepwater and gas projects

According to the Nigerian Upstream Petroleum Regulatory Commission (NUPRC), Nigeria's crude oil production target for the end of 2025 is at least 2.1 MMbbl/d. This figure includes both crude oil and condensates and reflects the government's ambition to strengthen Nigeria's position in the global oil market.

Additionally, the 2025 national budget was built on an assumed production level of 2.06 MMbbl and a benchmark crude price of $75 per barrel. As of July 2025, Nigeria had reached a peak output of over 1.8 MMbbl/d, showing progress toward the stated target.

In the longer term, the Nigerian government has set a target of 3 MMbbl/d oil production by 2030 supported by several key developments. Notably, Shell's Bonga North project is projected to peak at about 110,000 bbl/d, with first oil expected at the end of the decade. On the gas production front, Seplat and Renaissance's ANOH development is expected to reach a peak of 595 MMcf/d within the next five years, and TotalEnergies' Ubeta onshore gas project – set to supply gas to the Nigeria LNG plant – and the Ntokon offshore oil project, are expected to start by the end of the decade, further strengthening the country's overall production capacity.

In order to boost investment, the government has introduced a range of incentives targeting both existing and new projects.

1.1.3. Rig market perspective

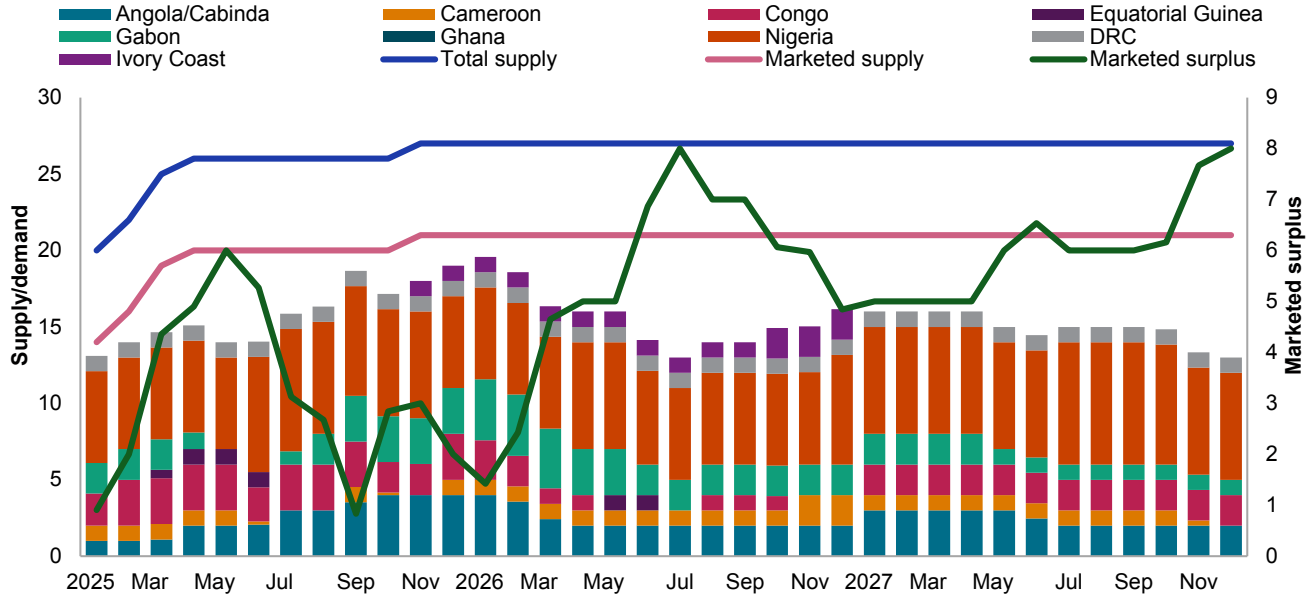
The global rig market is witnessing a gradual decline in the floater sector, and the jackup sector is expected to be relatively flat for the next three years. The drillship market, on the other hand, could see some positive movement from early 2027. As such, this creates a market more challenging for contractors. The rise in competition, along with challenging conditions over the remaining part of this year into 2026, is impacting pricing levels. Rates at which bidding is taking place for floaters and jackups are decreasing, which could lead to contractors needing to make decisions regarding warm stacking rigs. The market has witnessed projects deferred into 2026/2027 due to rising costs, longer lead times and process-driven delays, leading to rigs being bid at competitive rates in numerous regions. In Africa, the same sentiment remains for the floater market with most of the work in 2025 and 2026 was awarded. This weaker period for the floater market will last into 2027. Operators are likely to take advantage of lower day rates to push forward with drilling campaigns. By mid-2025, the African region had welcomed 10 jackups over the past 12 months resulting in a saturated market with the view that all future demand could be met with these units. The region still holds seven cold-stacked jackups that are unlikely to return to work. The excess capacity in the market has put pressure on day rates, and high-specification ultra-deepwater fixtures in the West African region could fall to the low $400,000s.

Table 1. Rig demand in West Africa up to 2027

Region/Country		2025 average demand	2026 inclusive demand	2027 inclusive demand
West Africa	**Jackup**	**16.2**	**-0.4**	**-1.2**
	Floater	**9.8**	**-2**	**2.3**

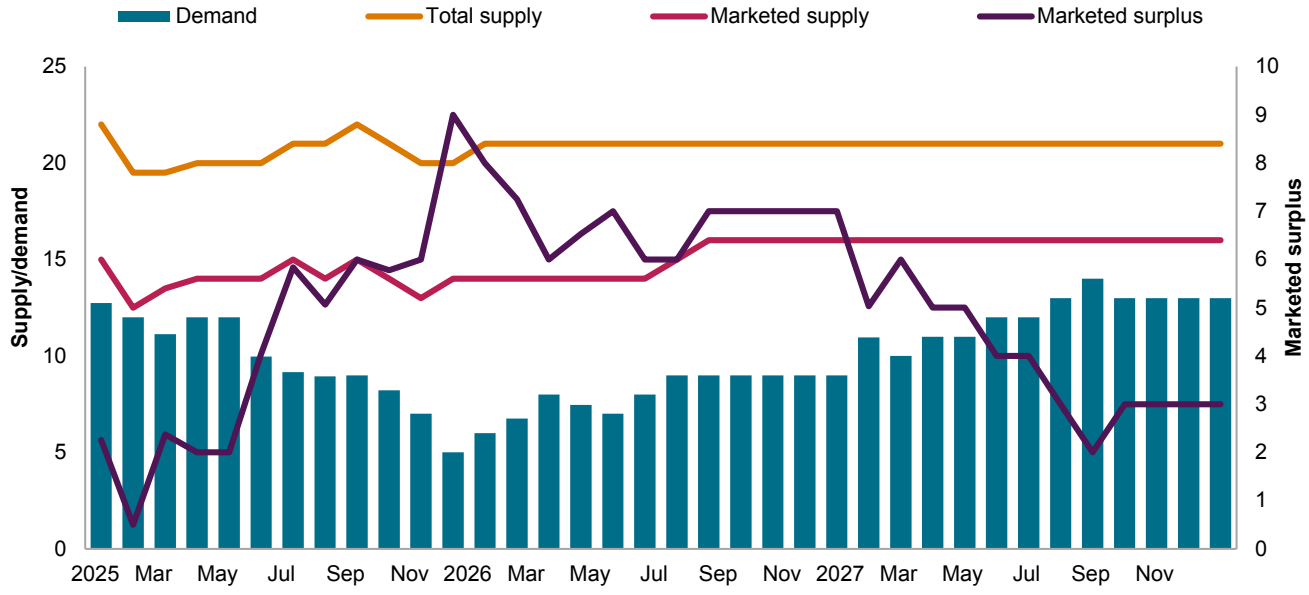
Source: S&P Global Commodity Insights

Figure 6. West Africa jackup demand forecast (2025-27)



As of June 2025
Source: S&P Global Commodity Insights

Figure 7. West Africa floater demand forecast (2025-27)



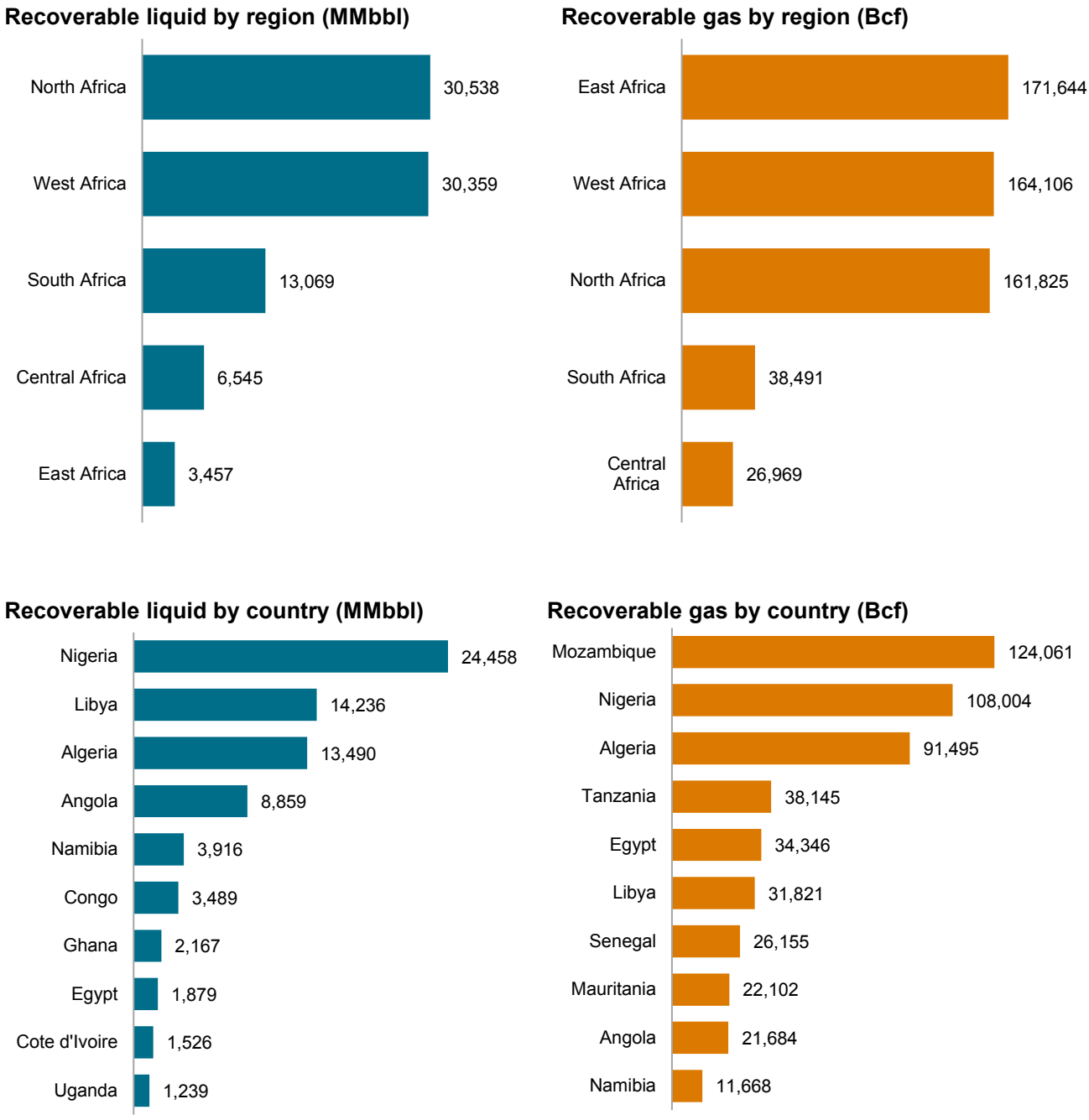
As of June 2025
Source: S&P Global Commodity Insights

1.1.4. A view on recoverable reserves

Africa has already yielded more than 420 Bboe in terms of discovered technically recoverable resources. Africa's big 5 are Nigeria, Algeria, Libya, Egypt and Angola. Note that Mozambique is less than 10 Bboe away from entering that select group.

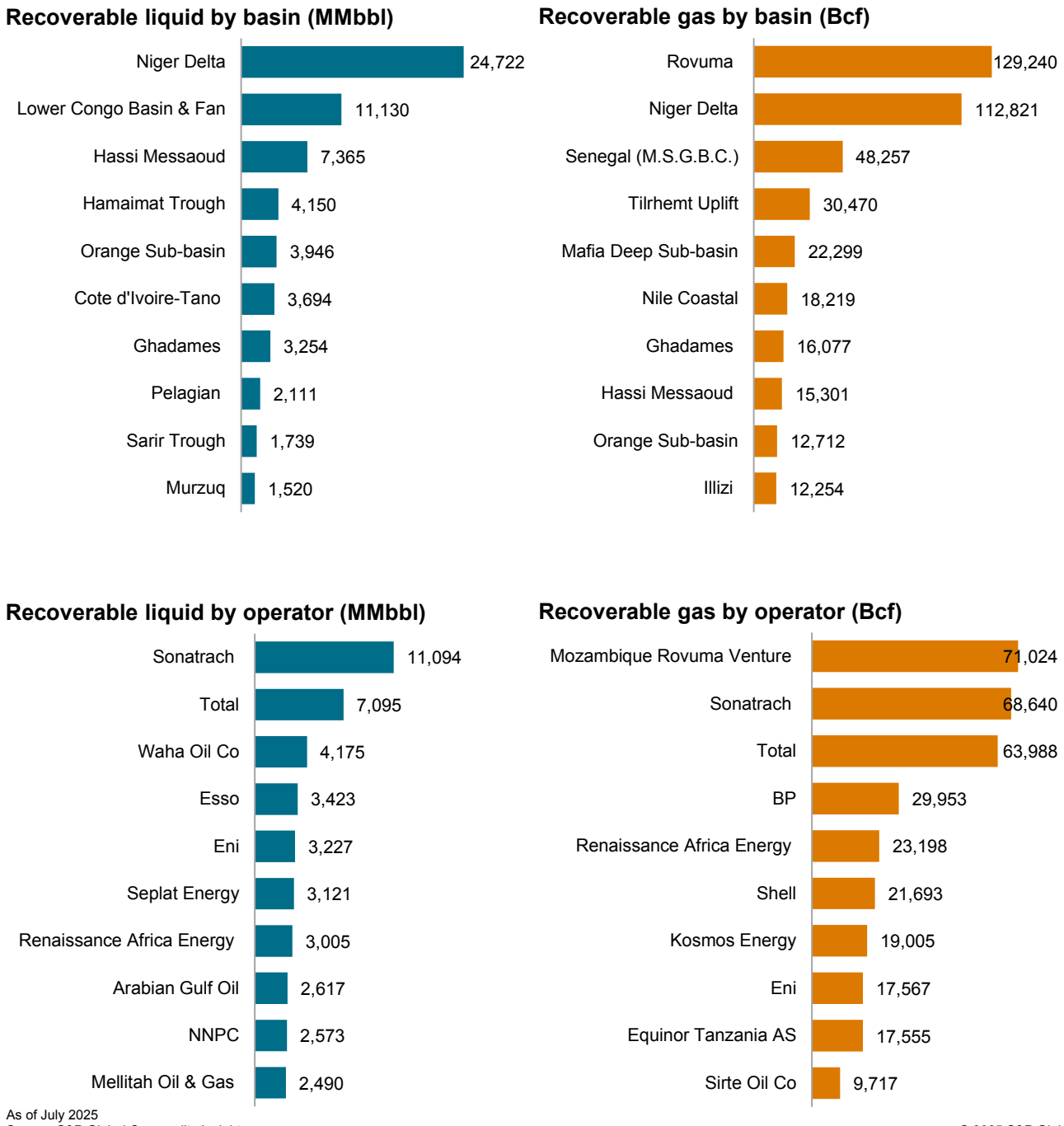
Current estimates of remaining recoverable resource is ~180 Bboe. The top five in terms of remaining recoverable resource include Mozambique, which displaces Egypt.

Figure 8. Remaining recoverable liquid and gas volumes by regions and top 10 countries



As of July 2025
Source: S&P Global Commodity Insights

Figure 9. Remaining recoverable liquid and gas volumes by basins and top 10 operators



As of July 2025
Source: S&P Global Commodity Insights

1.2. Opportunities and investment competitiveness

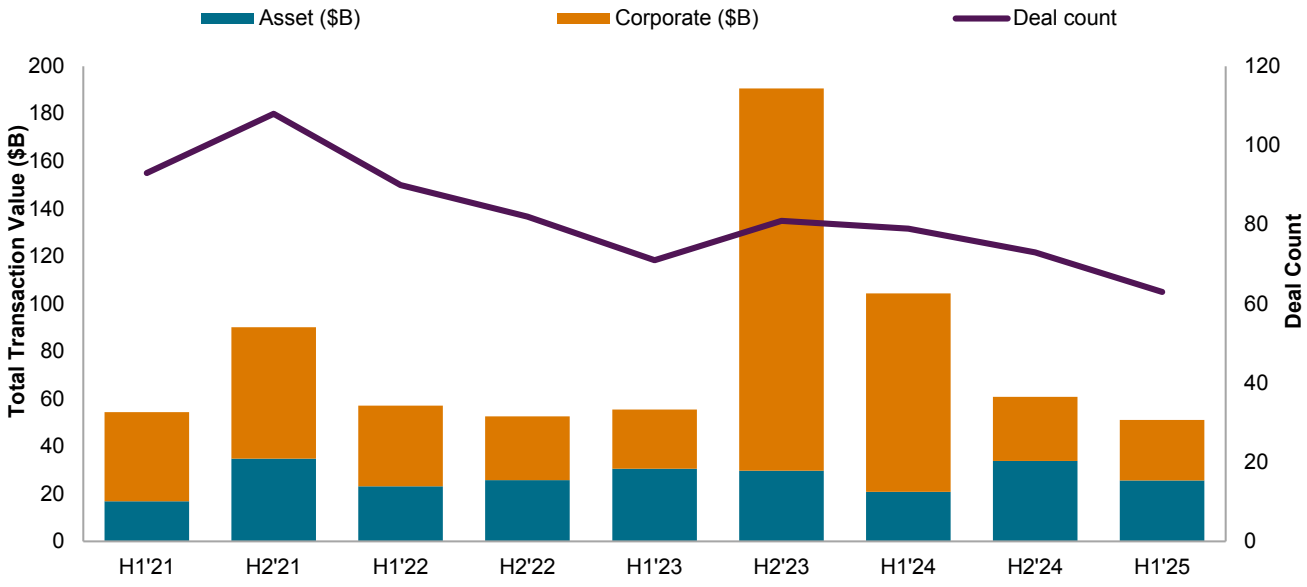
Improving investment competitiveness has become a key E&P policy focus for many African countries. Host governments across the continent are enhancing their business environments by streamlining regulatory procedures, offering fiscal incentives, and strengthening legal frameworks to harness investor interest in M&A and licensing opportunities.

1.2.1. M&A transactions

Global upstream M&A deals totalled $51 billion in the first half of 2025, marking a decline from the second half of 2024. According to S&P Global analysis, deal activity declined amid commodity price volatility and instability in financial markets – factors compounded by the US administration's tariff and trade measures which have contributed to heightened buyer caution. Deal flow in North America saw a significant drop, while the international deal count increased slightly but remained below historical averages. The transaction value in the first half was driven by corporate combinations, while asset deal value fell compared with that of the second half of 2024.

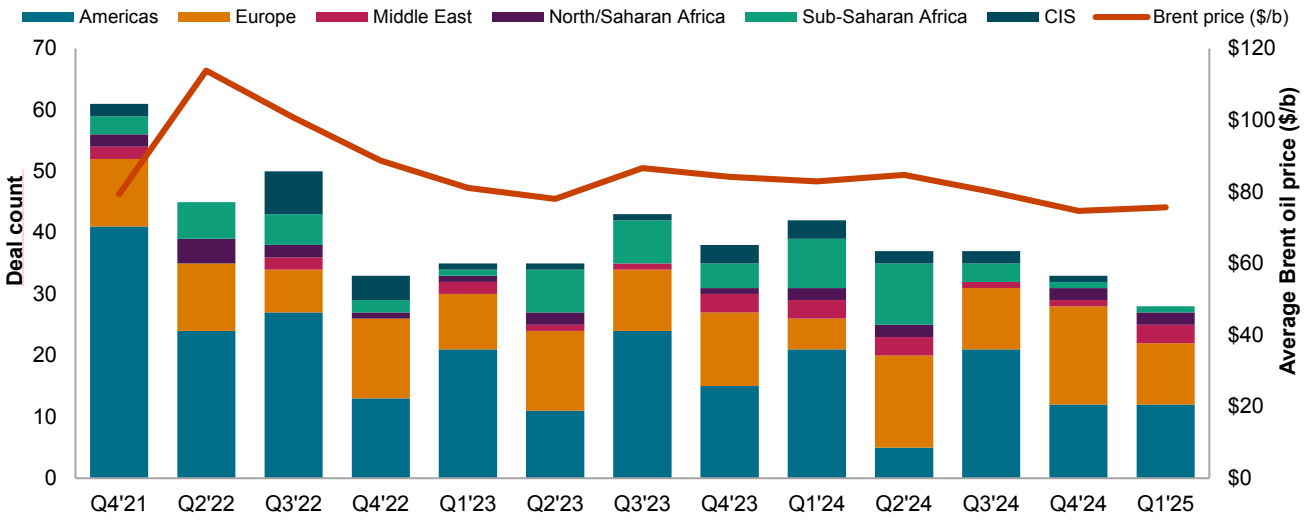
Upstream firms are prioritising returning capital to shareholders and, in the first half, focused their E&P efforts on existing core regions. They are pursuing lower-risk bolt-on deals, joint exploration, and development projects.

Figure 10. Global M&A transaction value and deal count



As of June 2025
Source: S&P Global Commodity Insights

Figure 11. Global quarterly deal count vs average Brent price



Figures represent all upstream acquisitions, acquisitions/JVs, mergers and swap transactions published in the S&P Global Commodity Insights Transaction Analysis (M&A) database.

As of June 2025
Source: S&P Global Commodity Insights

Table 2. Top 10 global M&A transactions by deal value (H1'25)

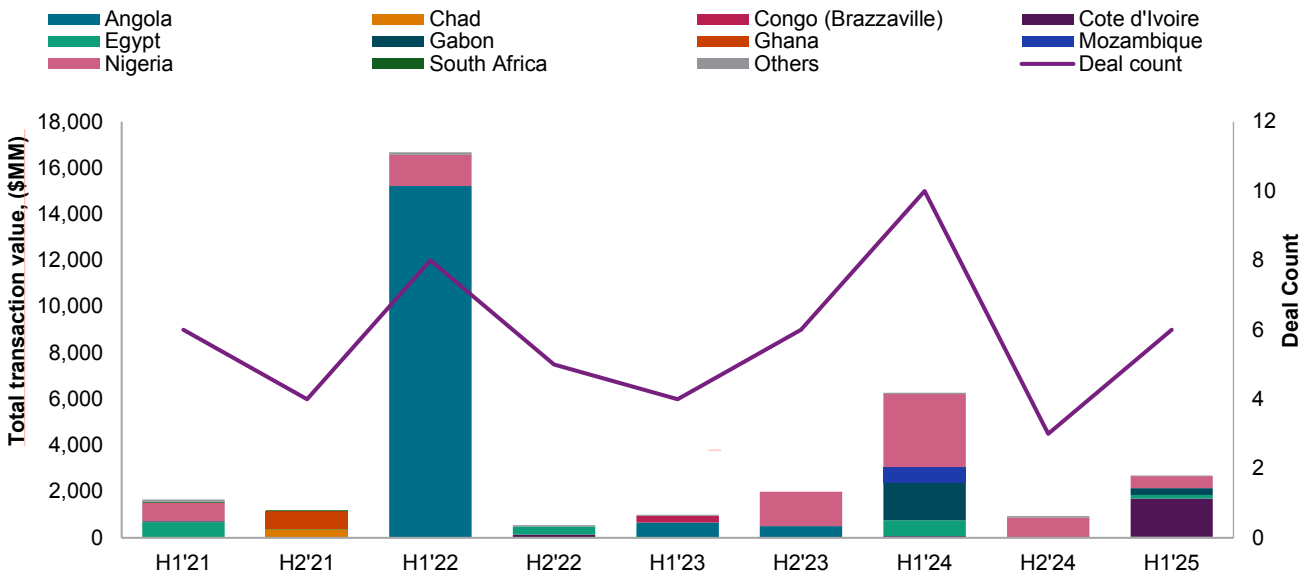
Announced date	Buyers	Sellers	Country	Total deal value ($MM)
10-Mar-25	Whitecap Resources	Veren Inc.	Canada	$6,741
30-May-25	EOG Resources Incorporated	Canada Pension Plan Investment Board; Encino Acquisition Partners; Encino Energy	United States	$5,600
27-Mar-25	NEO NEXT Energy	HitecVision AS; NEO Energy; Repsol	United Kingdom	$5,500
18-Feb-25	Diamondback Energy	Double Eagle Energy Holdings IV	United States	$4,083
01-May-25	Prio	Equinor	Brazil	$3,500
29-Jan-25	Canadian Natural Resources Limited	Shell	Canada	$2,500
22-Apr-25	EQT Corporation	Blackstone Inc.; Olympus Energy	United States	$1,739
19-Mar-25	Vitol Group	Eni	Cote d'Ivoire	$1,650
07-Mar-25	DNO	HitecVision AS; Sval Energi	Norway	$1,600
16-Apr-25	Vista Energy, S.A.B. de C.V.	Petroliam Nasional Berhad	Argentina	$1,494

Source: S&P Global Commodity Insights

The M&A landscape in Africa is continually evolving due to strategic realignments among global independent oil companies (GIOCs), local and regional players, IOCs and NOCs. As GIOCs divest mature assets and enter markets with growth potential, local independent companies are seizing the opportunity to expand their portfolios. Over the past decade, companies such as Seplat, Oando, First E&P, Amni, Conoil, Newcross, Aiteo, Neconde and Shoreline have progressively increased their activities, initially through the acquisition of individual marginal fields offered in dedicated auctions and later through larger company deals with major players.

In Nigeria, for example, several divestment deals were concluded in 2024, marking a pivotal moment in reshaping the country's competitive landscape. High-profile divestments include ExxonMobil's sale of a 30% operated interest in Mobil Producing Nigeria Unlimited to Seplat Energy, Eni's transfer of its onshore E&P subsidiary to Oando PLC, and TotalEnergies and Equinor ASA's divestment of their Nigerian assets to Chappal Energies Offshore Ltd. In March 2025, Shell completed the sale of its subsidiary Shell Petroleum Development Company of Nigeria Ltd to Renaissance. Renaissance is a consortium of five E&P companies — ND Western, Aradel Energy, First E&P, Waltersmith and Petrolin, with almost all being indigenous operators in Nigeria (except Petrolin). These changes increased the role of indigenous players in onshore operations, while international companies maintained a presence in deepwater areas. Shell's final investment decision for the Bonga North deepwater project underscores renewed international confidence, bolstered by favourable Petroleum Industry Act terms and divestment approvals.

Figure 12. African upstream transactions since 2021



As of July 2025
Source: S&P Global Commodity Insights

Africa's upstream M&A transactions saw a significant increase in both deal value and count from the second half of 2022 to the first half of 2024. In the first half of 2025, transaction values totalled approximately $2.7 billion, up from around $0.9 billion in the second half of 2024. Additionally, deal count rose from 3 to 6 during the period. The following are the major deals in Africa that have taken place so far in 2025.

Trading company Vitol agreed to acquire stakes in Eni assets in Côte d'Ivoire and the Republic of the Congo for a total consideration of $1.65 billion

– The acquisition aligns with Vitol's strategy to broaden its presence in Africa by capitalising on previous acquisitions, including its existing partnership with Eni SpA. By acquiring stakes in both established and developing assets that deliver robust cash flow, the company will not only strengthen its LNG supply security but also bolster its global trading operations.

– Eni's divestiture is driven by its portfolio optimisation strategy, using a dual exploration model. This model focuses on building hydrocarbon reserves through exploration and asset monetisation by selling minority interests while retaining operatorship in projects. The proceeds will be invested in other core upstream projects and the development of energy transition initiatives. Additionally, it strengthens Eni's partnership with Vitol, ensuring enhanced market access and trading synergies.

TotalEnergies agreed to divest its 12.5% stake in Nigeria's Bonga oil field to Shell for $510 million

– Shell's acquisition is designed to bolster its position in high-return projects, ensuring consistent cash generation and supporting its goal to maintain 1.4 million bbl/d of global liquids production while growing upstream production by 1% annually through 2030.

– TotalEnergies is divesting non-core, non-operated assets to focus on operated gas and offshore oil projects in Nigeria, with proceeds supporting the crucial Ubeta development for Nigeria LNG gas supply.

Table 3. Significant M&A transactions in Africa (H1'25)

Announced date	Buyers	Sellers	Country	Total deal value ($MM)	Deal type	Description
19-Mar-25	Vitol Group	Eni S.p.A.	Cote d'Ivoire, Republic of Congo	$1,650	Acquisition	Deepwater Baleine development; Congo LNG project
29-May-25	Shell plc	TotalEnergies	Nigeria	$510	Acquisition	Deepwater Niger Delta development
24-Mar-25	Gabon Oil Company	Tullow Oil	Gabon	$300	Acquisition	Gabon non-operated oil producing assets
02-Jul-2025	United Energy Group	Apex International Energy;Blue Water Energy LLP;Warburg Pincus	Egypt	$157	Acquisition	Egypt Western Desert oil assets
24-Mar-25	Xtellus Capital Partners	Serinus Energy plc	Tunisia	$36	Joint Partnership	Tunisia and Romania producing assets
19-Jun-25	Afentra	ETU Energias	Angola	$23	Acquisition	Shallow water asset
19-Jun-25	Maurel & Prom	ETU Energias	Angola	$23	Acquisition	Shallow water asset
10-Jan-25	Prime Global Energies	Tower Resources	Cameroon	$19	Acquisition	Shallow water asset

Source: S&P Global Commodity Insights

Key market opportunities

Table 4. Top upstream asset opportunities in Africa

Sellers	Segment	S&P Appraised deal value ($MM)	Countries	Description
Galp Energia	Deepwater	$2,250	Namibia	Seeks to farm-out a 40% interest in two deepwater Namibian blocks
Kosmos Energy	Deepwater	$1,371	Mauritania; Senegal	Looking to sell-down stake in Greater Tortue Ahmeyim (GTA) offshore gas project
Nile Petroleum	Conventional	$1,247	South Sudan	Seeking out partnerships for South Sudan assets after Petronas exit
Chevron and Azule Energy	Conventional	$764	Angola; Congo	Divesting interests in Angola and Congo's Block 14
Harbour Energy	Deepwater	$213	Algeria	Considering selling stake in Algeria's Reggane Nord gas project.

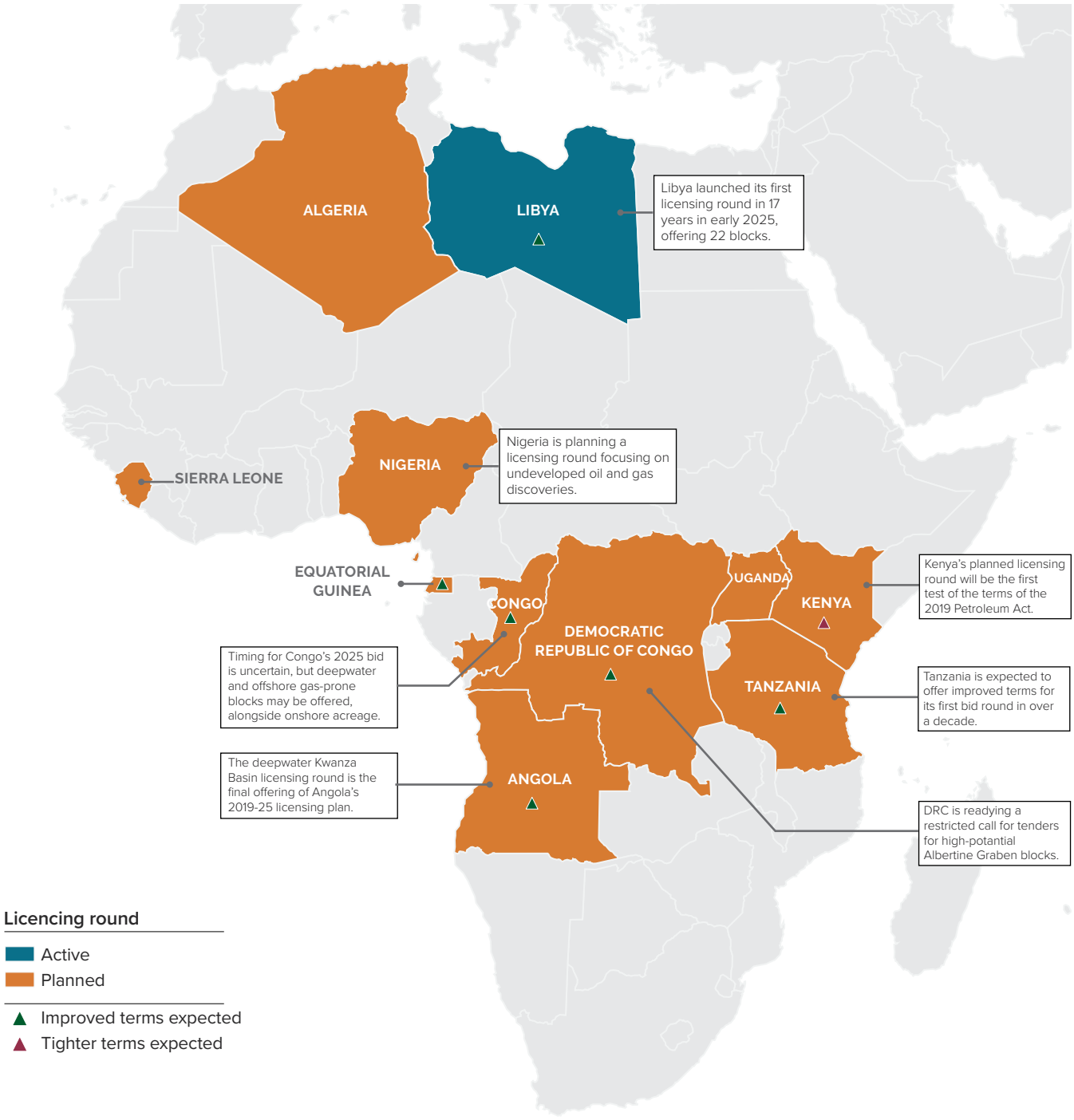
Source: S&P Global Commodity Insights

1.2.2. Ongoing and planned licensing rounds

Several countries plan to launch new rounds in 2025-2026, offering both onshore and offshore acreage in mature and frontier basins that promise significant opportunities for foreign investors. While expected licensing rounds in Angola, Congo, Sierra Leone and Tanzania have been delayed beyond planned launch dates, the first half of 2025 has already seen notable licensing rounds. Both Algeria and Libya have organised bid rounds after long absences. Algeria held its first bid round in a decade, awarding five out of six blocks offered – three of these featured the new production sharing terms and two were on a royalty/tax basis following improvements to terms introduced by the 2019 Hydrocarbon Law. Libya launched its first licensing round in 17 years covering 22 blocks, introducing revised fiscal terms to attract investor interest.

The trend towards more favourable terms continues to foster investment, with both frontier and mature producers offering targeted incentives and trialling broadly revised contract terms for the first time.

Figure 13. African licensing rounds (2025-2026)

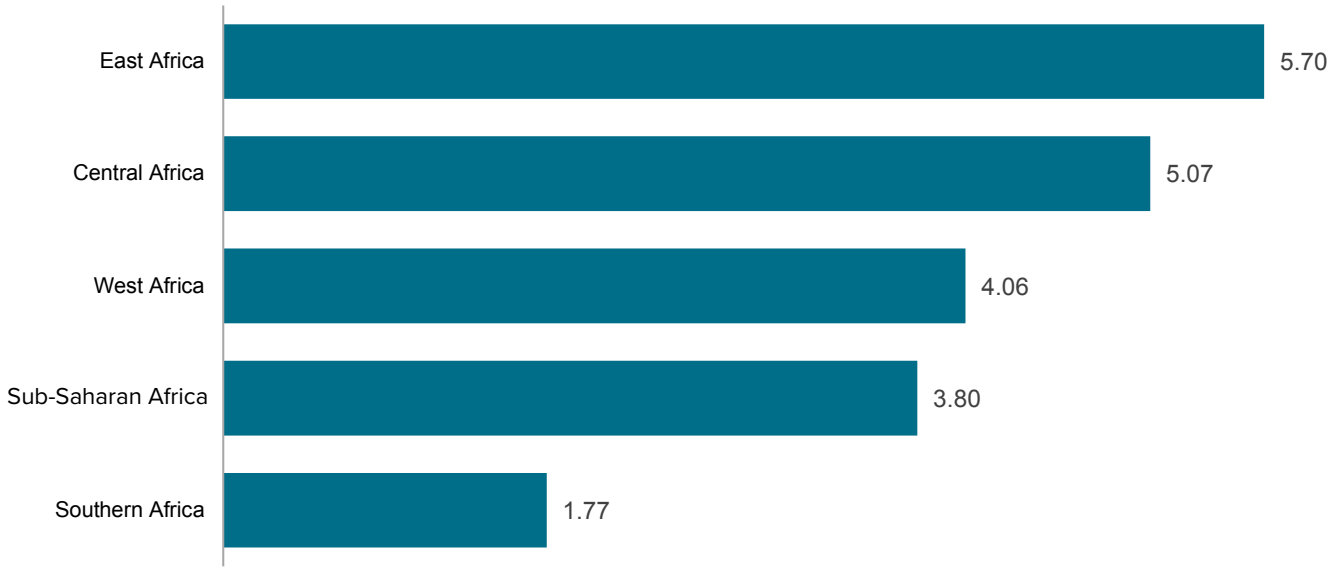


Data compiled July 10, 2025.
Source: S&P Global Commodity Insights: 251259-01.

1.2.3. Sub-Saharan Africa

Sub-Saharan Africa's real GDP growth rate is projected to rebound to 3.8% in 2025, up from 3.6% in 2024. The East African region, which includes countries such as Tanzania, Uganda, and Ethiopia, is expected to continue exceeding the regional average in growth. In contrast, the Southern Africa region, including South Africa, Mozambique, Zambia, and Botswana, is likely to hinder the overall regional economic outlook.

Figure 14. East and Central Africa to outperform regional growth in 2025 (real GDP % change)



As of August 2025
Source: S&P Global Market Intelligence

Large scale investment in Uganda's oil sector combined with a rebound in agricultural production is expected to push growth close to 7% in 2025. Ethiopia will benefit from policy reforms such as a new interest rate-based monetary policy framework focused on maintaining price stability. The Ethiopian central bank's policy rate may also significantly increase, potentially rising from 15% to nearly 19% as a result. Ethiopia has furthermore formalized a debt restructuring agreement with its Official Creditor Committee, announced by the Ministry of Finance on July 2, 2025. The memorandum of understanding solidifies a previously reached deal under the G20 common framework, providing over $3.5 billion in debt relief.

South Africa's real GDP growth rate is expected to be constrained by the sluggish implementation of policy reforms in the electricity and transport sectors by the Government of National Unity, which was elected in June 2024. Additionally, a decline in trade with the United States is anticipated due to the introduction of a 25%-30% reciprocal tariff on motor vehicle and citrus exports to the US, effective August 1.

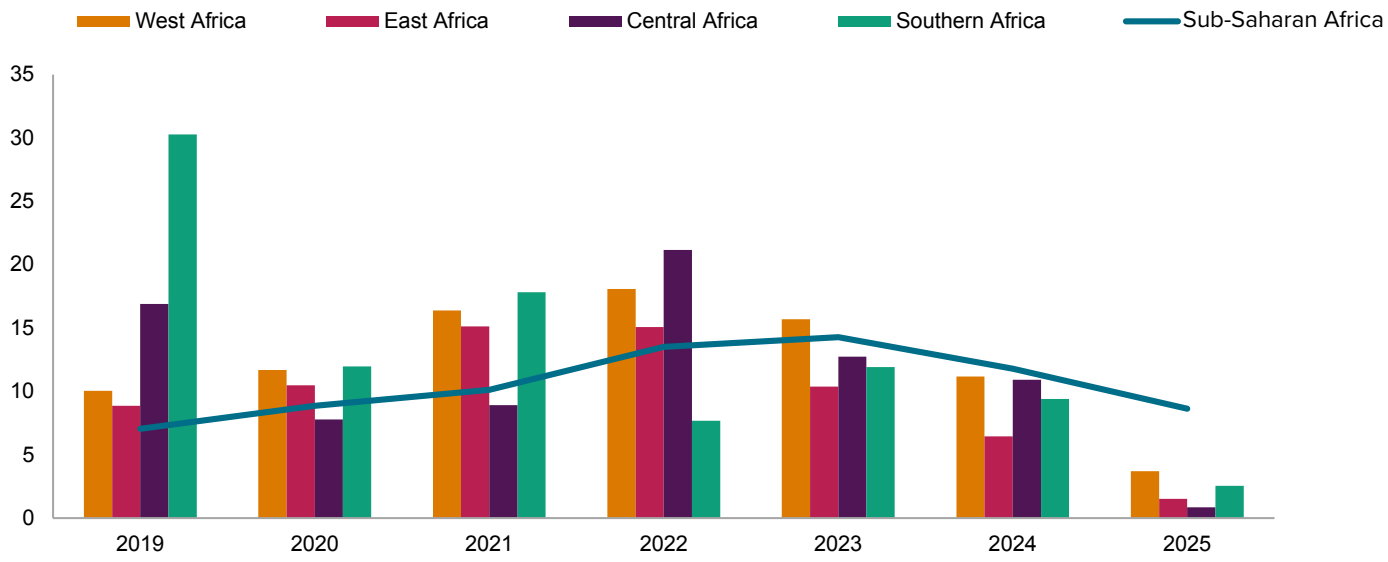
The downward pressure on crude oil prices is intensifying concerns regarding the long-term sustainability of debt in oil-dependent economies. Low oil prices will put fiscal positions under strain in oil-dependent countries like Angola and Nigeria, increasing reliance on declining non-oil revenues and raising debt. We expect annual real GDP growth rates in Nigeria (3.1%) and Angola (2.3%) to underperform the regional average of 3.8% in 2025.

Nations exporting minerals, such as copper, will not immediately benefit from mainland China's decision to eliminate tariffs on its imports from all 53 African countries, with effect from December 2024. This decision expands previous benefits and could stimulate trade. The outlook for renewing the African Growth and Opportunity Act (AGOA) program in September 2025 is uncertain due to the US reciprocal tariffs imposed on SSA countries, clouding their export prospects. We expect annual real GDP growth in the DRC to slow from 6.0% in 2024 to 4.9% in 2025, with the 2025 forecast for South Africa cut to 1.1%.

Structural reforms and improved domestic demand are expected to support growth in smaller economies. Côte d'Ivoire expects annual real GDP growth of 6.3%, according to its National Development Plan, while Benin is forecast to grow by 6.7% with support from its Government Action Plan and IMF reforms. In Rwanda, private consumption is expected to account for over 70% of GDP, with a projected annual real GDP growth rate of 6.4% in 2025.

The potential for significant monetary easing in SSA is likely constrained by rising domestic and global uncertainties during 2025. Policy easing is nonetheless expected to gain momentum in 2026 as headline inflation in sub-Saharan Africa continues to trend down. Lower food prices combined with improved external liquidity conditions and resilient exchange rates against the US$ underline this expectation.

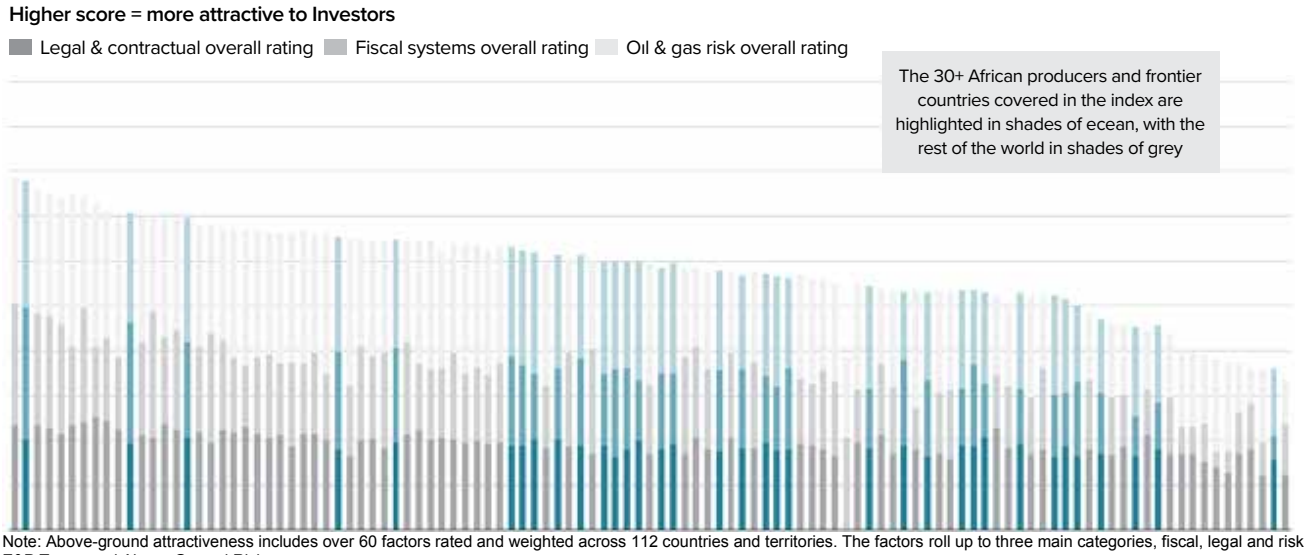
Figure 15. Sub Saharan Africa and regional inflation by percentage



As of August 2025
Source: S&P Global Market Intelligence

1.2.4. E&P Above-ground Attractiveness

Figure 16. Above-ground attractiveness



Note: Above-ground attractiveness includes over 60 factors rated and weighted across 112 countries and territories. The factors roll up to three main categories, fiscal, legal and risk E&P Terms and Above-Ground Risk
As of July 2025
Source: S&P Global Commodity Insights

Whether investors engage in the continent's opportunities relates both to the sub-surface potential and above-ground terms, including ease of commercialization.

The E&P Terms and Above-Ground Risk team evaluate above-ground attractiveness based on the legal framework, fiscal terms and above-ground risk, using a 1-10 scale for over 50 individual factors across over 100 countries and territories internationally. African countries are depicted in the chart above in the blue bars, with most venues currently falling in the middle range of our index.

That said, improvements are in motion, particularly in the realm of fiscal and contractual terms where the likes of Algeria, Angola, Congo Brazzaville, Libya and Nigeria have made or are planning to make changes that will boost investor returns. Still, some of the region's producers and frontiers are looking to maximize national benefits from newfound resources, leading to increases in NOC participation in countries like Namibia and South Africa. One of the main attractions of African producers is the degree of openness to investment, although there are points of risk that continue to limit investor engagement.

Key above-ground trends to watch

- **Political change and activism create challenges for African E&P.** The influence of independence-era ruling parties is waning in many African countries as younger voters grow disillusioned amid rising living costs and economic malaise. As legacy European influence declines, the political landscape is also being shaped by foreign powers such as mainland China, Russia, the US and, increasingly, Middle Eastern interests, potentially complicating diplomacy and investment across the continent. Unrest and power shifts away from incumbents emerged in recent elections in South Africa, Senegal and Mozambique, resulting in policy uncertainty for E&P. Resource nationalism and local content are coming to the fore as governments seek enhanced benefits from the hydrocarbon sector to address popular revenue and employment concerns, with state role, local ownership and employment hot topics in Senegal, Mozambique, South Africa, Tanzania and Namibia. Political flux will likely embolden and empower civil society and labour unions, exacerbating disruptive threats to E&P operations. IOCs' social license to operate will continue to face pressure from domestic and international environmental activists, with exploration in sensitive areas in DRC, South Africa and Namibia facing scrutiny, as well as unconventional initiatives in French-speaking North Africa.

- **Revived strategic emphasis on E&P is spurring an African host country charm offensive for new licensing...** Amid a revival in IOC and international NOC (INOC) interest in deepwater exploration — driven by ongoing success in the Atlantic Margin — Sub-Saharan African producers and frontiers alike are making another push into competitive licensing after a post-pandemic lull. Bid rounds are ongoing or planned in countries including Angola, Congo, DRC, Nigeria and Tanzania, and most countries are eager to boost competitive and open-door licensing success by offering more attractive fiscal and contractual terms.

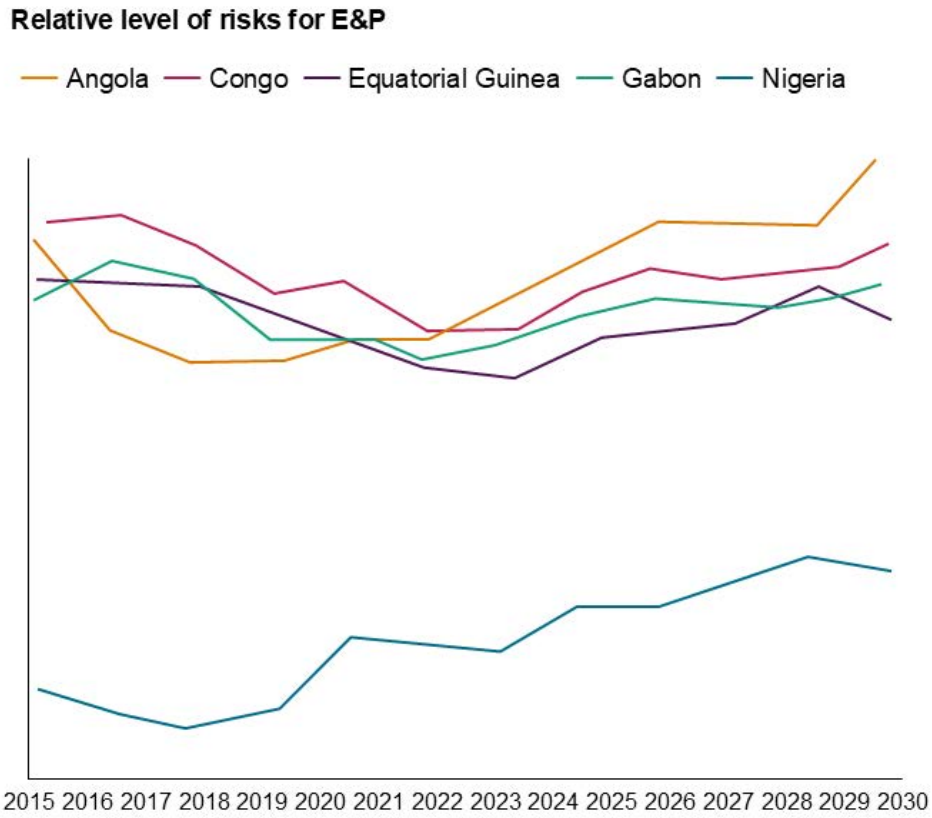
- **...while a shifting investor landscape behoves broader government regulatory agility and flexibility.** Beyond licensing, African host governments and NOCs are engaging with an increasingly diverse range of E&P investors (from local independents to foreign NOCs) and financiers (from Middle Eastern banks and Asian export credit agencies to global trading firms). Countries such as Angola and Nigeria are implementing effective institutional, regulatory and contractual reforms. Streamlined M&A approvals and broader legislative clarity could help unlock major projects, and host country governance and capacity will be in the spotlight as cross-border competition for capital increases and foreign investors consider acquisition opportunities in Côte d'Ivoire, Kenya, Namibia and Senegal/Mauritania.

- **African governments are focusing on gas regulation to unlock lower-carbon growth opportunities.** African governments are progressing long-awaited regulations for the gas value chain to facilitate domestic industrialisation and power access and to meet international demands for diversified supply sources. IOCs remain wary of developing even the largest gas discoveries unless terms are favourable, particularly for domestic supply. While pioneering projects such as Congo Floating Liquefied Natural Gas (FLNG) have launched successfully, others in Nigeria, South Africa and Tanzania have been stalled by wrangling over commercial terms and offtake deals. Gas master plans and legislation are pending in Angola, Congo, Nigeria and South Africa, and progress on projects such as Katambi in Angola, Kudu in Namibia and Yakaar-Teranga in Senegal will signal how much of Africa's vast undeveloped gas potential can be unlocked for both export and domestic use.

Spotlight on important developments

Angola: Hydrocarbon sector reforms deliver results
Angola's above-ground risk score – as assessed by SP-GCI's E&P Terms and Above-Ground Risk (EPTAGR) team – has improved steadily since 2017, boosted by significant oil sector institutional and regulatory reforms. Angola's expanding suite of fiscal and contractual incentives – such as new terms for gas, marginal fields and incremental production – have also proved effective in stimulating new upstream investment. Above ground, Angola has become the most attractive host country for E&P among

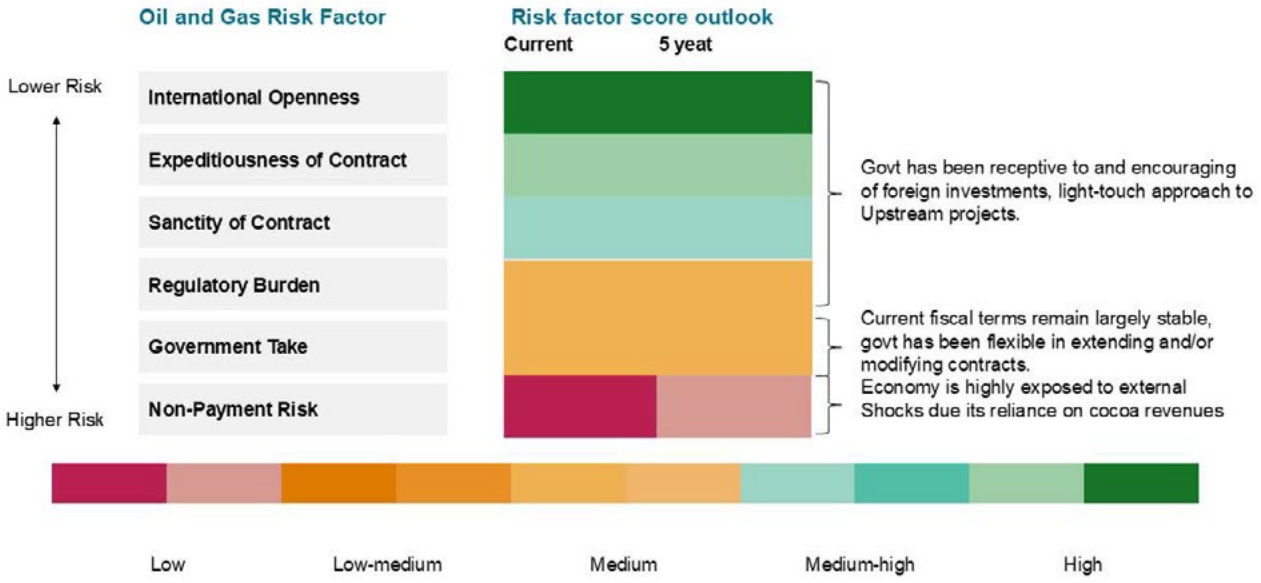
Figure 17. EPTAGR Oil & Gas Risk Overall Scores: Angola's positive evolution versus peers



Côte d'Ivoire: Elections unlikely to alter investor-friendly approach

Côte d'Ivoire's pragmatic approach to foreign investors has underpinned rapid project development and boosted interest in offshore acreage. Regardless of the winning candidate following the 2025 presidential election, the authorities will likely maintain a supportive approach towards upstream investors, although focus on operators' fulfilment of local content requirements is likely to increase.

Figure 18. Côte d'Ivoire: Key oil and gas risk factors and outlook



Mozambique: Belated onshore LNG project restart beckons as FLNG leads the way

The fraught above-ground risk environment for Mozambique's onshore LNG projects has somewhat eased after a post-election political crisis was largely resolved and security for operators in the Cabo Delgado province improved. Construction of TotalEnergies' Mozambique LNG project is likely to restart in the second half of 2025, while Eni's Coral North FLNG project is progressing. Offshore liquefaction has remained relatively unscathed amid onshore security issues. However, SPGCI analysts expect further onshore developments to proceed slowly, as the risk of militant violence could rise alongside renewed construction activity.

Figure 19. Mozambique FLNG projects

Mozambique: Floating LNG leads the way as above-ground risks may push onshore projects into 2030s

Project	Operator	Capacity (Mmpta)	Status	Operator announced start	Recent notable developments	SPGCI expected start
Coral South FLNG[2] (Area 4)	Eni	3.4	Operating	2022	Project shipped 100th cargo since start-up in early 2025	N/A
Mozambique LNG (Area1)	Total Energies	12.9	FID taken June 2019, construction under force majeure (FM)	2029	FM likely to be lifted in the second half of 2025; after approval of EXIM loan, security has overtaken finance to again become main consideration for revival	2030
Rovuma LNG (Area 4)	ExxonMobil	18	Unsanctioned; New FEED phase entered in 2023, FID targeted for 2026	2030	FID likely delayed well beyond current 2026 target, until Afungi LNG Park infrastructure and security allow	2037
Coral North FLNG (Area 4)	Eni	3.7	Unsanctioned; Targeted FID in late 2024 missed	2029	Government approval of development plan suggests FID likely in mid-2025	2030

Namibia: Broad institutional reform efforts as country moves towards producer status

In a sweeping change to the Namibia's upstream leadership, President Netumbo Nandi-Ndaitwah, following her March 2025 inauguration, brought the oil and gas portfolio directly under the presidency and announced plans to establish an independent hydrocarbon sector regulator. In parallel, the administration proposed an increased share for the NOC NAMCOR and indicated that it might consider strengthening local content requirements. While these measures are intended to boost the sector's efficiency, they could slow down E&P processes just as Namibia reaches a critical juncture in its hydrocarbon sector development.

Nigeria: Revived licensing push with tweaks to terms

As part of its ambitious plans to boost production, Nigeria has taken incremental but consistent steps towards more attractive upstream terms to boost E&P investment. The government has introduced new incentives targeting specific terrains and resource types, as well as measures to incentivise operating cost efficiencies. The country is also planning its third licensing round in three years, in stark contrast to its limited acreage offering over the past two decades. While foreign interest in new acreage remains limited — TotalEnergies was the only major player awarded a block in the 2022/24 licensing rounds — progress on previously stalled projects such as TotalEnergies' Ubeta onshore gas development and Shell's FID on the deepwater Bonga North indicate renewed interest in Nigeria.

1.3. Major project outlook and cost environment

1.3.1. African frontier basins outlook

Since the start of 2021, 39 wells in Africa have been tagged as High Impact Wells (HIWs). A HIW is defined as a well that may have a significant commercial or geological impact on a global scale.

To qualify as a HIW, a well must:

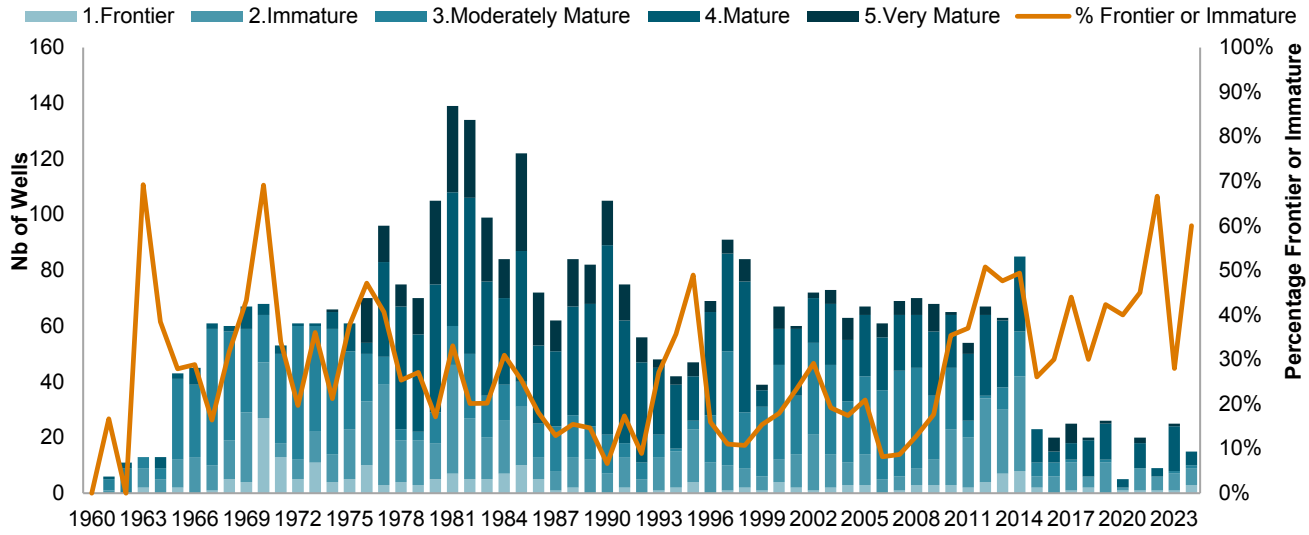
1. Exceed 250MMboe in potential resource
2. Serve as a play opener at a basin level (i.e., targeting significant geological objectives)
3. Or meet another specific criterion, such as being part of an unconventional evaluation

Of these, 12 have resulted in discoveries — a technical success ratio of over 30%. The bulk of these have been drilled in the Namibian portion of the Orange Sub-basin, which skews the results positively. Considering high-impact exploration in Africa excluding Namibia, the success ratio falls to just 16%. Conversely, looking only at the Namibian portion of the Orange Sub-basin, the technical success ratio is roughly 60%. It is for this reason that exploration excitement is focused on frontier–immature basins once initial discoveries were made. In a frontier basin or frontier play within a more mature basin, geological risk, or at least its perception, reduces after the initial discoveries. This inevitably leads to a flood of interest and a significant uptick in exploration activity. While this phenomenon is common, those entering a basin or targeting a new play have a significant competitive advantage and stand to benefit from holding the sweet spot acreage, especially if the entry strategy includes a large acreage position. These early movers likely also benefit from better fiscal terms than those granted to entrants after discoveries have been made.

It is against this backdrop that the 8.5 Bboe discovered between 2021and July 2025 highlights the significance of frontier and immature basins. Of this, some 7.4 Bboe was a result of high-impact exploration. Close to 95% of the resource discovered via high-impact exploration is in immature or frontier basins, with the largest contributors being the Namibian portion of the Orange Sub-basin and the Côte d'Ivoire portion of the Côte d'Ivoire–Tano Basin.

There is still significant running room within both sub-basins and we expect to see continued exploration drilling. That said, the continent continues to offer up new frontiers, all of which may draw exploration capital. Places to keep an eye on are the ultra-deep-water portion of the Congo Fan in Angola, the Gabon–Douala Deep Sea Basin offshore São Tomé and Príncipe, the Namibe Basin in Namibia and Angola, the Herodotus Basin offshore Egypt and the offshore portion of the Sitre Basin. Others that have already played host to exploration cycles may still present significant opportunities in a similar fashion to the Côte d'Ivoire–Tano Basin. One example is the MSGBC Basin, where over 9.5 Bboe was discovered between 2014 and 2019, but which is still viewed as immature in terms of exploration.

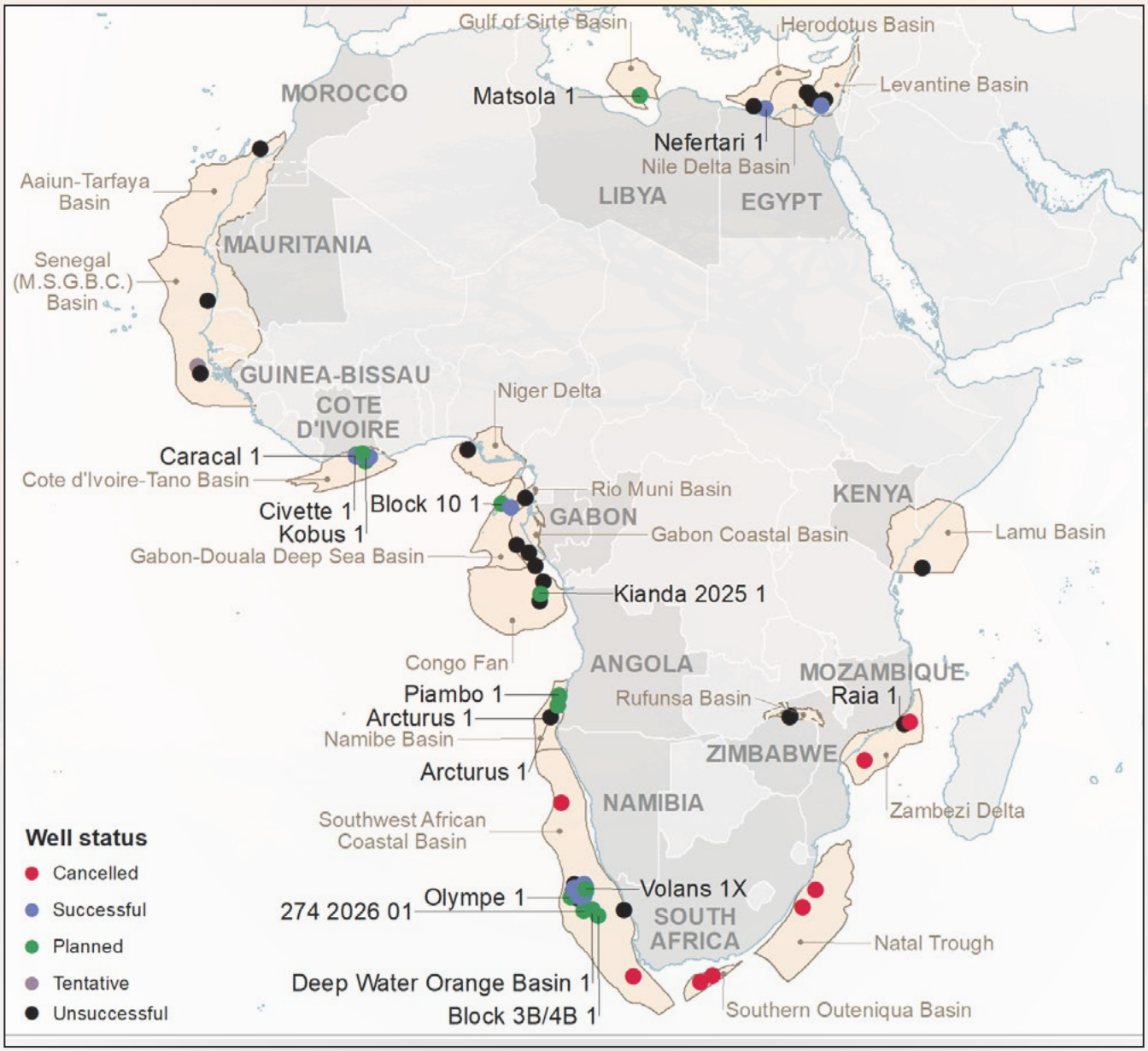
Figure 20. Offshore exploration drilling trends in Africa



As of July 2025
Source: S&P Global Commodity Insights

The shift to frontier basins, underway since 2008, was briefly interrupted in response to the 2014/2015 oil price crash but has since continued.

Figure 21. Exploration hotspots



Spotlight on high-impact exploration

Namibia

Perhaps the most prominent high-impact exploration location in Africa since 2022 is the Namibian portion of the Orange Sub-basin. In less than four years, just over 6 Bboe have been discovered at a pace comparable to that of Guyana. TotalEnergies, Shell, Galp and Rhino Resources have all found success. However, there are challenges. TotalEnergies has raised concerns over related to reservoir quality and higher-than-expected gas-to-oil ratios but ultimately the company is expected to move forward with the Venus development. Galp has also suggested that it will proceed with the Mopane development and that the reservoir quality is good — there seems to be a significant volume of gas. Shell, however, wrote off USD 400 million related to the discoveries within its block, describing them as viable but non-commercial. Rhino Resources and partner Azule Energy were planning an additional exploration well called Volans, followed by further exploration drilling.

At the time of writing, two high-impact wells are expected to be spudded before the end of 2025. TotalEnergies is expected to drill the Olympe prospect located within Block 2912 (PEL091) at a water depth of roughly 3,200 m. Olympe is an Albian-aged fan that transects Block 2913B (PEL056). TotalEnergies has not divulged the targeted resource but based on volumetric estimation and the resource densities it provided for the Venus discovery, it is plausible that the company is targeting between 300 and 600 MMbbl. The failure at the Marula 1X well drilled south of Venus may impact TotalEnergies plans. Rhino Resources and Azule Energy are expected to spud the Volans 1X well towards the end of July or in early August. Not much is known about the targeted resource. However, Rhino indicated that the Volans prospect was identified as a significant target with considerable development potential owing to its geological structure, which may enable more efficient oil extraction relative to previous discoveries within the block. Both wells will be keenly watched.

South Africa

In 2026, the exploration focus is expected to shift south towards the high-potential deep and ultra-deep water of the Orange Sub-basin straddling Namibia and South Africa, although the majority of the basin is in South African territory.

In February 2025, TotalEnergies announced plans to commence exploratory drilling in South Africa's Orange Sub-basin Block 3B/4B in 2026, targeting the Nayla complex in the northwestern part of the 17,500 sq km block, potentially the first exploration campaign in the basin offshore South Africa. While 24 prospects have been identified in the area, initial drilling will likely focus on the Fan S prospects and BushBaby.

Shell has also sought permission to drill in the Northern Cape Ultra Deep block (NCUD aka 274ER) between 2026 and 2027. The proposed wells will be drilled in water depths ranging from 2,500 m to 3,200 m, and while Shell has not disclosed specific targets, source rock maturity maps of the area indicate source rocks in the liquids window. TotalEnergies is also looking to drill in its Deep Water Orange Basin (DWOB aka 343ER) block, with environmental authorisation already secured. Although drilling in the southern portion of the block is anticipated for 2026 or 2027, the timeline is tentative, pending the completion of a sonar survey and the assignment of a drilling rig.

The deep-water and ultra-deep-water potential of the South Africa portion of the Orange Sub-basin, although untested, is derisked significantly by the discoveries in the north. This, combined with the favourable fiscal terms in South Africa, explains the rush for acreage in the country.

Angola

Angola's pragmatic approach to contractual flexibility and fiscal incentives has yielded results. The most recent well in Angola was drilled by Exxon within the Namibe Basin. The Arcturus 1 well did not result in a discovery, but SPG-CI understands that it intersected source rock. While the well was not deemed a success, its drilling is a result of the government's willingness to improve terms to attract exploration, in this case by matching terms on offer in the Namibian portion of the Namibe Basin, where ExxonMobil holds acreage adjacent to its Angolan blocks.

Elsewhere in Angola, near-term high-impact exploration is expected from Azule Energy within the ultra-deep-water Congo Fan Block 47. The company plans to drill the Kianda prospect towards the end of 2025. The well is significant for several reasons: it is targeting an ultra-deep-wa-

ter frontier play (water depth between 2,800 m and 3,200 m), it is only the second well to test the area out bound of the massive salt and it is likely targeting a significant resource. Chevron also has two blocks within a similar ultra-deep-water environment between 100 and 200 km south of the Kianda prospect. A commercial discovery could open the floodgates for exploration over more than 30,000 sq km.

Further south within the Namibe Basin, there are two potential high-impact wells which, if drilled, would constitute the fourth and fifth exploration wells drilled in the frontier basin. While there is no firm timeline yet, neither of the wells is expected to be drilled before late 2025 and will most likely be drilled only in 2026.

Azule Energy plans to spud a well within the Namibe Basin Block 28 targeting the Piambo prospect. The primary target is assumed to be Albian shelf-edge carbonate build-ups, while a secondary target could be Cenozoic turbidites/fans. The prospect is estimated to hold recoverable resources in excess of 250 MMbo.

TotalEnergies may also drill in this basin, but its plans seem less certain than Azule's. TotalEnergies is understood to have selected the prospect but very little is known about the well. The planned location is believed to be at the shelf edge in water approximately 1,000 m deep. It will almost certainly target recoverable resources of more than 250 MMbo.

São Tomé and Príncipe

In the third quarter of 2025, Shell plans to drill Falcano 1 in the Gabon–Douala Deep Sea Basin Block 10. Following the 2022 Jaca 1 well drilled by Galp and Kosmos Energy, which proved to be a working petroleum system, Galp was able to recover oil to the surface. Falcano 1 will likely target a Senonian play (Upper Cretaceous) with potential reservoirs in the distal turbidites originating from the adjacent Douala, Rio Muni and Gabonese coastal basins. The hydrocarbon source rocks should correspond to the Cenomanian–Turonian and Aptian–Albian marine shales, while the trap mechanism is expected to be primarily stratigraphic with facies changes and updip pinch-outs.

If the Shell well yields positive results, the virtually unexplored basin could draw attention similar to the Orange Sub-basin and São Tomé and Príncipe could emerge as the next exploration hotspot.

Shell has contracted Stena's DrillMax DS to execute the drilling operations. The exact location of Falcano 1 within Block 10 has not been publicly released, but the block covers 6,868 sq km in water depth ranging between 500 m and 3,000 m (most of it over 2,000 m deep).

Côte d'Ivoire

Africa's largest discovery of 2021, Baleine 1, was a surprise for many explorers, highlighting that basins with a previous exploration history should not be written off. This was confirmed in 2024 when Eni made another discovery with the Murene 1X well and announced it as a commercial discovery named Calao. Explorers have returned in force to the Côte d'Ivoire portion of the Côte d'Ivoire–Tano Basin with several wells planned.

Côte d'Ivoire will host at least one exploration well in 2025. Murphy Oil Corporation is expected to drill the Civette well in block CI-502 during the fourth quarter and plans to follow it with two more, Kobus and Caracal, in early 2026.

The Civette well has estimated resource potential ranging from 440 to 1,000 MMboe, while Kobus and Caracal's resource potentials are estimated between 410 MMboe to 1,260 MMboe, and 150 MMboe to 360 MMboe, respectively.

Further discoveries resulting from upcoming wells could cement Côte d'Ivoire's status as a major African E&P player.

MSGBC Basin

The 900,000 sq km basin covers offshore acreage both on and offshore from Mauritania in the north to Guinea Conakry in the south. Over 9.5 Bboe were discovered between 2014 and 2019 in four clusters: GBA (Greater Bir Allah), GTA (Greater Tortue Ahmeyim), Sangomar and Yakaar-Teranga. There were also notable failures, such as Requin Tigre, a large basin floor fan prospect drilled by Kosmos in 2017. These dampened exploration excitement, with some super majors (ExxonMobil, Shell and To-

talEnergies) deciding to exit the basin and relinquishing their acreage positions.

Others, like Woodside, Kosmos, and BP, have focused activity on field development (Sangomar for Woodside and GTA for Kosmos/BP) and stopped exploring.

As of mid-2025, there are no active exploration projects in the MSGBC Basin. The recent failures for Shell (Panna Cotta well in Mauritania in 2023) and Apus Energy (Atum 1 well in Guinea Bissau in 2024) have impeded interest revival in the basin. That said, the basin is still viewed as immature and heavily underexplored.

Perhaps it is worth considering that the resource addition speed in the basin between 2014 and 2019 is comparable to that of Guyana and to what has been achieved in Namibia since 2022. The basin most certainly holds significant potential.

Mozambique

The frontier Zambezi Delta is the last great African delta that has yet to produce hydrocarbons. It covers almost 240,000 sq km and hosts only 13 wells — seven onshore and six offshore.

In 2023, Eni drilled the deep-water Raia 1 high-impact exploration well — the first deep-water well in the basin. The well is said to have targeted a prospect potentially holding some 600 Mmbo in Eocene deep marine clastics of the Cheringoma formation. The well is believed to have been unsuccessful, and the Aquadrill West Capella drillship plugged and abandoned it without conducting testing operations.

Prior to the drilling of Raia 1, there were several exploration plans for the Zambezi Delta. However, after Eni's dry well, interest waned, leaving significant tracts of the basin unlicensed. The Zambezi Delta still represents one of Africa's great frontier basins, where potential exists for those willing to accept the risks and rewards of being a first mover.

Libya

One of the oldest and most mature hydrocarbon-producing nations in Africa, Libya still plays host to frontier offshore acreage. BP and Eni will in Q4 2025 spud the high-impact Matsola 1 ultra-deep-water well targeting gas. The NOC has suggested that gas could be directed into the domestic market, although there is spare capacity on the GreenStream pipeline, which enables Eni to send gas to Sicily and onward into the Italian market. Another alternative might be for Libya to sell gas into the Egyptian market, albeit an option that will require further coastal infrastructure to reach infrastructure in Egypt's Western Desert.

Success at Matsola 1 would open the deep and ultra-deep-water portion of the Sirte Basin to further exploration and derisk the Gulf of Sirte Basin. BP and the NOC signed in July an MOU to explore redevelopment of the mature giant Sarir and Messla oilfields.

Egypt

As Africa's oldest commercial hydrocarbon-producing country, Egypt still holds frontier potential. This was proven in early 2025 by Exxon's crucial discovery of gas with the Nefertari 1 new-field wildcat in the frontier Herodotus Basin–North Marakia offshore block. Egypt is a country where the demand for gas far exceeds internal production capacity and, thus, almost any gas discovery has an obvious market. Geopolitical events also have a significant impact, as was evident from the recent uncertainties in the Middle East. For a time, almost 1 Bcf/day was shut-in in Israel, which exacerbated the supply shortfall in Egypt.

The Nefertari 1 discovery, which could be in the range of 3 to 4 Tcf is facing challenges with commerciality, despite the fact that it represents a promising play and a basin opener. It was the first well of a three-well exploration campaign by ExxonMobil in the East Mediterranean. The highly anticipated Elektra 1 well in Cyprus's Block 05 was drilled in early 2025 and abandoned as a non-commercial gas discovery. The third well, Pegasus 1, was spud in late May within the Cypriot Block 10 with reports of a significant gas find.

The Herodotus Basin covers over 78,000 sq km and thus far has been tested five times, resulting in two discoveries — a technical success rate of 40%. The basin will likely continue to attract exploration attention on both the Egyptian and Cypriot side of the boundary.

1.3.2. Key near to medium-term projects

Table 5. Top upcoming projects by net present value and country

Country	Project Name	Operator	Start Date	At NPV 10% (MMUSD)	Capital dev total (MMUSD)	Estimated peak production Mbbl/d, MMcf/d	Comments
Congo	Litchendjili Marine (Oil)	Eni	Jul, 2026	8,467	1,296	51	Tieback project
Libya	NC98 Block (Oil/Gas)	Waha Oil Co	Jul, 2028	7,578	2,462	80 / 645	Wellpads to main production facility. FID pending
Cote d'Ivoire	Baleine Phase 3 (Oil)	Eni	Jan, 2029	3,260	5,143	100	Progressing through front end engineering and design (FEED) with FID expected mid-2025
Nigeria	ANOH Gas Development	Seplat, Renaissance	May, 2025	2,794	290	595	FID taken. Launch of the ANOH gas processing plant expected in 2025
Angola	Agogo Phase 3 (Oil)	Azule Energy	Jan, 2026	2,630	4,285	110	FID taken
Uganda	Tilenga Phase 1 (Oil)	CNOOC, Total	Jan, 2028	1,892	4,752	192	Export pipeline still under construction. Final investment decision (FID) on the Kabaale-Buseruka refinery expected in 2025
Algeria	Bourarhet Nord / 242 (Oil)	Sonatrach	Jan, 2030	1,816	887	43	FID expected in 2026
Mauritania	Greater Tortue - Phase 2 (Gas)	BP	Jan, 2028	1,378	2,678	180	Greater Tortue Ahmeyim (GTA) phase 1 in the Mauritania-Senegal unitized zone came on stream on December 31, 2024
Equatorial Guinea	G-13 (Asam) (Oil)	Kosmos Energy	Jan, 2030	968	842	32	FID pending
South Africa	Virginia Gas Project Phase 2	Tetra4	Jan,2028	897	153	N/A	FID Pending
Cameroon	YoYo (Gas)	Chevron (Noble Energy)	Jan, 2028	518	673	286	FID pending
Morocco	Tendrara Phase 2 (Gas)	Mana Energy	Jun, 2028	430	283	27	FID pending
Gabon	Igongo 1 (Oil)	Perenco	Jan, 2028	408	38	7	FID pending
Egypt	Tennin (Gas)	Mediterranean Gas Co	Jan, 2029	291	1302	69	FID pending

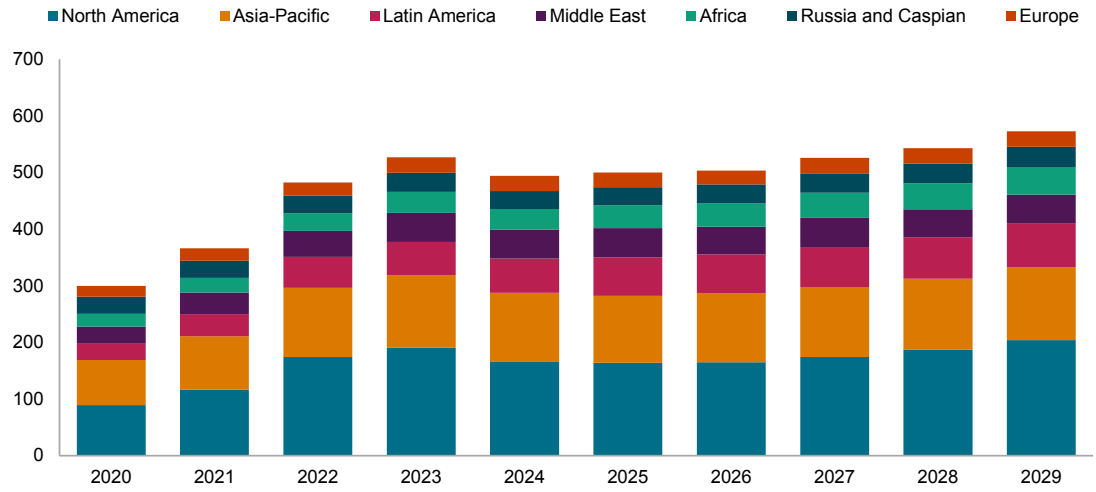
Source: S&P Global Commodity Insights

1.3.3. E&P capital spending

Global E&P capital spending (capex) is expected to reach ~$500 billion in 2025, with Africa accounting for $40 billion. Upstream capital spending has been on the rise in the continent over the past three years, recovering from the pandemic-induced lows of 2020. However, globally, growth rates have materially lagged increases in upstream cash flow, as companies have prioritized financial objectives over reserve replacement and production growth. This cautious approach reflects a broader trend within the industry globally, where operators are focusing on improving balance sheets and returning capital to shareholders rather than aggressively pursuing new E&P opportunities.

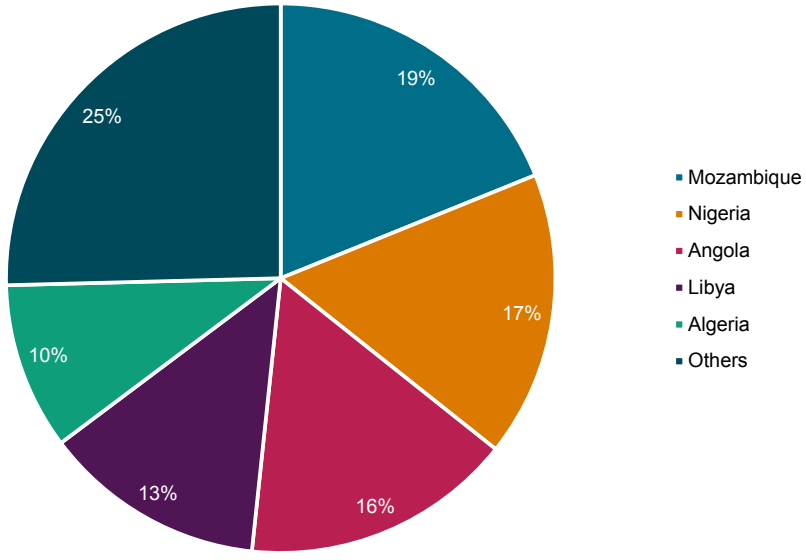
In 2026, global E&P capital spending is expected to reach ~$504 billion, with Africa having $41 billion. This anticipated increase in capex represents a marked recovery over the expenditure levels of 2023 and 2024, signalling a renewed interest in investment in the African oil sector. Key producing nations such as Nigeria, Angola and Libya are expected to attract a significant share of these investments, driven by their substantial hydrocarbon reserves and established production infrastructure. Political stability and favourable regulatory environments will be crucial to attract further investments in these regions.

Figure 22. E&P capex 2020-2029 split by regions ($ bn)



As of July 2025
Source: S&P Global Commodity Insights

Figure 23. E&P capex by countries (2025-2029)

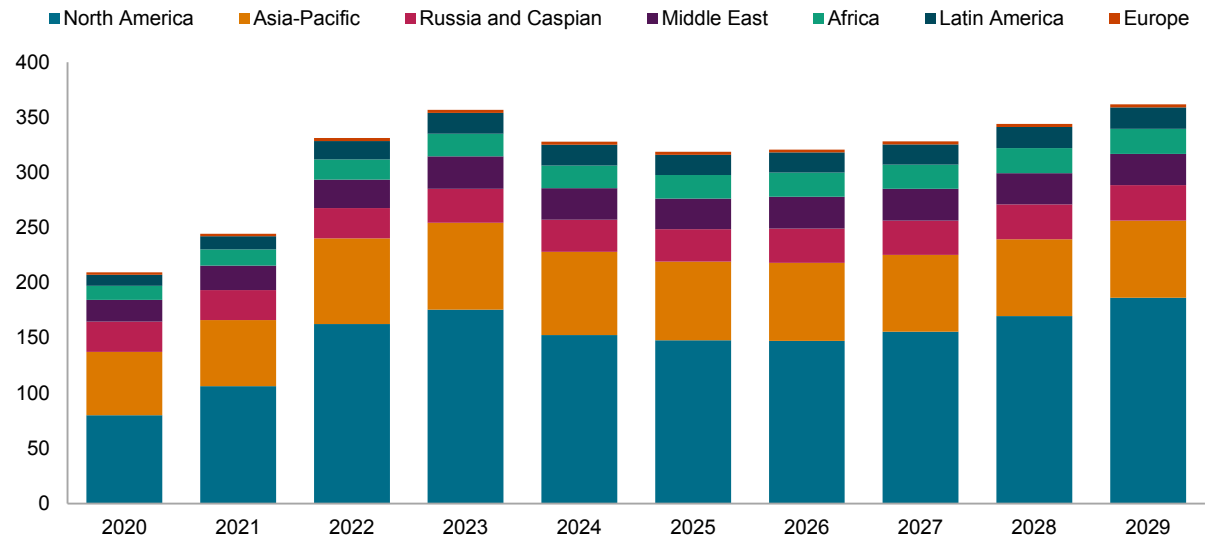


Onshore spending in Africa is expected to remain relatively stable. It is projected at ~$22 billion in 2026. This reflects a cautious approach among operators as they manage assets and optimise production from mature fields. Companies are likely to focus on enhancing efficiencies and minimising costs rather than pursuing aggressive expansion in onshore operations.

In contrast, offshore spending has experienced significant growth, with estimates of ~$19 billion in 2026. Growth will continue through the forecast rising at a compound annual growth rate of 6.6%. Although Africa represents a small portion of the global offshore capex, the region will have stronger growth compared to other regions, highlighting a renewed interest in offshore exploration and production activities.

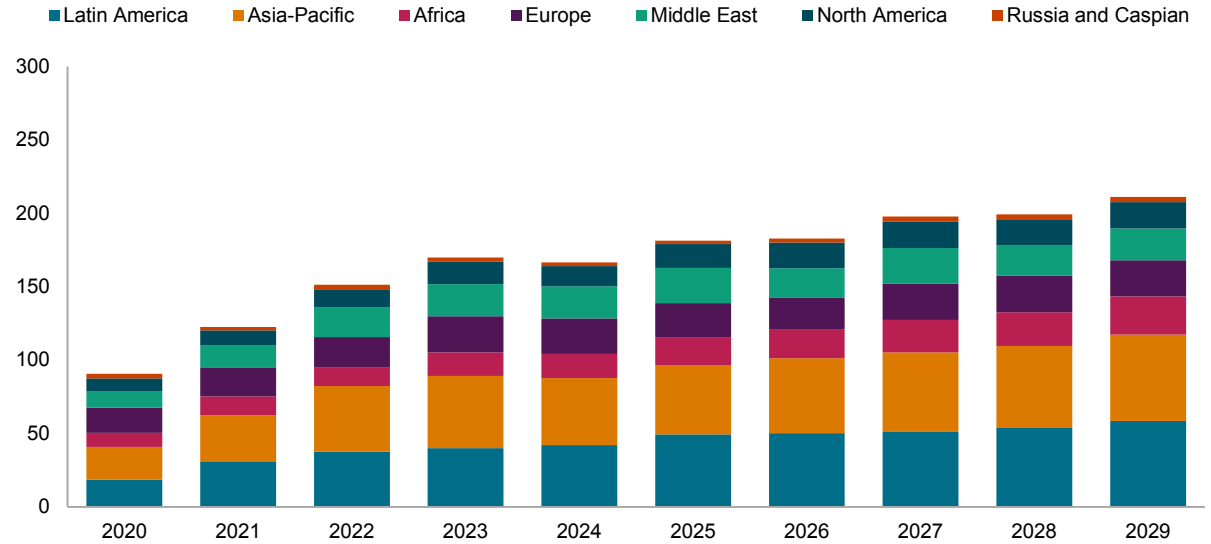
The surge in offshore spending can be attributed to several factors, including advances in technology, favourable geological conditions and the potential for substantial discoveries in deep-water and ultra-deep-water regions. Companies will continue investing in projects, positioning themselves to capitalize on favourable project economics in the African offshore.

Figure 24. Onshore capex 2020-2029 split by regions ($ bn)



As of July 2025
Source: S&P Global Commodity Insights

Figure 25. Offshore capex 2020-2029 split by regions ($ bn)



As of July 2025
Source: S&P Global Commodity Insights

1.3.4. Supply chain dynamics

The African upstream supply chain has been traditionally dominated IOCs who bring in foreign expertise, technology, and capital. However, in recent years, there has been a notable shift: major IOCs are divesting from mature or non-core African assets but are opening the door in other more frontier areas. There is more space for regional independents, NOCs, and new entrants to play a larger role. This trend is particularly evident in countries like Angola and Nigeria, where indigenous companies are increasingly taking over operatorship of key assets, and in emerging markets such as Namibia and Tanzania, where new discoveries are attracting global attention

The change in operatorship is in line with the regional focus on local content which is a defining feature of Africa's upstream supply chain. The impact of local content on the supply chain is multifaceted. On the positive side, these policies have spurred the growth of indigenous service providers, created employment, and encouraged skills development. In Ghana, for instance, local content rules have led to over 7,000 direct jobs and the emergence of new businesses servicing the oil industry. These efforts are supported by capacity-building programs, local content funds, and enterprise development centres that provide training and market linkages for small and medium-sized enterprises (SMEs).

However, local content implementation also faces significant challenges. Many African countries lack the industrial base, technical skills, and financial resources needed to fully meet local content targets. Indigenous companies often struggle to compete with established international service providers due to limited access to capital, technology, and management expertise. In Ghana, for example, local firms have captured only about 7% of in-country spending in the upstream sector, with the bulk of contracts still awarded to foreign companies or joint ventures. There are also concerns about the effectiveness of technology transfer, as multinational operators may be reluctant to share proprietary know-how, and about the risk of "fronting"—where local firms act as nominal partners without substantive participation.

From a supply chain perspective, local content requirements can add complexity and cost, particularly in the early stages of policy implementation. Both international and indigenous operators may face higher procurement costs, longer lead times, and the need to invest in training and quality assurance to bring local suppliers up to international standards. Nonetheless, as local industries mature, there is potential for greater supply chain resilience, reduced import dependence, and the development of regional hubs for oilfield services and equipment manufacturing.

Costs in Africa have reset after the pandemic. Looking ahead in 2026, the African Upstream Capital Cost Index (UCCI) will likely rise by 3%. From a project economics standpoint, upstream projects Africa has the second-lowest global break-even cost at $47.89/b and costs were relatively stable over the course of 2024. Moving into 2025 and 2026, costs will remain relatively stable, but the region is highly dependent on oil export revenue. The impact of US tariffs will likely be mitigated by alternative sourcing. Lower oil and gas prices would have more of an impact and could slow new greenfield projects as countries my struggle to attract financing in a lower oil price scenario.

Africa's upstream supply chain is likely to become more diversified and locally integrated, especially as governments refine their local content frameworks and as new players enter the market. The success of these policies will depend on sustained investment in education, infrastructure, and enterprise development, as well as on effective collaboration between governments, IOCs, NOCs, and local businesses.

Chapter 02

2. Oil markets - Midstream and downstream outlook

This chapter provides an overview of the oil markets, and an outlook on the midstream and downstream oil industry in Africa.

The continent's population and economy are expected to grow at a fast pace, driving demand for refined products.

Africa's refined product demand is projected to rise from ~4 million barrels per day (bbl/d) in 2024 to over 6 million bbl/d by 2050, a 50% increase.

The continent accounts for less than 5% of global oil-product demand despite representing 18% of the world's population.

Sub-Saharan Africa has by far the lowest per capita oil demand in the world.

Significant oil trading activity now takes place around Africa, mostly to sell crude oil and purchase/import refined products. However, there is considerable opportunity to improve the efficiency of this and increase the value to Africa.

More than $20 billion in investment is required in downstream infrastructure by 2050 to support the increasing need for refined product imports and distribution.

The commissioning of the Dangote refinery is hugely significant for the Atlantic Basin's oil trade, but it barely makes a dent in Africa's growing requirement for imported refined products.

Smaller projects like Angola's Cabinda refinery (30,000 bbl/d) and Uganda's Hoima refinery (planned 60,000 bbl/d) are in development but will not close the supply gap.

LPG presents a cleaner, scalable alternative to biomass and coal—drastically reducing indoor air pollution, deforestation, and emissions while enabling healthier and more sustainable cooking across African households.

Despite these benefits, LPG consumption in Africa remains low, under 20 million tonnes per year, and only modest growth is expected, highlighting the need for policy and infrastructure support.

2.1. Oil demand outlook

Crude oil demand in Europe and North America is already around 20 years past its peak. In many other regions around the world, the demand is expected to peak in the next few years. In contrast, Africa's oil demand is expected to continue growing to 2050 and beyond, as per capita consumption is low and the population and GDP is increasing significantly.

Figure 26. Africa Population forecast

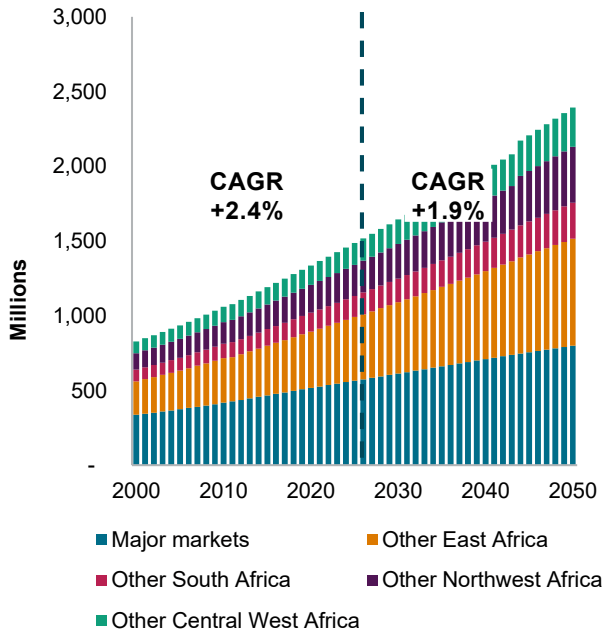
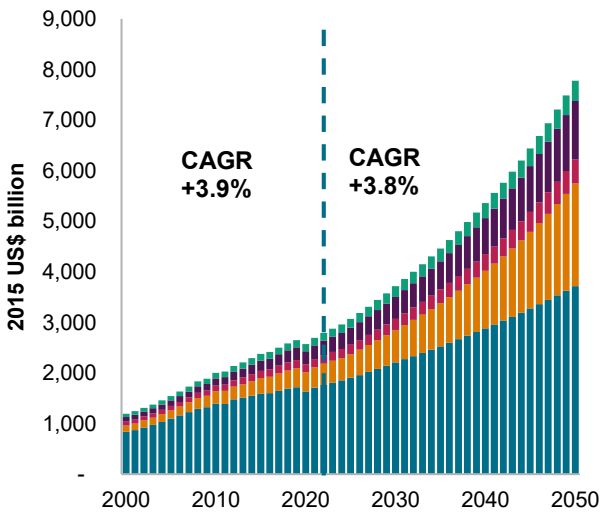


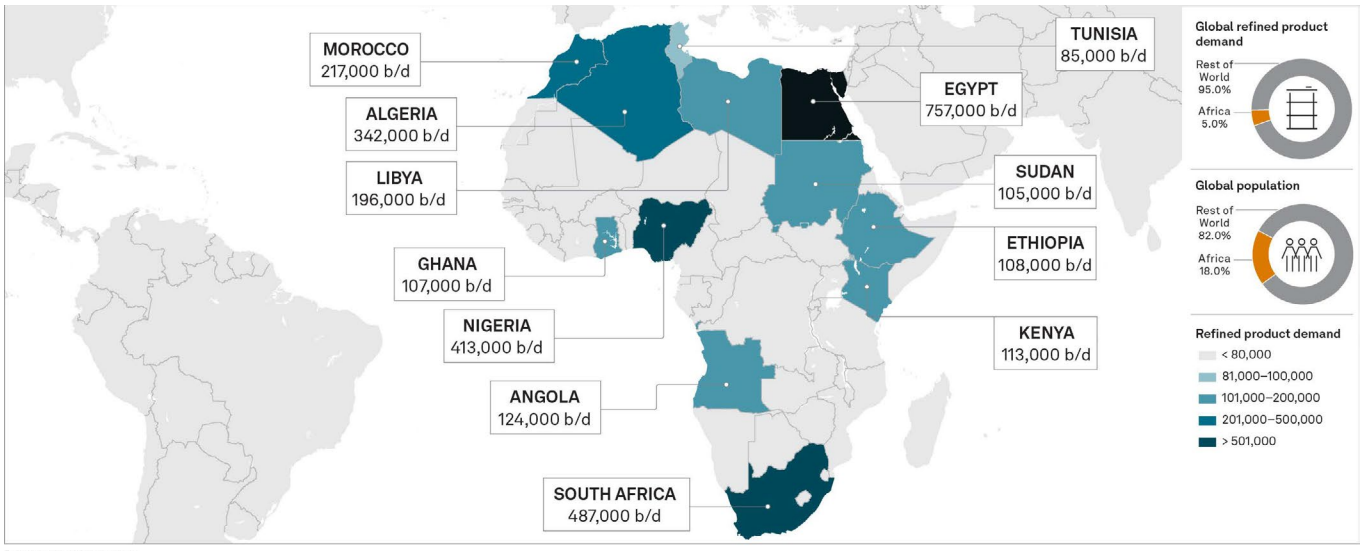
Figure 27. Africa GDP forecast



Africa's GDP growth is projected to remain robust over the long term and reach $7.8 trillion by 2050, which is nearly three times the current level. Smaller, less developed markets will be the main drivers of this growth.

The continent accounts for less than 5% of global oil-product demand and approximately 3% of the world's GDP, despite representing 18% of the world's population. Sub-Saharan Africa has by far the lowest per capita oil demand in the world, which means there is potential for growth.

Figure 28. Demand for refined products in 2024 — Africa

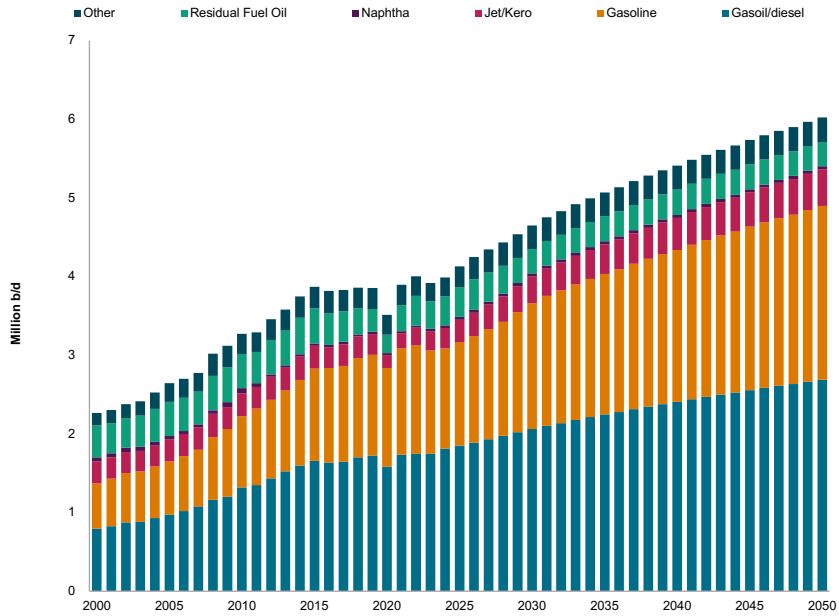


Data compiled May. 23, 2025.
Source: S&P Global Commodity Insights: IC-250994-01.

Africa's population is projected to increase by more than 930 million and reach nearly 2.4 billion by 2050. The continent is expected to have 25% of the world's population and account for 63% of global population growth through 2050.

The population increase, and economic development is expected to drive an increase in demand of refined products from ~4 million bbl/d in 2024 to over 6 million bbl/d in 2050.

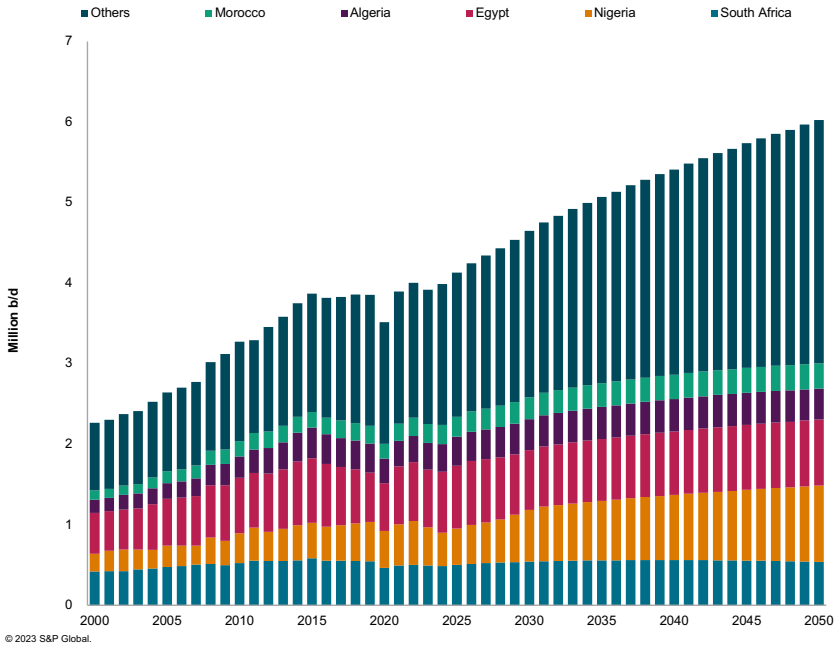
Figure 29. Refined product demand (product)



Data compiled May 2025.

Source: S&P Global Commodity Insights.

Figure 30. Refined product demand (country)



Data compiled May 2025

Source: S&P Global Commodity Insights.

Africa is expected to be the main driver of global **gasoline** demand growth over the long term, partially offsetting declines in the Organisation for Economic Co-operation and Development (OECD) markets and China. Gasoline consumption in Africa is projected to exceed 2.2 MMbbl/d by 2050, largely driven by Nigeria and smaller, less developed markets.

Although Nigeria is already by far the largest contributor to gasoline demand in Africa, its per capita consumption remains relatively low. Besides Nigeria, gasoline demand in the continent's main markets—Algeria, Morocco, Egypt and South Africa—is expected to stagnate from the early 2040s. In these markets, fuel-economy factors and the penetration of alternative vehicles, particularly CNG/LPG cars in Egypt and Algeria and electric vehicles in South Africa, will curtail demand over the long term.

Africa's **diesel/gasoil** consumption will increase by about 880,000 bbl/d by 2050, making it the biggest growth region for the product, ahead of Latin America. Diesel/gasoil consumption in the continent is expected to grow nearly 50% by 2050, reaching just below 2.7 MM bbl/d. In addition to private and commercial road transport, diesel/gasoil demand will be driven by heightened activity in the extractive sectors, as investments pick up steam in critical minerals for the energy transition, such as lithium, cobalt and nickel. Mineral resource-rich countries in Central and Southern Africa, particularly Angola, the Democratic Republic of Congo, Zambia and Zimbabwe, are projected to be significant drivers of regional diesel/gasoil demand growth. Notably, increased investment in the Copperbelt region, set against the backdrop of the Lobito Corridor project, is expected to play a crucial role in driving regional diesel/gasoil demand growth.

Jet fuel and kerosene demand is expected to exceed pre-Covid levels in 2025 as inter- and intra-regional air travel regains momentum. Demand for jet fuel and kerosene is forecast to surpass 280,000 bbl/d in 2025. The consumption is projected to expand 65% over the long term, reaching 465,000 bbl/d by 2050, on the back of growing tourism and business travel across the continent. Population expansion, growing middle class and improvements in the business environment in the region will drive growth in passenger travel and freight. Additionally, investments in infrastructure, such as Ethiopia's mega airport project 40 km southeast of Addis Ababa, along with efforts to enhance regional connectivity, such as the African Continental Free Trade Area, are expected to facilitate increased air travel. The uptake of sustainable aviation fuel in Africa is expected to reach 3% of jet fuel demand, versus 18.6% on a global level.

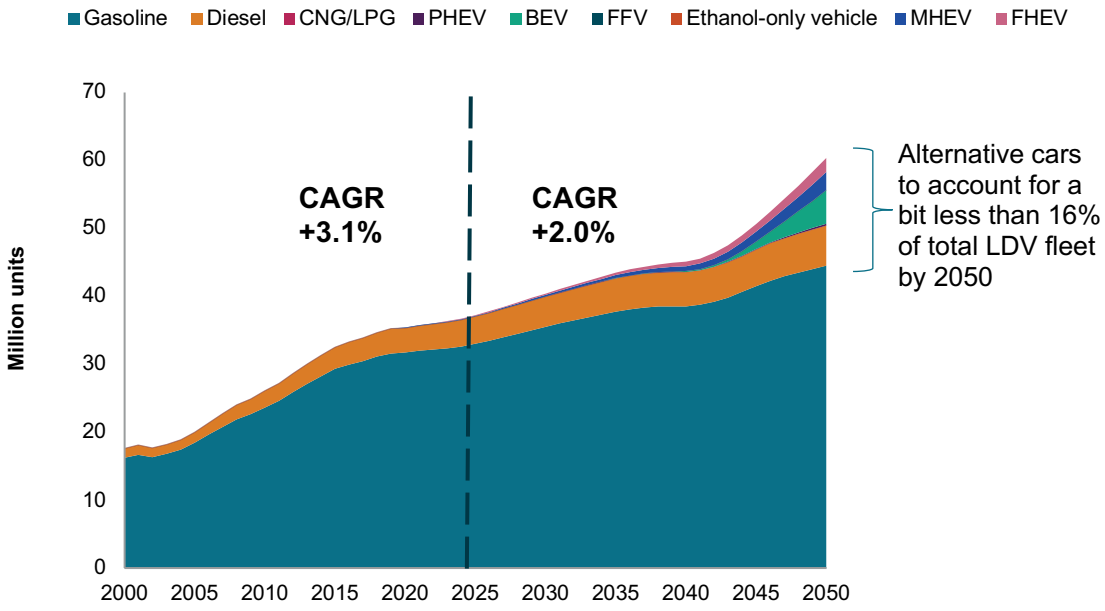
Africa accounts for only a small fraction of global **naphtha** demand, primarily due to the lack of large-scale petrochemical industries. Egypt, home to one of Africa's most advanced and significant petrochemical industries, is the region's largest naphtha consumer, accounting for more than half of the continent's demand. Potentially, there is an upside to naphtha demand in Egypt as the country is eying the development of naphtha steam cracking capacity. But the project currently is still in its early stages of development..

Residual **fuel oil** is the only product for which demand is forecast to decline over the long term. The product's share in Africa's demand mix will decrease from 9% in 2024 to 5% by 2050 as all major user segments, including bunkering and power generation, progressively switch to comparatively cleaner fuels.

Spotlight on Transportation Sector

The population increase, and economic development would also raise the number of light-duty vehicles and trucks on the roads in Africa.

Figure 31. Africa — Light Duty Vehicle fleet outlook



Data compiled May 2025.

Source: S&P Global Commodity Insights.

Abbreviations: CNG/LPG =compressed natural gas/ LPG; PHEV=Plug-in Hybrid Electric vehicle; BEV=battery electric vehicle FFV=Flex-fuel vehicle; MHEV=Mild hybrid electric vehicle; FHEV=Full hybrid electric vehicle

Vehicles with alternative powertrains, particularly electric vehicles (EV), would be launched in Africa. But this will happen at a slower pace than what was seen in Europe and North America because of limited electrical power supply and vehicle charging infrastructure.

African oil demand in other transportation and industry sectors is also expected to continue growing to 2050 and beyond.

2.2. LPG demand outlook

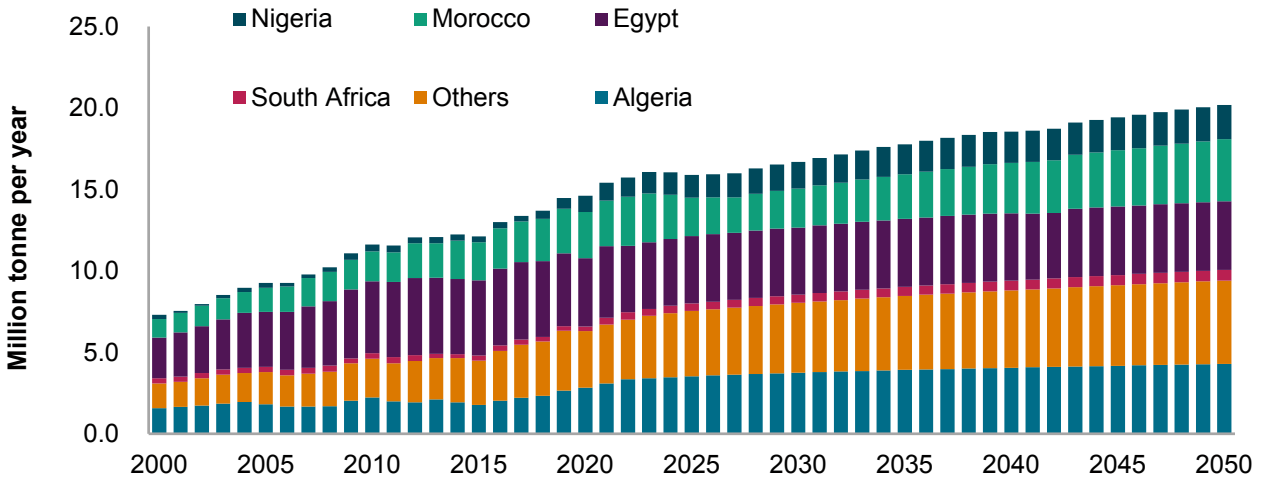
Today, nearly 2.5 billion people (one-third of the global population) are without access to clean cooking solutions, including over 900 million in Africa. In remote villages and low-income urban areas, many families use traditional biomass fuels such as coal, paraffin, wood and dung, which emit toxic fumes and contribute to climate emissions and deforestation.

To improve this situation, LPG is identified as the most abundant and cleanest available option for many African households. Its ease of transport and storage makes it a practical choice, especially in regions where infrastructure for electricity and solar power is still underdeveloped. As an example, switching to LPG from firewood as a cooking fuel leads to many benefits of each African household, e.g.:

- Reducing indoor air pollution from particulate matter by 98% – significantly decreasing the number of premature deaths and health conditions caused by household air pollutants.
- Saving 1.2 million hectares of forest per year – equivalent to nearly one-quarter of current global deforestation.
- Decreasing emissions of black carbon (or soot), a powerful greenhouse gas (GHG), by 117 million tonne of CO_2 equivalent per year – nearly offsetting Nigeria's annual CO_2 emissions.
- Decreasing 279 million tonne of CO_2 per year – roughly equivalent to the annual emissions from mid-sized countries such as Taiwan and Malaysia.

Implementing the switch from firewood to LPG presents both challenges and opportunities for Africa, requiring the development of regulatory frameworks, consumer financing plans, and the construction of necessary infrastructure. These efforts could result in significant increases in LPG consumption across the continent.

Figure 32. LPG consumption in Africa



As of June 2025
Source: S&P Global Commodity Insights

The figure above represents S&P Global Commodity Insights current LPG outlook assuming modest improvements in LPG perception as a more sustainable fuels and limited investments to support latent LPG consumption growth in Africa. However, if the latent demand for LPG is uncovered, as evidenced by positive developments in countries such as Kenya, Nigeria, Cote d'Ivoire, Africa could see LPG demand growing much faster and more than doubling the current forecast by the end of the outlook period..

2.3. Refinery projects in Africa

The operationalisation of Nigeria's 617,000 bbl/d Dangote refinery, by far Africa's largest refinery, marked a watershed moment in the continent's refining landscape. The refinery is also larger than any refinery in Europe.

Dangote refinery startup and market impact

Following a commissioning ceremony in May 2023, the much-anticipated refinery began test runs in January 2024. Since then, it has achieved several milestones, including its first middle distillate sales in April 2024 and the production of initial gasoline quantities in September 2024. Impressively, these have been without any major technical issues. By the end of 2024, the refinery was operating at about half its capacity.

The refinery's impact is already being felt in as well as beyond Nigeria. It is currently exporting gasoline and diesel to neighbouring West African countries and jet fuel to Europe and the Americas. Also, Nigeria's gasoline imports from Europe have dropped.

The refinery had aimed to reach full operating capacity over 2025, but in early 2025, it appears to have struggled with the commissioning of the residue fluid catalytic cracking unit (RFCC), which required unplanned maintenance. The refinery's success in meeting its 2025 goals will now heavily depend on its ability to effectively navigate the complex aspect of the startup process.

Another looming question is whether there will be enough availability of crude oil feedstock. In 2024, the refinery imported close to 20% of its total crude oil intake from the US as it struggled to obtain sufficient volume from domestic sources. As the refinery ramps up production in 2025, it will require an increasing volume of crude oil feedstock.

That said, we now expect gasoline production at the refinery to hit full gear in the first quarter of 2026, when we anticipate the RFCC unit to reach full capacity.

Other African refinery projects

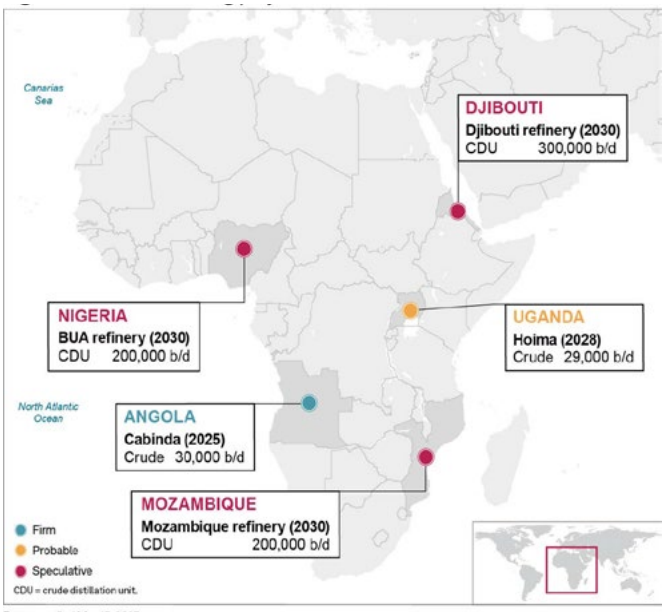
On a smaller scale, 2024 also saw the commissioning of Ghana's 40,000 bbl/d Sentuo refinery as well as the completion of expansion works at Egypt's Midor Amiriyah refinery, which raised the facility's capacity to 160,000 bbl/d from 100,000 bbl/d.

In the short-to-medium-term, though, only a limited number of refinery projects are expected to be set up, as scarce funding and competitive imports stifle greenfield development.

Angola's Cabinda refinery is the only greenfield refinery project expected to come onstream in Africa in 2025. Phase 1 of the project, which involves a refining capacity of 30,000 bbl/d, is nearing completion, with the plant expected to commence operations in the second half of 2025. Phases 2 and 3, slated for completion ~18 months after Phase 1, will add an additional 30,000 bbl/d.

Also, after facing several setbacks, Uganda's Hoima refinery project appears to be back on track. In March 2025, an implementation agreement was signed for its development, thereby moving the project closer to construction. However, the first phase of the project, with a capacity of 30,000 bbl/d of a planned total of 60,000 bbl/d, is expected to be completed only in 2028 at the earliest.

Figure 33. Significant African refining projects over 2025-2030



Data compiled May 15, 2025.
Source: Upstream Content, a product of S&P Global Commodity Insights: 250940-01.

Refinery project feasibility

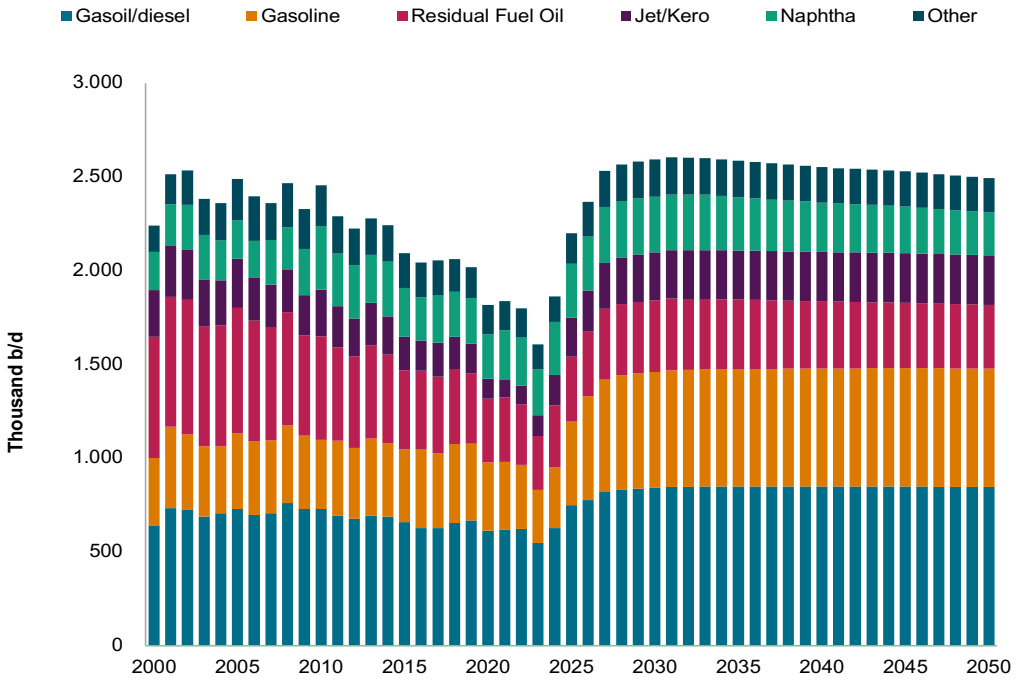
For a refinery project to be viable, it either needs to be economically attractive or receive significant state support, justified based on domestic refined product supply security, and/or dovetail into the narrative of supporting the domestic economy, or ideally all of these. In order to be economically attractive, it is almost certain that a new refinery project needs to be located in proximity to a crude oil production concession and refined product demand centres. If this is the case, then the economics of the refinery construction and operations are supported by savings that would occur from no longer having to transport locally produced crude oil to distant markets and no longer having to transport refined products from distant markets to meet domestic demand.

Numerous projects have been announced in various African countries but seem unlikely to materialise, notably because of weak economics and, therefore, a lack of concrete financing solutions. Also, considering the growing reluctance from Western financiers to back fossil fuel projects, future financing will likely need to be sourced domestically or from partners in the Middle East and Asia.

Notable large-scale projects that have been announced include a 300,000 bbl/d plant in Djibouti, a 200,000 bbl/d plant in Mozambique's Vilankulo district and a 200,000 bbl/d refinery in Nigeria, spearheaded by local conglomerate, BUA Group. However, these projects remain highly speculative at this stage.

In this backdrop, a soon-to-be-launched African financing institution, the African Energy Bank—a partnership between Afreximbank and African Petroleum Producers Organization—aims to fund oil and gas projects on the continent. The bank aims to start operations in the second half of 2025.

Figure 34. Refinery production by product (thousand bbl/d) in Africa



As of June 2025
Source: S&P Global Commodity Insights

However, SPGCI does not expect any other refinery project of the size of Dangote in its current outlook for Africa. And with only a few other refinery projects starting and a significant amount of capacity closures over 2005-2023, we expect refinery production in 2030 to be barely above what it was in the early 2000s. Over 2000-2030, though, Africa's refined product demand is expected to more than double to 4.6 million bbl/d from 2.3 million bbl/d, putting a huge strain on the continent's refined product import and distribution infrastructure.

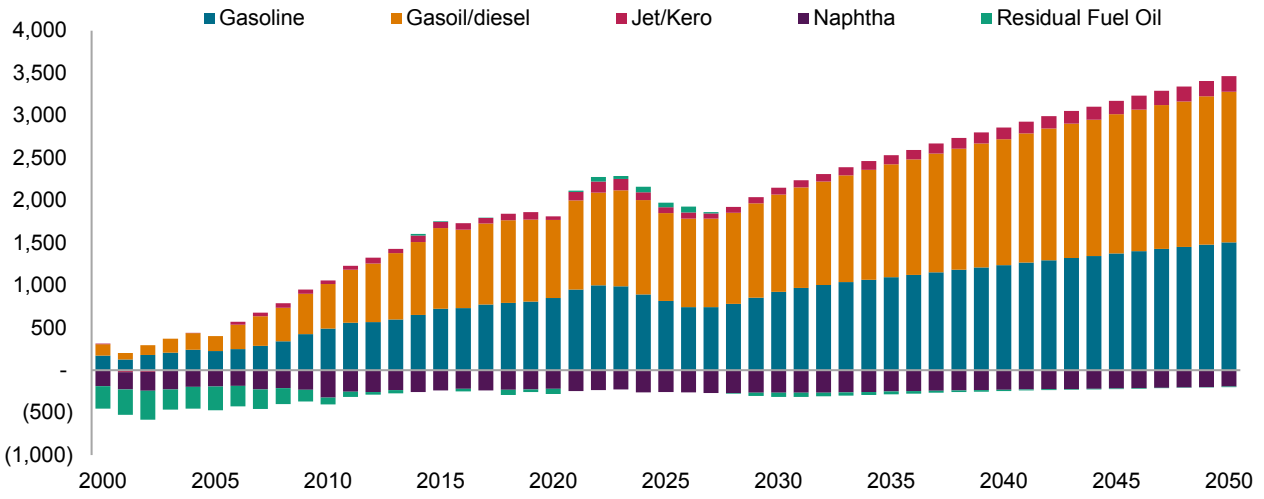
2.4. Refined products trade balance

Despite the size of the Dangote refinery, its commission will barely cause an impact in Africa's rapidly growing import of refinery products.

Africa will remain short on gasoline, gasoil and jet fuel throughout the forecast period. Also, domestic residual fuel oil production will stay roughly equal to consumption, resulting in limited net exports, while the continent will maintain a positive, albeit slightly diminishing, net balance for naphtha.

And while gasoline and gasoil net imports are expected to reduce considerably in 2027, supported by output from the Dangote refinery and, to a lesser extent, from other greenfield projects such as the soon-to-come-online Cabinda refinery in Angola, net imports for both products will widen over the long term against the backdrop of strong growth in demand and limited additions to the refining capacity. Gasoil net imports are projected to reach just under 1.8 million bbl/d by 2050 whereas gasoline net imports are forecast to exceed 1.5 million bbl/d.

Figure 35. Africa refined product net trade by main product (thousand bbl/d)



As of June 2025
Source: S&P Global Commodity Insights

2.5. Trading inefficiency and opportunity

Challenges and opportunities in Africa's oil trade

Many African countries, especially in West and North Africa, are rich in crude oil reserves and continue to export substantial volumes to international markets—mainly Europe, Asia and the Americas. However, despite being crude oil producers, most African countries lack adequate refining capacity, which forces them to import refined products.

This paradox has led to a busy trading flow, with tankers constantly shipping crude oil out of the continent and refined products into the continent. This makes Africa a hub in global oil shipping routes. The trading ecosystem includes international oil companies, NOCs, commodity traders and shipping firms.

However, several elements of this are not efficient:

- Instead of capturing value through refining, storage and downstream infrastructure, African nations often export low-value crude oil and import high-value refined products, losing out on job creation, skills development and industrial growth. There is also little regional integration in oil trade; most countries trade with Europe or Asia instead of their neighbours, missing out on building a more resilient intra-African energy market, though the African Continental Free Trade Area (AfCFTA) may improve this situation.
- Also, importing refined products is more expensive than refining domestically. African countries pay a premium for transport, insurance and intermediary fees and markups

- However, many African refineries are outdated or non-operational due to poor maintenance, corruption or policy failures. As a result, domestic crude oil is not processed locally, wasting potential value addition.
- Heavy reliance on imports puts pressure on local currencies as well, as refined product purchases are made in USD, contributing to economic challenges.
- Dependence on imports for refined products exposes countries to global supply disruptions, shipping delays and price volatility, especially during crises (e.g., Covid-19, Suez Canal blockage, geopolitical uncertainties).
- Also, while Africa's oil trading markets are dynamic, these are not yet efficient, owing to structural imbalances, infrastructure gaps and dependency on external players.

Addressing these inefficiencies could unlock significant economic and strategic benefits for the continent. Also, investment in refining capacities, such as Dangote in Nigeria or government-led upgrades in Angola, Egypt and South Africa, can gradually reverse the trade imbalance. In addition, policy reforms, better regulations and regional cooperation are needed to make African oil markets more efficient, self-reliant and inclusive. Finally, energy transition plans and growing interest in renewables may also reshape how Africa approaches energy security and the oil trade over the next two decades.

2.6. Infrastructure and investment considerations

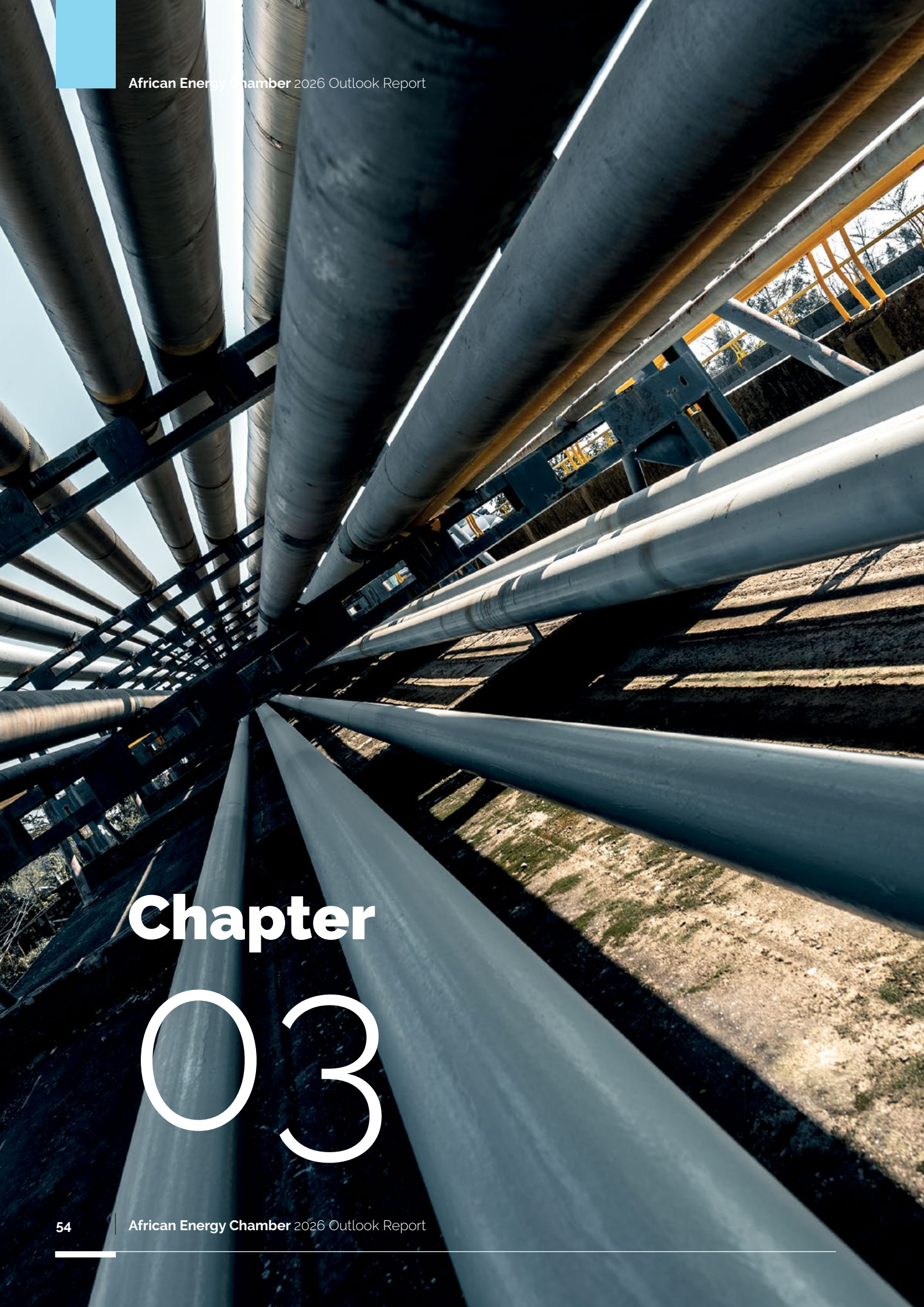
Regional infrastructure has struggled to handle existing product flows. In East Africa, for e.g., shippers at Beira, Dar es Salaam and Mombasa — the key entry ports for refined products — are experiencing significant demurrage, often stretching beyond 20 or 30 days. Onshore, the situation is challenging as well. Pipeline systems linking Beira in Mozambique to Harare in Zimbabwe, Dar es Salaam in Tanzania to Indeni in Zambia, and Mombasa on the Kenyan coast to Eldoret in western Kenya are all constrained, resulting in significant product volumes to be moved inland along these corridors by road. There are proposed projects to expand pipeline capacities, which would be instrumental for petroleum products supply and distribution, as demand continues to grow.

The importance of infrastructure projects should not be underestimated. Infrastructure development serves as the backbone of economic transformation, and Africa's growth potential remains significantly constrained by critical gaps in cross-border connectivity, particularly in energy, transportation, and storage systems. The continent's, unfortunately often somewhat fragmented, approach to infrastructure investment has resulted in isolated national projects that fail to capture the economies of scale and network effects essential for supporting growth. When African nations collaborate on regional infrastructure initiatives, they unlock transformative growth opportunities that individual countries cannot achieve alone. The African Continental Free Trade Area (AfCFTA) has already demonstrated the economic potential of regional integration, and extending this collaborative spirit to infrastructure development could catalyze industrial growth, reduce operational costs, and attract foreign investment. By harmonizing regulatory frameworks, pooling financial resources, and prioritizing projects with regional impact, African governments can transform infrastructure from a barrier into a catalyst for continental prosperity.

Also, the continent's landlocked countries, which are particularly vulnerable to disruption, maintain very limited strategic stocks. Distributors typically carry only a few days of inventory, which is a thin buffer for any disruption that may occur further up the supply chain.

Going forward, pressure on these supply chains will increase, as net import requirement for refined products increases to 3.4 MMbbl/d in 2050 from ~2 MMbbl/d currently. It is projected that the downstream infrastructure investment requirement to support this increase is in excess of $20 billion. This underscores the growing need for coordinated investments in African ports, import terminals, pipelines, storage for distribution, and roads and trucks to execute the distribution.

Here, coastal countries should ensure security of supply for landlocked neighbours. Also, regional cooperation will be crucial for driving the necessary investments along the continent's supply corridors and unlocking Africa's growth potential, which will remain fuelled by crude oil for the foreseeable future.



Chapter 03

3. Gas and LNG outlook

This chapter provides an overview of the immediate gas monetising and industrialisation opportunities in Africa, where key challenges include the requirement for further infrastructure and the need for strategic investments across the upstream, midstream and downstream sectors. Case studies provide a deeper dive on timely issues and gas monetising and industrialisation opportunities in Angola, Senegal and Mauritania

Africa's gas potential is significant, buoyed by a raft of exploration successes in existing production hubs and frontiers with Africa producing more than 300 Bcm of natural gas and accounting for 8.5% of global LNG supply (34.7 MMt) in 2024. Africa holds large gas recoverable volumes in Rovuma basin (129 Tcf) and Niger Delta (113 Tcf) but most of these volumes remain undeveloped. In terms of discovered undeveloped gas resources Africa ranks the second in the world.

Globally, there is increased focus on gas as the US and Qatar drive a record increase in global LNG supply by 2030 and numerous African projects compete in the "dash for gas" driven by high prices post-2022 Ukraine crisis and a growing role for gas as a transition fuel. The perceived competition from US projects for exports could give way to opportunities for Africa, as US domestic and export demand growth drives up their own export costs.

With the forecast global supply growth there is increased focus on "finding demand" in new regions and sectors that could drive the development of proposed African import infrastructure in the next two to three years and supports a longer-term monetisation route for African volumes.

Potential roadblocks remain however around monetising and industrialisation, with LNG offering one route to development that has the potential to bolster local industrialisation where domestic market obligations are in place. Domestic gas to power also offers a means to support energy access and economic growth, albeit diesel to gas switching will be more gradual where generation facilities are remote and small in scale. That said, getting the balance right between access to international pricing and domestic counter-party risk remains a challenge for many host governments.

Case studies from Angola, Senegal and Mauritania provide an overview of existing challenges and opportunities for domestic gas monetising and industrialisation, the key challenges being the lack of regional gas transportation infrastructure that could link existing and emerging demand centres to gas receiving and processing terminals, and export clusters.

New LNG (Liquefied Natural Gas) projects, including recent developments in floating LNG, are supporting gas monetising and industrialisation efforts in West Africa, often tied in with domestic supply obligations that open up counter-party risk but will also support local industry.

The key challenges are project economics and the priority given to domestic use, as well as the paucity of regional gas transportation infrastructure that could link existing and emerging demand centres to the gas receiving and processing terminals and export clusters.

Domestic demand in selected countries remains limited and the main consumer is the strategic power sector, limiting availability to the petrochemical and ammonia production sectors and gas-to-liquids (GTL) and small-scale LNG (ssLNG). The use of compressed natural gas (CNG) and ssLNG in transport sector is well-known in countries, such as Nigeria.

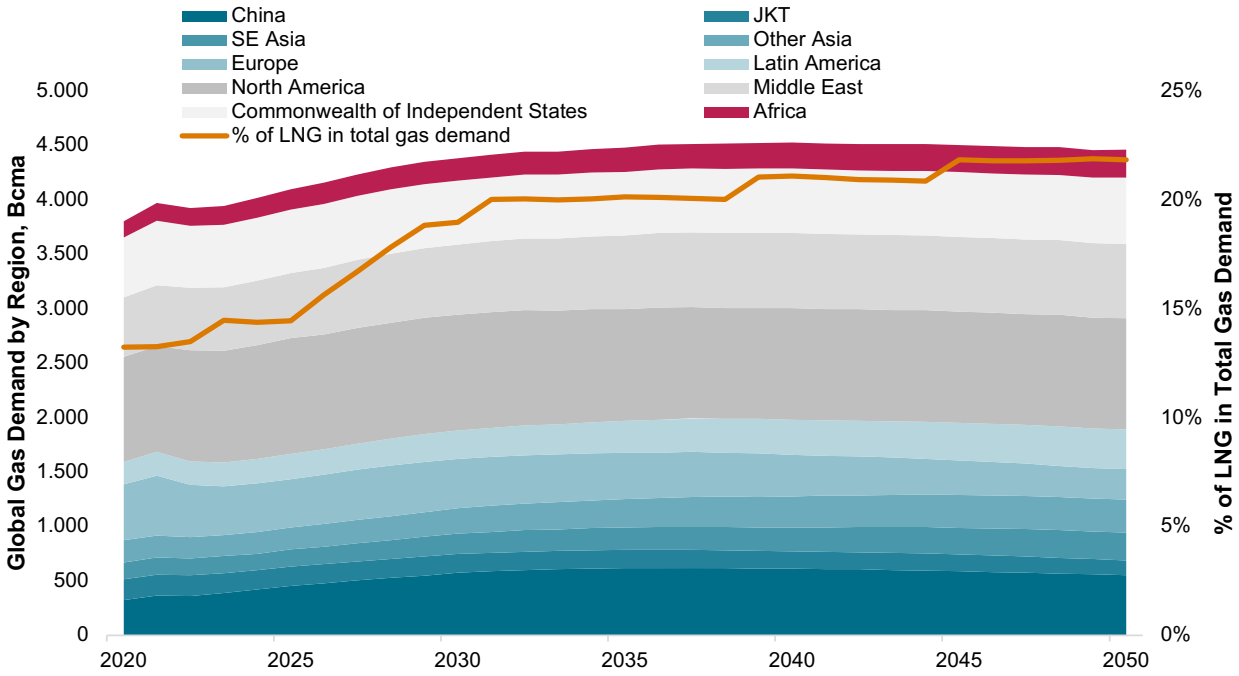
There is also potential for gas use in the energy-intensive mining sector in countries such as Angola and the Democratic Republic of the Congo (DRC), over the medium to longer-term, albeit hydropower will be more attractive where that is available.

Gas flaring reduction initiatives offer the potential to convert flared gas volumes into commercial opportunities and decarbonise upstream operations in African countries. Flared volumes are still considerable, particularly in Algeria, Nigeria and Libya (7.9, 6.5 and 6.3 Bcm of gas flared in 2024 respectively).

3.1. Positioning Gas and LNG outlook in Africa in a Global Context – "Finding Demand" as gas production surges

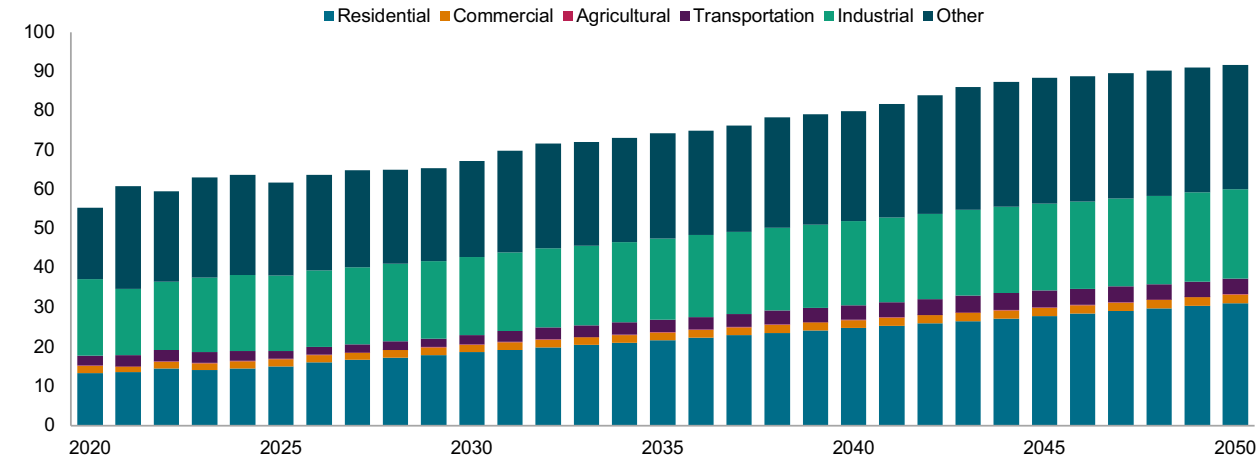
The invasion of Ukraine and the resulting tightening of the global gas balance had seen gas becoming a "premium fuel", in contrast to its historical position as a by-product to be flared or monetized as associated gas. In recent years large, low-cost gas producing economies such as the US and Qatar have been able to realise the value of leveraging gas reserves to support gas intensive industries, power generation and exports. However, as the global gas cycle moves from tightness to surplus with record growth in LNG supplies from the US and elsewhere in the late 2020's, "finding demand" for gas can support the development of infrastructure that has been lacking in Africa. This will support economic development and energy access but whilst also provide a long-term monetisation route for more than 550 Tcf of undeveloped recoverable gas volumes.

Figure 36. Global gas demand and share of LNG (Bcm)



The gas market has become global, and it is these global trends that will influence and provide opportunities for gas in Africa. Gas is the only fossil fuel forecast to grow its share of primary energy demand globally in our outlook and African gas demand is forecast to grow 60% by 2050. International gas prices have stabilised following the unheralded peaks seen in 2022, with key Asian and European benchmarks finding support in the $10-$13/MMBtu range. However, the growth in global demand and a continued shift away from Russian gas in key importing markets has helped incentivised a record 40% increase in LNG supply and S&P Global's European and Northeast Asian gas price benchmarks to fall below $6/MMBtu by the late 2020's.

Figure 37. Total African gross gas demand (Bcm)



As of September 2025.
Source: S&P Global Commodity Insights.

The next two to three years could provide significant opportunity for development of LNG import infrastructure investment as supply grows and prices fall. As supply grows, it is increasingly clear that exporters will have to "find demand" and that includes building and investing in infrastructure in new markets, which includes Africa. Forecasts of looser market conditions are expected to stimulate demand globally which, when coupled with the AI driven demand for power from data centres, has already contributed to some of the tightest supply chain conditions for the gas turbines orderbook in recent memory. There are already LNG import projects in Egypt which has a history of both importing and exporting LNG, and the re-commencing of LNG imports into Senegal's gas to power project in Dakar. These could mark the start of the next phase of gas demand on Africa as loosening market conditions. Whilst the availability of Floating Storage and Regasification Units remains tight, low charter rates for an ageing Steam Tanker fleet means that low-cost conversion solutions are there for emerging markets in Africa.

Whilst the short-term story of supply growth is dominated by the US and Qatar, increased US LNG exports and domestic demand is expected to increase US Henry Hub prices from its recent lows as production shifts to dry-gas play in to over $5/MMBtu at points over the next two years and a general long-term upwards trend. This will increase the competitiveness of African molecules for export and domestic utilisation, which is compounded by shorter shipping distances to key growth markets in Asia. With lower global pricing and potentially more competitive gas, in the longer term this could also facilitate a shift from an export focus to monetising and industrialisation via domestic and regional opportunities.

This provides an environment of opportunities for Africa to leverage the loosening of the LNG market to unlock proposed import projects such as Richards Bay in South Africa, and the reactivation of Ghana's import terminal. The desire of countries such as the US to develop global gas value chain is not just shown by the active position of US and other IOCs in the gas value chain in Africa but also in more direct support, such as the US Development Finance Corporation (DFC) providing support for the insurance of the Rovuma LNG project. If this desire to build LNG liquefaction can be transferred to import and demand infrastructure in Africa, then it can potentially provide the catalyst for gas in the region.

This chapter highlights the opportunities and challenges of monetizing gas in Africa, with a focus on a more mature producer in Angola and emerging producer in Mauritania and Senegal. However, this must be seen in the context of a growing global gas value chain looking new geographic and sectoral markets, with gas infrastructure increasing in impor-

3.2. Gas monetisation – Immediate opportunities and challenges

Opportunities

Gas sector development across Africa has not occurred at a uniform pace or magnitude. North Africa has traditionally been home to the most evolved gas value chains (Algeria, Libya and Egypt) with high gas penetration in the power mix, and important export relationships with Europe and the rest of the world through pipeline and LNG infrastructure. Sub-Saharan African growth has been slower, with Nigeria being at potentially being poised for expansion with extensive domestic infrastructure and is now poised for significant production growth making it the cornerstone of Sub-Saharan African gas expansion as its "Decade of Gas" was launched it 2021. With significant domestic resources and growing energy demand, numerous African national energy masterplans have included and projected significant growth in gas demand to meet economic and social objectives. This aligns with SPGCI forecasting African primary energy demand doubling by S&P Global with gas demand following a similar trajectory.

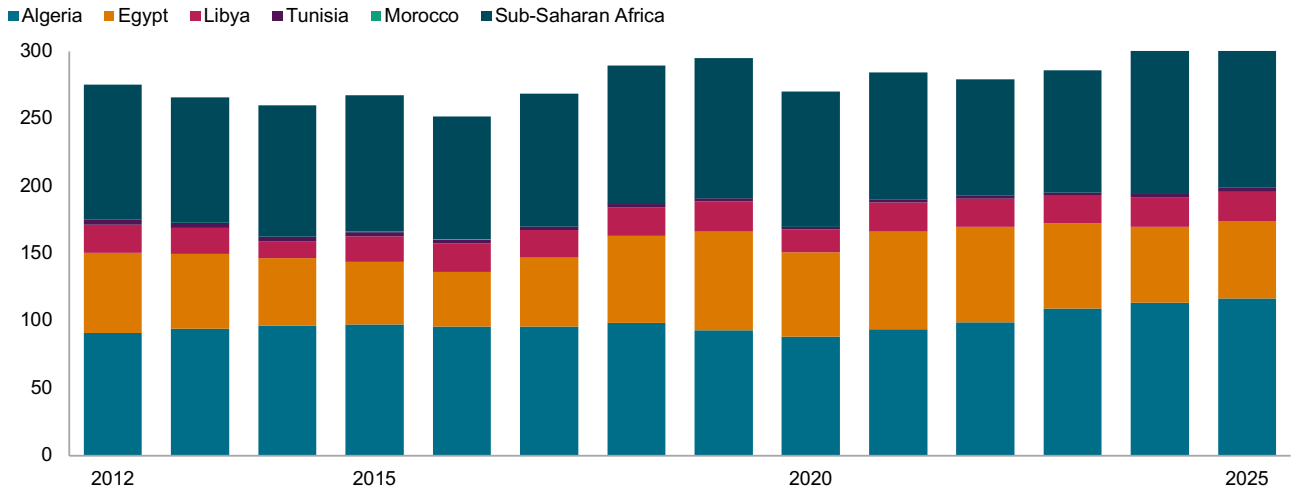
Gas, either through domestic consumption or as exports (pipeline or via LNG), has the potential to transform economies by addressing one or more of the following priorities:

- Energy security: Meeting growing energy demand for increased electrification and industrialization
- Exports: Leveraging available resources for export revenue, or reducing imports of costly fuels priced at international levels as localised value chains support economic growth
- African economic development: Gas' versatile role in industry and power generation can be leveraged to drive economic value beyond extraction and export. National governments see significant value in the potential for gas intensive industry, stable power grids, domestic use and transportation. These activities can create greater In Country Value (ICV) through investment, job creation and the development for further economic value chains.
- Energy transition: African countries must balance development needs with climate commitments. Gas is a cleaner fuel than oil, biomass and coal, and thus act as a bridge fuel as renewable capacities grow over the coming decades. Additionally, with large amounts of gas flared or vented in the production of oil, monetizing of associated gas reduces the emissions intensities of upstream operations.

North Africa remains the current heartland of Africa's gas production with around two thirds of output, dominated by the big three - Algeria, Egypt, and Libya. Monetising and industrialisation has traditionally been supported by substantial resources, and access to domestic and European markets via pipeline, for Algeria and Libya and, LNG in the case of Algeria and Egypt. Improving terms and conditions and ease of commercialization will support continued investment in new production in North Africa albeit set against high gas production decline rates, particularly in Egypt, where East Mediterranean gas from Cyprus and Israel is required to help offset rapid offshore gas production declines. While Algerian and Libyan output should expand into the 2030s, North Africa's share of total continental output will fall below 40% by 2035 as other regional producers emerge.

As previously mentioned in the report, Africa holds large gas recoverable volumes in Rovuma basin (129 Tcf) and Niger Delta (113 Tcf) and most of these volumes remain undeveloped.

Figure 38 . Total African gross gas production (Bcm)



As of July 2025.
Source: S&P Global Commodity Insights.

While around a third of total current African gross gas production is from Sub-Saharan Africa, the region will be responsible for an increasing proportion of gas supply in the next 25 years (>400 Tcf in remaining recoverable resources, 70% of Africa's total reserves). Nigeria has the region's most evolved gas value chain and is responsible for over 50% of Sub-Saharan Africa's commercialized gas output. Gas is supplied for both domestic use and regional/international exports. Future gas production growth beyond Nigeria, is expected from a handful of countries, including Mozambique, Tanzania, Angola, Senegal and Mauritania. Sub-Saharan governments are progressing long-awaited regulations for the gas value chain to facilitate domestic use and to meet international demand for diversified supply sources. However, amid an exploration revival, driven by ongoing success in the Atlantic Margin, resource nationalism and local content pressures are coming to the fore.

African gas development has potentially transformative potential for their host government economies and takes place through two main avenues:

1. Exports via LNG or pipeline

International LNG demand is already an established driver of African gas development. Africa accounts for 8.5% of global LNG supply (34.7 MMt) in 2024. Gas exports provide the opportunity of providing a valuable income stream for the host countries, via export revenues, government take and other taxes on operations. Where countries have established oil economies, associated gas is often flared or vented, creating an opportunity to capture gas for export in a way that does not require additional extraction but will benefit the overall emission intensity of upstream operations.

LNG is a particularly attractive monetising and industrialisation option given access to international prices (In July 2025, the Asian spot LNG price (JKM) averaged $12.3/MMBtu, while the European spot price (Dutch TTF) stood around $11.4/MMBtu). Domestic regulated prices for gas tend to be far lower (see 'Challenges' section below).

Algeria was the world's first LNG exporter in 1964 and has been participating in the global LNG market since then. Although export levels have dropped from around 20 MMtpa as recently as the late 2000s, Algeria contributed nearly 12 MMt to the global market in 2024. Pipeline supplies to Spain via Morocco were suspended in 2021 but exports continue via a direct pipeline to Spain, and to Italy via Tunisia. Halting export declines will require a combination of upstream investment and domestic demand reduction; the nation's award of five blocks in its first upstream bid round in more than a decade in 2025 could be a step toward boosting long-term capacity.

Egypt, meanwhile, has fluctuated multiple times between exporter and importer status via pipeline and LNG as its upstream fortunes have changed and domestic gas demand surged. Egypt still hosts two idled LNG export facilities which will require significant regional gas imports from Cyprus and Israel to restart in earnest. Meanwhile, Libya's Green Stream pipeline to Italy is running well below capacity due to a lack of available gas, with hopes that new developments could help provide more gas for local use and export to Europe's deep and liquid markets, such as Italy.

In Sub-Saharan Africa, Nigeria and Angola have used LNG projects to monetize associated gas from oil production – this has reduced flaring and venting and thus reduced the overall emissions intensity of upstream operations. Nigeria is the region's largest and oldest producer of LNG with exports starting in 1999. Following suit, Equatorial Guinea, Cameroon, and Angola started exporting LNG in the late 2000s/2010s. In the wake of shifts in global LNG dynamics since 2022 such as the cessation of Russian pipeline gas to Europe and increasing demand in Asia, many international majors have sought to secure additional LNG supply streams, with a push for rapid project development. Leveraging this opportunity, since 2022, LNG supply out of Sub-Saharan Africa has increased with the addition of 4 exporting countries via Mozambique's Coral Sul project, the Senegal-Mauritania cross-border Greater Tortue project, and Congo LNG. In 2024, Sub-Saharan Africa supplied 26.9 MMt to global markets — with 25% of volumes sent to European buyers and 60% to Asian buyers.

The current development slate in Sub-Saharan Africa promises continued growth, with supply out of the region forecast to roughly quadruple by 2050. This growth includes further countries entering the supply mix (i.e., Tanzania). Sub-Saharan Africa's geographical proximity to both European and Asian demand centres offers a significant strategic advantage. This geographical position allows West/Southwest African LNG producers, whilst closer to Europe, to be swing suppliers and optimize dynamically based on changing price spreads between market prices in Europe and Asia or due to global supply disruptions.

Export projects can also provide an avenue for authorities to negotiate domestic market allocations from available supply. LNG projects in Nigeria, Senegal-Mauritania, Angola, and Cameroon have domestic market obligations (DMOs). Where DMOs are modest, they generally don't constitute a barrier to project sanctioning and can provide a tangible first approach to allocating supply to stimulate an emerging gas market or to accelerate an existing one. Therefore, sanctioning gas supply projects which are either integrated directly to LNG projects or are set to supply them, can be seen as the early avenue to procure sustainable supply of gas for domestic use. Furthermore, export projects (particularly if the projects are onshore), can provide the first step for domestic access to benefit from recently initiated export projects. Amongst those following such an approach, Senegal has an ambitious gas-to-power strategy of 3 GW in installed gas-fired generation by 2050; however, a large portion of the gas feed is planned to be drawn solely from DMOs from the existing Greater Tortue LNG projects, as well as the proposed Yakaar-Teranga LNG project.

2. Domestic monetising and industrialisation for use in the power, industrial, residential and transport sector

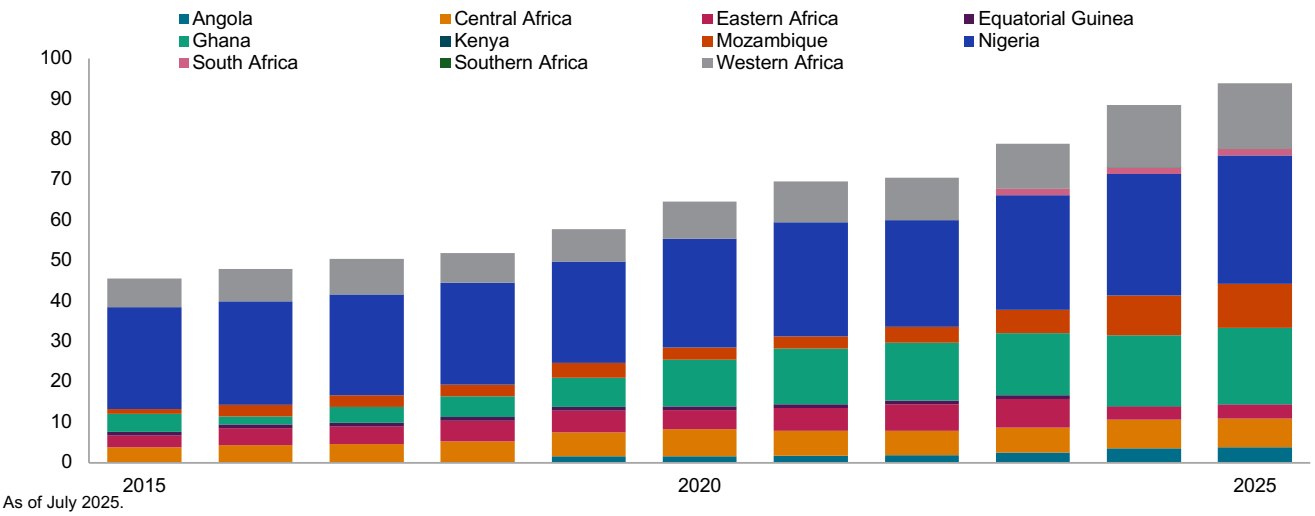
Domestic gas consumption can also play a large role in Africa's economic transformation: (1) by encouraging electrification through gas to power expansions and (2) by providing feedstock to the industry and transportation sectors. This domestic use ensures that a greater proportion of the economic value of Africa's energy resources are realized in Africa beyond supply chains and royalties from exports. As a result, national governments, and their energy masterplans have aimed to grow domestic demand and even prioritize it over exports. These domestic ambitions can suffer from the "chicken and egg" paradox of requiring demand at scale to underpin infrastructure development and associated financing but also requiring infrastructure to unlock demand. However, there are opportunities in sectors such as power generation, mining and domestic industry to solve this conundrum.

In the power sector (see 4.2.4), with booming populations, urgent action is needed to enhance electricity supply to homes and businesses while improving, albeit marginally, per capita consumption, which remains well below the global average. Opportunities exist for oil-to-gas switching and the replacement of aging and inefficient coal capacity (particularly in the southern African coal fleets). Gas drawn from domestic supply means countries are somewhat insulated from global market dynamics, including high imported fuel prices (such as diesel), foreign reserves, credit challenges and supply chain bottlenecks. Gas assets can provide baseload power to complement renewables (for example, hydropower is increasingly unreliable due to increasing droughts).

In North Africa, around 60% of Egypt's annual gas demand is used by the domestic power sector, rising in the hot summer months where power outages have proven a challenge in recent years. Gas also dominates the Algerian generation mix, equating to around 50% of local gas consumption - after a major buildout program in the 2010s that has helped boost local use and limited supplies for exports. In Libya, gas for domestic consumption is dominated by the power sector, but shortfalls in availability mean that oil-fired generation is also prevalent: future gas development will be heavily weighted to domestic use to boost the reliability of generation and reduce costly oil product use.

Only a handful of countries in sub-Saharan Africa have gas in their power mix. This trend has primarily been influenced by a preference for flaring gas and utilizing oil in domestic power plants, which is cheaper, especially if oil can be produced or refined domestically. Nevertheless, there is a growth pattern in the past decade in the generation from natural gas. Nigeria has the largest installed gas-fired capacity with 12.6 GW. Nigerian grid-connected gas capacity is less than one-third of total capacity, with oil dominating at 67%. Ghana and Mozambique follow with a respective gas installed capacity of 2.9 GW and 1.1 GW, respectively. In Ghana, most thermal plants are dual-fueled and run on natural gas but can operate on diesel and Bonny Light crude oil during gas shortages. Smaller gas power plants are in operation in Tanzania, Senegal, Angola, Côte d'Ivoire and South Africa. Floating power ships that can run on gas near coastal demand centers (as seen in Senegal, Ghana, etc.) act as additional, less flexible and easily deployable intensive avenues.

Figure 39 . Sub-Saharan generation from natural gas by country/region (TWh)



As of July 2025.
Source: S&P Global Commodity Insights.

Countries such as Nigeria, South Africa, Senegal, Angola, Ghana, Tanzania, and Mozambique have stated ambitions for further development or initial development of gas-to-power assets and infrastructure. Whilst gas for power demand is forecast to be a key component of demand growth for both, how gas for power demand will evolve will be hinged on factors that are unique to each nation. These factors include: 1) the presence/age of coal fleets, 2) the amount of oil-fired generation and the convertibility of present-day oil-fired assets, 3) the penetration of new renewables (solar etc.) and existing renewables (hydropower) and 4) how much baseload is required in the face of increasing power consumption per capita. Additionally, the size and state of power transmission grid infrastructure will affect the overall 'gas-to-wire' potential, which can open further opportunities for power exports as 'gas-to-wire' to regional power pools.

New sources of gas use

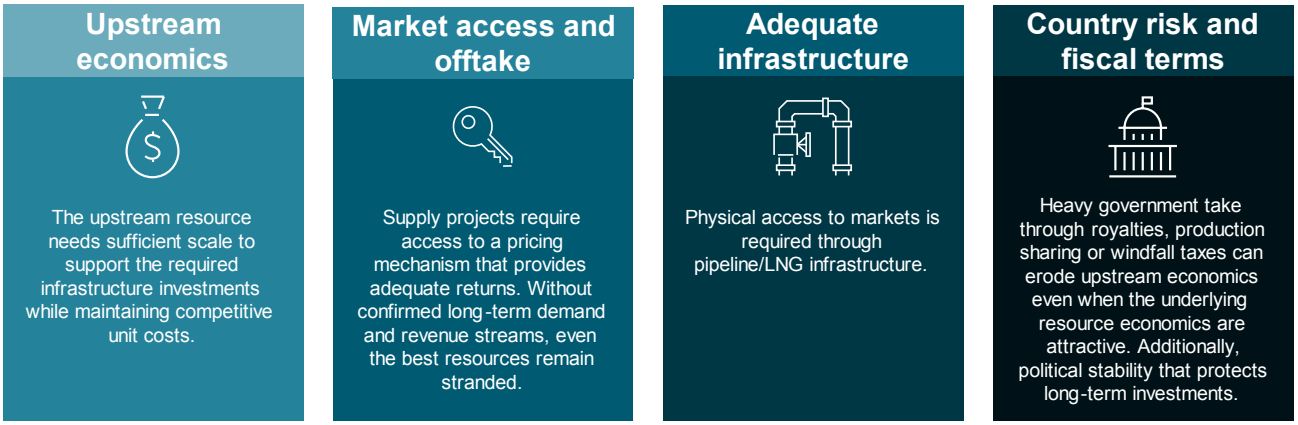
Despite the very limited present-day gas intensive industrial demand in sub-Saharan Africa, gas has significant potential to promote industrial development in the region. As economies and populations grow, the demand for gas-derived industrial products such as fertilizers and petrochemicals will increase, and there is general sentiment that domestic gas resources can help fulfil this demand and for there to be a reduced reliance on imports of such products, which are at higher costs. Additionally, gas has further potential in domestic mining and metals processing in Africa, allowing countries to add value to their mineral resources locally rather than just exporting raw materials.

Currently, South Africa has the region's most advanced industrial gas usage (for gas derivatives such ammonia and gas-to-liquids), which makes up South Africa's total gas demand. In their recently approved National Gas Plan, Angola's government outlined ambitions for developing a domestic gas market with a focus on industrial sectors such as petrochemicals, fertilizer, and metals sector (See 3.2.1) in order to reduce reliance on imports of finished products.

The transport sector is another avenue representing an emerging application for natural gas in sub-Saharan Africa, with several countries actively developing compressed natural gas (CNG) vehicle programs. Nigeria is making the most significant push for gas use in transport in the region. Nigeria's 2020 National Gas Expansion Program includes deploying CNG vehicles and related charging infrastructure, with the government announcing the official commencement of the project in March 2022.

Challenges facing the realization of Africa's gas potential

Figure 40. Success factors for supply project execution



Source: S&P Global Commodity Insights

Overall, gas has the potential to play a large and significant role in African economies. Many assets in sub-Saharan Africa have strong indigenous resource bases, which produce optimistic gas reserve outlooks, but international majors often exit discoveries due to a lack of integration of the four elements illustrated in the figure above. Success factors for supply project execution which are essential for project success: favorable upstream economics, downstream demand (whether domestic or global) needed to generate reliable offtake, adequate infrastructure to link supply hubs to demand hubs, and an overall facilitative and supportive role from government and regulators.

On the upstream side, as the focal point of gas supply switches from North Africa to sub-Saharan Africa, the productive gas capacity outlook shows that gas reserves are going to being increasingly drier (i.e., the share of non-associated gas in total gas supply is set to grow with time). Currently over 50% of gas produced today in the region is associated – that attribute in itself has assisted in gas sector expansion, especially in Nigeria and Angola. This associated gas supply typically has low/zero break-even costs, which is why countries like Nigeria have established increasingly robust gas value chains.

Whilst more expensive on a standalone dollar per MMbtu basis, non-associated gas has the benefit of not being tied to oil production rates, enhanced oil recovery re-injection requirements and oil price dynamics whilst it also increases the range of potential opportunities and countries. However, as it is not cross-subsidized by oil, sanctioning for future non-associated production is hinged on the emergence of a new business models for gas monetising and industrialisation, be it for domestic use or export.

Regarding exploration and production terms, there remains a tension between the impulse for governments to offer favourable commercial terms to promote international investments from international majors with strong balance sheets, which may favour higher priced export markets and may not want a large DMOs or levels of government royalties/taxes and ensuring domestic ambitions (either for supplying local demand or export revenue) are met. In Angola and Senegal-Mauritania, near-term opportunities for gas monetising and industrialisation are predominantly tied to LNG export projects and their DMOs. If supply projects which are integrated with LNG projects do not run ahead due to unfavorable terms, nations will have to ensure that domestic supply has other means of being fulfilled through other supply projects which target the domestic market solely or may resort to LNG imports.

On the downstream side, for gas demand to materialize, midstream infrastructure is critical. However, with regards to the midstream and downstream of an evolving gas value chain, a 'chicken and egg' paradox emerges: does infrastructure or demand come first?

Securing midstream investments depends on establishing demand certainty. To ensure demand certainty, effective commercialization strategies, such as long-term contracts with creditworthy offtakers, featuring predictable consumption patterns are vital. Moreover, transparent pricing mechanisms are needed to mitigate investment risks taken upon by suppliers, midstream investors and gas customers. Regulated prices in the form of domestic base prices (DBPs) set by governments serve as crucial indicator of a supply project's ability to break even solely through the domestic market.

Price levels of gas sold in domestic gas markets (for example, the latest DBP set by the Nigerian Midstream and Downstream Petroleum Regulatory Authority, in April 2025, is $2.13/MMBtu) are usually below current export netback prices (global LNG/gas prices less shipping and liquefaction costs). Low prices may discourage investment in supply projects targeting the domestic market as opposed to export markets, due to the lack of return of margins, especially for non-associated gas projects. Additionally, a small number of gas customers procuring gas at a low price can also struggle to return margins on major infrastructure as (i.e., pipelines).

However, low prices are often required to stimulate demand with domestic gas customers. This produces a 'cyclical' problem which African nations will have to provide solutions and incentives which encourage producers to sell gas and consumers to buy gas.

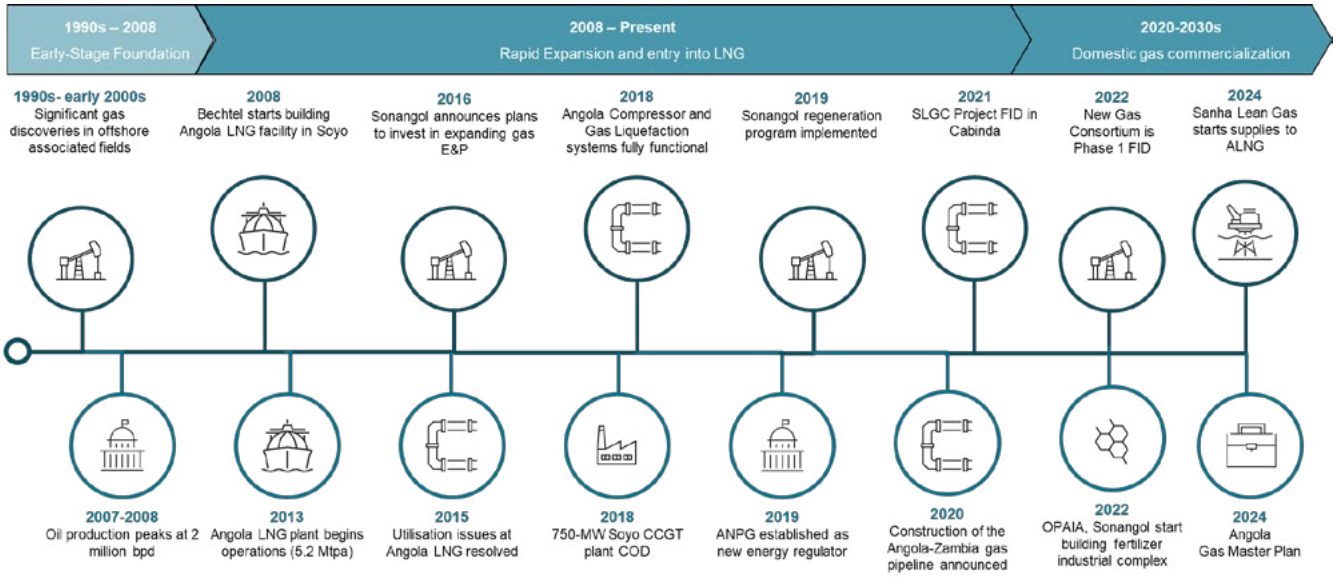
In order to benefit from the opportunities that the development of gas value chains represents, 2 balances will need to be carefully determined by each nation:

- Balance between exports and domestic ambitions,
- Balance between liberalizing an emerging or existing domestic gas market and exercising regulatory oversight to ensure national economic and energy objectives are met.

3.3. Identifying synergies in proposed case studies – Angola

Angola has historically used significant volumes of associated gas to enhance oil recovery and fuel offshore operations. However, the country has more recently intensified efforts to develop its non-associated gas reserves. Although the oil and gas sector's contribution to Angola's economy has declined over the past decade due to falling production, authorities recognize the export and fiscal potential of the country's undeveloped gas resources.

Figure 41. Evolution of Angola's gas market

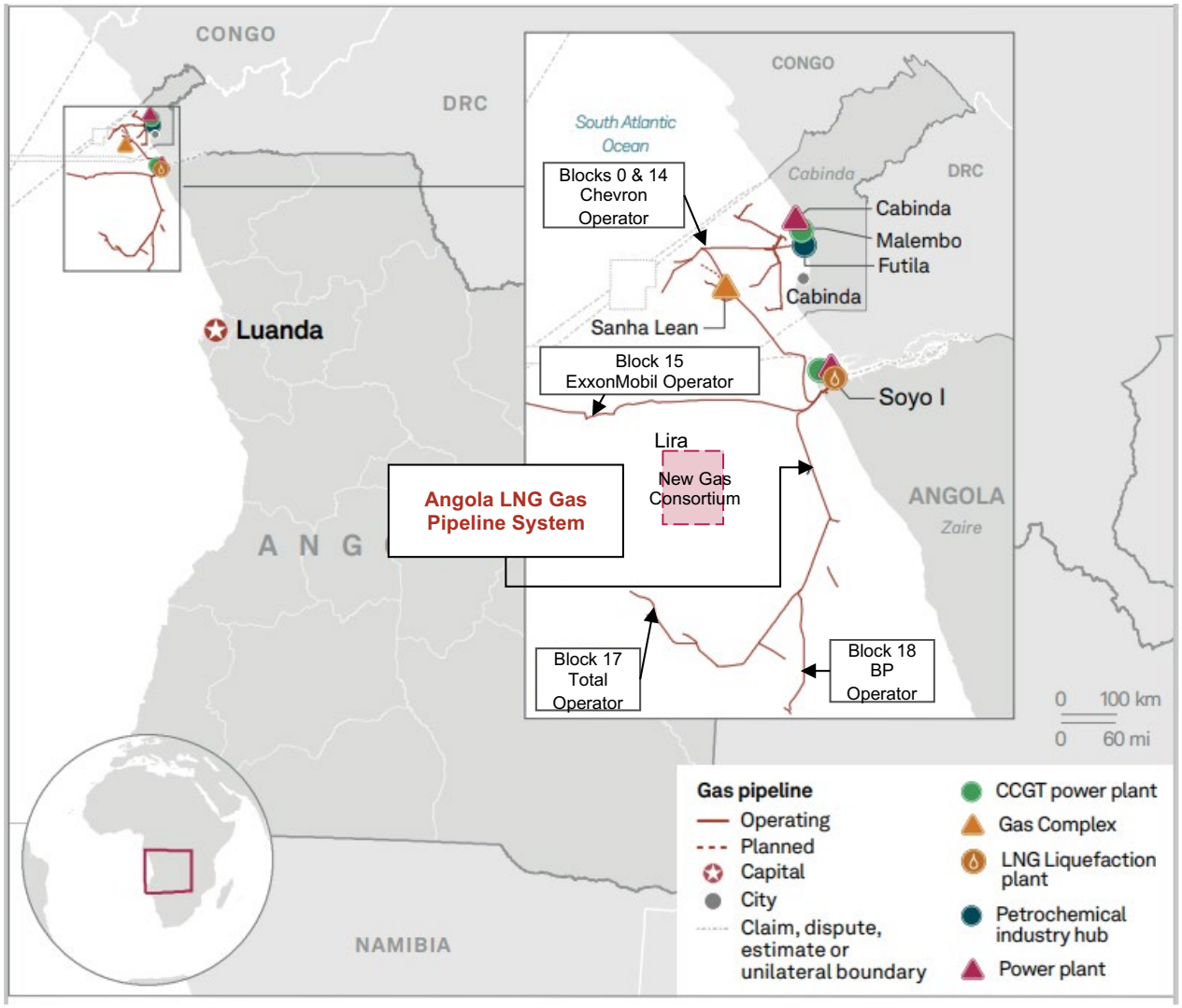


Source: S&P Global Commodity Insights

Start of construction of Angola LNG in 2008 was the first step to monetize those associated gas volumes and marked Angola's entry into the global gas market as an LNG exporter. Its operation also significantly reduced operators' upstream emissions. Initially, the primary source of feedstock for Angola LNG was associated gas from blocks 15, 17 and 18, operated by ExxonMobil, Total and Eni/BP, respectively. This feedstock was later augmented with gas from Chevron-operated blocks 0 and 14 as well as Eni/BP's Block 31 and Total's Block 32.

Despite this, half of associated gas currently produced in Angola is being still re-injected, and new projects will continue gas re-injection for pressure maintenance. However, there is a possibility of gas blowdown projects after the cessation of oil production (CoP). Among other projects we should note the development of non-associated gas volumes in Block 0 by Chevron and New Gas Consortium contract area in Lower Congo.

Figure 42. Angola existing gas transport infrastructure



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In December 2024, Chevron achieved first gas from the Block 0 Sanha Lean Gas project aiming to add gas supply volumes to Angola LNG. The New Gas Consortium, a joint venture led by Azule Energy, targets the development of non-associated gas fields in Lower Congo, focusing first on Quiluma and Maboqueiro developments, which are expected to fill Angola LNG capacity by 2026.

Azule Energy is continuing its exploration in the Lower Congo basin and has recently announced, along with partners Equinor, Sonangol and Acrep, that it has made a gas discovery with exploration well Gajajeira-01 in block 1/14. Azule Energy also has plans to drill an exploration well in Congo Fan, Block 47, targeting Kianda prospect and an exploration well in Namibe basin, Block 28, targeting Piambo prospect to be drilled in 2026.

3.3.1. Gas transport infrastructure requirements – monetising gas from the Kwanza Basin

Following the pattern of positive exploration along the Atlantic Margin of the continent in the 2010s, exploration focused on the more southern Kwanza Basin, leading to giant pre-salt non-associated discoveries. However, the discoveries made have proved smaller in size compared to Congo Fan fields and mostly gas dominated. These discoveries remain stranded due to lack of nearby gas export infrastructure and high development costs due to water and target reservoir depths of more than 1,000 and 4,000-6,000 meters respectively.

The only exception is Kaminho project led by TotalEnergies. The two deep water gas condensate Cameia and Golfinho fields, currently under development, are the first fields to produce from block 20 in the Kwanza basin. It is understood that the project value is likely to be driven by condensate/light oil recovery. Joint development of Cameia-Golfinho will be based on Kaminho FPSO concept which includes condensate separation and gas injection facilities. Early gas cycling and condensate stripping options were considered for the first 3 years. However, even if no announcements on gas commercialisation have been made to date, the operator may consider it in future.

TotalEnergies are continuing the appraisal programmes at nearby Lontra and Zalophus fields and Bicuar field tie-back to the existing Kaminho development is also possible. Thus, building up the gas resource base and confirming the reservoir performance are important steps for future gas supplies from Kwanza. But the main challenge is the lack of gas transport infrastructure that could connect the developments either to Soyo and Angola LNG or to the Central Angola directly.

Further to the south from Cameia-Golfinho development, in Benguela sub-basin, Katambi gas-condensate field was discovered by BP in 2015 with target reservoirs around 6,000 meters deep. The discovery is far from any infrastructure but near Benguela province with undeveloped local gas market. It might remain stranded for the time being, despite considerable recoverable resources and until further exploration results in discoveries of a more substantial scale.

Angola government is keen to grow natural gas infrastructure and diversify large consumers in the interior of the country. In case of Cameia-Golfinho potential gas phase development the project may require gas evacuation to shore near Caboledo (the closest coastal point) and the construction of onshore gas pipeline from Caboledo to Luanda to satisfy local gas demand and further to Soyo gas complex to reach Angola LNG. Currently the high costs of the midstream project and high estimated transportation tariffs for the pipeline project to breakeven are holding up any investment. A major investment into midstream may come either from upstream players and/or from institutional investment banks, global or regional. Reducing the tax burden on such a pipeline would also reduce the tariffs needed to breakeven. Future supply from discovered undeveloped gas resources in Kwanza basin would also improve project economics.

3.3.2. Gas blowdowns as potential supply upside from the Congo Fan

Gas blowdown phase usually comes after the cessation of oil production in an oil or gas-condensate field, where the liquids development was prioritized. Gas blowdowns could provide the gas supply to Angola LNG in the long-term, although remaining recoverable gas volumes and scheduling remain uncertain. The amount of associated recoverable liquids will play a decisive role in informing the investment decisions.

In many ways, Sanha Lean Gas project that now feeds Angola LNG through Sanha Lean Gas Connection and Congo river crossing is the gas blowdown that started after Sanha crude, condensate and LPG production phase reached its cessation. Other candidates in Block 0 and in wider Cabinda area may be selected in future.

In Lower Congo the most obvious candidates will be the deep-water oil developments, e.g., Girassol, Dalia, Pazflor and CLOV in Block 17. Several options exist for producing the remaining gas volumes, including retaining FPSOs at their current locations for the short gas blowdown phase or replacing the vessels by light tension-leg platform installations for gas processing and compression for an extended gas blowdown phase. The advantage of late-life gas blowdowns in this area is that the midstream infrastructure is accessible, although its technical conditions would need to be verified closer to start of the blowdowns, which in our estimate would be not earlier than around mid to late 2030s.

3.3.3. Domestic market and scope for enabling local industrial projects

The main source of gas supply into the domestic market is a share of the feedgas going into the Angola LNG plant in Soyo supporting the 750 MW Soyo CCGT. The CCGT started up in 2018, and expanded the country's power mix beyond oil and hydropower. However, gas-to-power sector's main role remains in balancing power generation in dry summer season where the output from hydropower plants is low and, currently, Angola LNG feedgas requirement is the main source of demand.

However, like many gas producing countries, the Angolan government are looking beyond exports. Looking ahead, domestic gas demand is expected to grow, primarily driven by increased power demand but the Angola Gas Master plan also includes ambitious plans for growing industrial gas demand from new fertilizer (ammonia) and methanol plants to 2030. However, these sources of gas demand will still require creditworthy financial backing and transparent, cost-reflective pricing to materialize.

Northern Angola is set to remain the primary demand center for domestic gas consumption in the short to medium term, due to its proximity to gas supply, processing facilities, and pipeline infrastructure around Soyo/Cabinda.

We expect the fertilizer sector (ammonia and urea production), to drive the first significant increase in domestic gas demand linked to the proposed 2,300 tons per day ammonia plant in Soyo, which could consume up to 80 MMcf/d of natural gas by 2035. The plant has awarded Engineering, Procurement, and Construction (EPC) contracts and is set to break ground in 2025, with operations commencing in 2027. Given its location in Soyo, supply will be sourced from the DMO of Angola LNG. The successful financial investment decision (FID) for the plant will depend on competitive natural gas pricing.

On the power side, the largest contributor to gas demand growth will be the Soyo 2 CCGT, along with increased oil conversion and the expansion of the existing dual-fueled Malembo plant. We expect no new diesel-to-gas conversion capacity throughout the forecast period up to 2040.

Other areas that may enable domestic gas demand growth are petrochemicals, direct gas exports or gas-to-wire projects connecting Angola to the South African Power Pool, including Namibia and DRC, powering the mining sector in DRC or in Angola itself, or any other energy intensive industrial areas, such as steel and aluminium production, based on local iron ore developments.

Whilst Angola LNG remains the top priority for commercialising gas in Angola, particularly in the current gas market conditions, LNG exports can support a gas value chain to enable further domestic demand growth in the country, which would require joint efforts by national agencies and operators, utilities and industrial developers along with the international upstream players.

3.4. Domestic obligations in LNG projects in Senegal and Mauritania

3.4.1. Upstream and LNG development history and current status

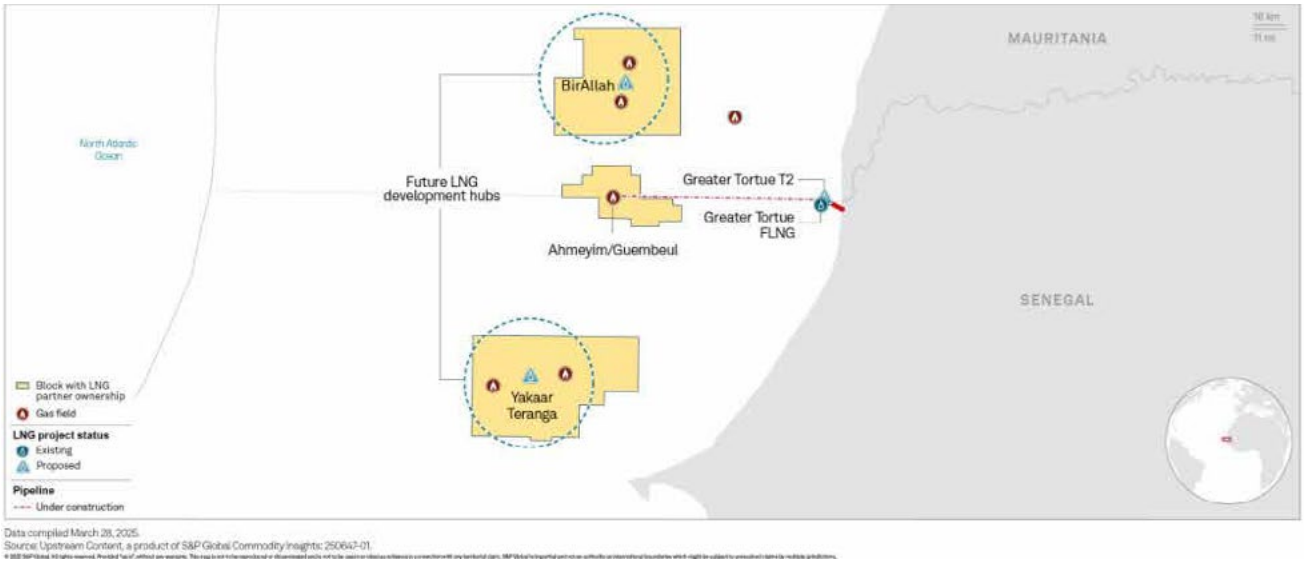
Earlier in April this year BP announced the first LNG loading at their 2.7 MMtpa Greater Tortue Ahmeyim (GTA) project in Senegal and Mauritania, adding both countries to the list of LNG exporting countries. The Greater Tortue project is one of BP's major startups this year, consisting of deepwater wells completions, subsea flowlines, a breakwater, FPSO and floating LNG unit, used for LNG exports.

The project already created 3,000 local jobs at the stage of construction and engaged about 300 local companies in Mauritania and Senegal. Project partners are Kosmos Energy (the company that initiated exploration and made the very first discoveries in the region), Petrosen (the national oil company in Senegal), and SMH (the national oil company of Mauritania, 'Société Mauritanienne des Hydrocarbures').

Prior to any plans for joint development, back in 2015, the first unitisation discussions started to negotiate and finalise the terms for cross-border operations. The reached agreements included the equal terms for domestic obligation for both countries.

Further to exploration success in the area, several gas discoveries, including Bir Allah, Yakaar and Teranga, were made on both northern and southern sides of GTA complex, opening opportunities for similar type of developments and floating LNG concept. Despite the high upstream costs of deepwater gas development, the project reached FID, supported by the relatively low liquefaction conversion costs of Golar's Gimi FLNG vessel — similar to the company's Hilli Episeyo, used in a similar project in Cameroon. The proven concept of converting the LNG tanker into floating LNG unit proved its cost competitiveness and enabled a series of FLNG projects worldwide in recent years.

Figure 43. Senegal-Mauritania upstream development and existing gas transport infrastructure



As of June 2025
Source: S&P Global Commodity Insights

3.4.2. Future phases of LNG project in Mauritania and Senegal

A proven FLNG concept based on low-cost conversion, combined with comparable recoverable gas resources in more recent discoveries, could make future developments in Senegal and Mauritania viable. However, as competition between new LNG projects intensifies as the market enters a forecasted to oversupply period between in the late 2020's and early 2030's, partners appear cautious about bringing additional LNG projects online. Further complicating matters, Senegal's new nationalist government, elected in 2024, has pledged to audit and potentially renegotiate the fiscal terms and state participation in upstream contracts — creating additional risks for BP and Kosmos.

In early 2019, partners awarded a pre-FEED contract to KBR for two additional floating units of around 3.7 MMtpa. The plan was scaled down the following year to reduce CAPEX, shifting to a 2.5 MMtpa gravity-based structure that would leverage Phase 1's existing infrastructure. As Phase 1 development was plagued by delays tied to the Covid-19 pandemic and a series of project-related setbacks, discussions around the expansion were pushed to the sidelines. However, in May 2025, a further scaled-down expansion concept emerged in the public domain. According to Kosmos, Phase 1+ is being considered as a low-cost expansion, which could potentially double future gas sales through minor modifications to the FPSO and upgrades to the FLNG vessel.

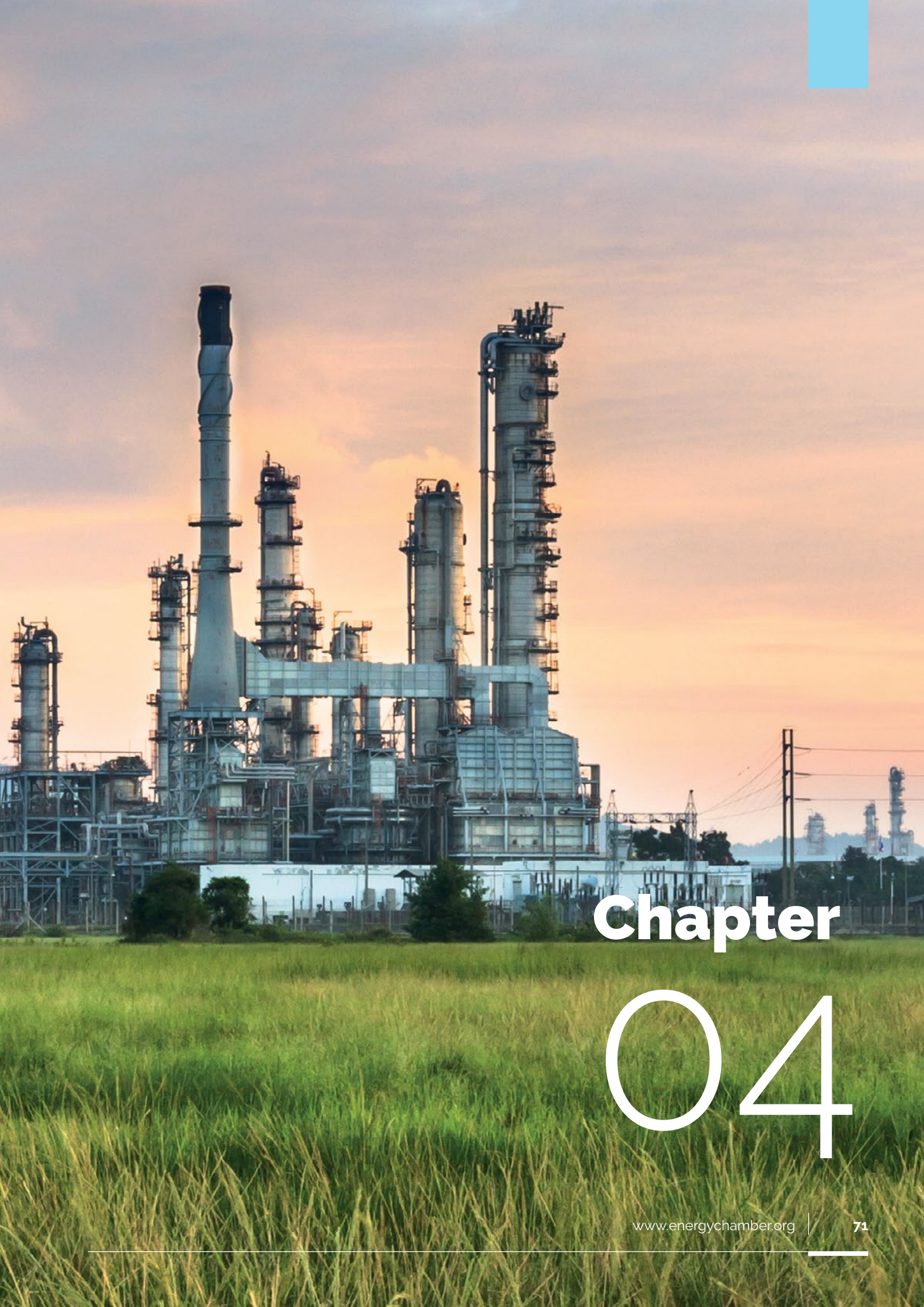
In late 2023, BP announced its exit from Yakaar-Teranga leaving Kosmos Energy to look for a new partner. The current development concept involves a phased approach, with the deployment of a converted FLNG unit with around 3.3 MMtpa of capacity. Additionally, Kosmos Energy hopes to partner with SMH and a new investor to develop BirAllah. Although few details have been disclosed about the project's development plans, it appears the project may use a similar FLNG concept.

3.4.3. Current domestic obligations and expectations

The negotiated domestic obligations for Greater Tortue FLNG determined that around 20% of the output would be split between Senegal and Mauritania, which translates in each country having the rights for about 35 MMscf/d supply. Technical provisions were considered and connection points necessary for gas offtake and evacuation to the shore are available.

The limited gas volumes expected to be delivered to Senegal in 2026 will firstly be used for power generation at Saint-Louis CCGT, which appears to be the easiest option for gas commercialisation domestically. Availability of gas resource and easy access to guaranteed gas supply volumes opens an opportunity to develop various industrial options for gas commercialisation in the country, rather than gas-to-power only.

Earlier this year the Investment Promotion Agency (APIX) and RGS SA (Senegalese Gas Network, a subsidiary of Petrosen) announced their partnership in developing the gas network and infrastructure to transport and distribute gas volumes from Greater Tortue. An initiative is being discussed to build a 366 MW power plant in Cap de Biches area and to provide electricity to nearly 500,000 households. Other monetisation options include petrochemicals and fertilizers production.



Chapter 04

4. Power and renewables outlook

This chapter provides a comprehensive overview of Africa's power and renewables sector, highlighting the multifaceted dynamics shaping its future. It explores the increasing demand for electricity, driven by population growth, urbanisation and the potential influence of expansion of the data centre market. The role of natural gas as a transitional fuel is explored alongside the potential of nuclear energy in diversifying the energy mix. Additionally, the section examines the significance of regional power pools in facilitating cross-border electricity trade and enhancing energy security. Lastly, it evaluates ongoing market reforms aimed at liberalising the power sector,

Africa's power demand is projected to increase from an estimated 1,028 TWh in 2025 to 2,291 TWh by 2050. However, per capita power use remains significantly lower than that of other regions.

The continent is witnessing a significant shift towards renewable energy sources, with ~25 GW of capacity procured by governments as of 2024. Additionally, ~11 GW has been secured through private offtake agreements.

Africa's commitment to renewable energy sources presents significant opportunities for investment and innovation. Over 2020-2025, the continent invested $34 billion in clean power technologies, with 52% allocated to solar energy and 25% to onshore wind.

Natural gas is projected to account for 45% of total power generation by 2050. However, challenges related to infrastructure and supply chain issues have hindered its success to date.

While nuclear energy presents a stable baseload power option to address energy shortage, high cost (~$120 per MWh) and regulatory uncertainties remain challenges.

The share of power demand attributed to data centres in Africa remains small but hold significant potential. For instance, in South Africa, they are projected to account for over 5 TWh of electricity demand by 2030, while in Kenya, their contribution is expected to be ~0.7 TWh of projected demand of 19.2 TWh.

The establishment and enhancement of regional power pools have the potential to foster cooperation among African nations. However, challenges such as transmission constraints and reliance on bilateral trade have made it difficult to fully realise their full benefits to date.

Although some countries are embracing market reforms to liberalise the power sector, challenges and delays persist, particularly concerning regulatory capacity and stakeholder engagement, which can impede effective implementation. The path to a liberalised market requires robust regulatory frameworks, which may be lacking in many African countries.

4.1. Access to electricity

4.1.1. The state of Africa's electrification rate

Access to electricity is a vital driver of economic development, social progress and an improved quality of life. It is also a critical component of the United Nations Sustainable Development Goals (SDGs), particularly Goal 7, which aims to ensure universal access to affordable, reliable, sustainable, and modern energy for all by 2030. This goal supports economic growth, enhanced health outcomes and improved educational opportunities worldwide. According to the SDG report, global electricity access increased from 84% to 92% between 2010 and 2023. In 2023, the International Energy Agency reported that ~600 million people in Africa lack access to electricity, representing ~43% of its total population. Resultantly, average annual power consumption per capita in Africa is only 500 kWh vs the global average of 3,700 kWh.

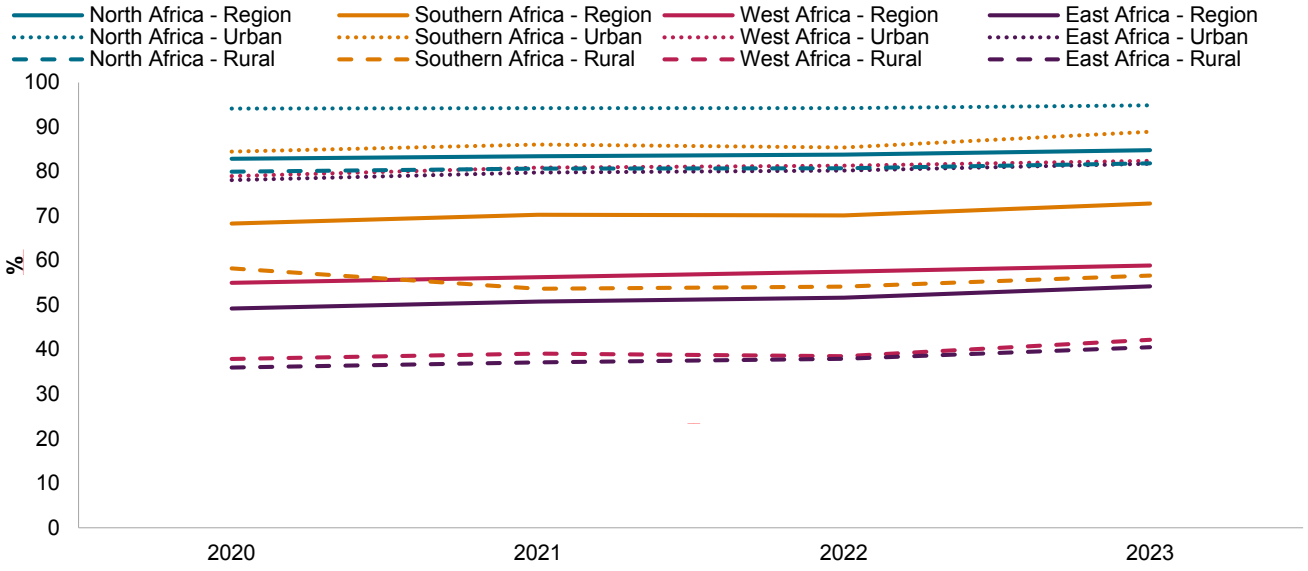
North Africa, with a higher urbanisation rate than the rest of the continent, leads the region with an average electricity access rate of 85%. Algeria, Egypt, Morocco and Tunisia have successfully achieved universal electricity access.

Morocco presents an interesting case. The General Rural Electrification Programme was launched in 1995 when rural electrification was just 18%. The government programme aimed at connecting rural areas to the national power grid by providing solar PV kits to households located in isolated rural regions.

Southern Africa has the second-highest electrification rate in the continent, with 73% of the population having access to electricity, partly due to higher urbanisation rates. West and East Africa, at 59% and 54%, respectively, present significant room for improvement in electricity access and infrastructure. Burundi, Central African Republic, South Sudan, Malawi, Niger, Burkina Faso and Chad are way behind with less than 30% electrification rate.

The pace of electrification progress in Africa reveals a significant disparity between urban and rural areas, with urban centres generally experiencing higher electricity access. The uneven distribution is largely due to better infrastructure investments in cities, where the concentration of population and economic activities makes it more viable for utility companies to provide services. In contrast, rural regions often face challenges such as lower population densities, higher cost of extending electricity networks and lower income, which hinder the expansion of electrification efforts.

Figure 44. Electrification rate



As of June 2025
Source: World Bank Open Data.

4.1.2. Challenges to achieving universal electricity access

Achieving universal electricity access in Africa faces the following key challenges:

- Infrastructure deficit: Many African countries have insufficient electricity infrastructure such as generation capacity, transmission lines and distribution networks, which impedes the ability to provide a consistent electricity supply, especially in rural areas. For instance, the DRC has significant hydroelectric potential but struggles with inadequate transmission infrastructure, resulting in a rural electrification rate of only ~11%.
- Financial constraints: Limited financial resources and investment in the energy sector pose significant challenges. Many governments face budgetary constraints, making it difficult to allocate funds for expanding electrification efforts. Additionally, private sector investments are often deterred by perceived risks and regulatory uncertainties. For instance, Nigeria's efforts to implement cost-reflective tariffs to attract private investment have faced political resistance and public opposition. Disconnection between cost and regulated tariffs adversely impacts distribution companies' balance sheet, leading to poor service delivery and further investment shortfalls.
- Policy and regulatory frameworks: Weak governance and regulatory frameworks can impede progress towards universal access. Inconsistent policies, lack of transparency and bureaucratic hurdles create an unfavourable environment for investment and development in the energy sector. Zimbabwe, for instance, faces challenges in attracting investments due to economic instability and concerns around governance. The national utility, the Zimbabwe Electricity Supply Authority (ZESA), faces a rigid regulatory framework and low tariffs, leading to financial losses, deteriorating infrastructure and inadequate maintenance investment.
- Geographical and demographic challenges: Africa's diverse geography and population distribution complicate electrification efforts. The distance and low population density make it hard to recover capital costs for expanding conventional power networks into sparsely populated areas, where most consumers have very low income. Hence, these solutions may not be economically viable without supportive policies and government subsidies.

4.1.3. The role of distributed generation and microgrids

Distributed generation (DG) and microgrids are essential for providing electricity to remote and rural villages in Africa since traditional power grids are not feasible in many such regions. DG and microgrids offer smaller, localised and in many cases low-carbon energy solutions. This makes electricity access more feasible for remote and underserved communities. Furthermore, DG and microgrids empower local communities to manage their energy resources, fostering a sense of ownership and involvement in energy decisions. Community ownership not only mitigates theft incidents but also stimulates economic development. Advancement of these technologies will help close the gap between rural and urban electrification rates.

Several measures could support the contribution of microgrids to electrification across Africa:

- Capital investments: Building DG and microgrids requires significant capital, including investments in technologies such as solar PV, wind turbines, batteries and inverters.
- Technological advancements: Investments in energy storage innovations, smart grid technology, smart metering and demand response systems will improve the efficiency and reliability of microgrids. These research developments will facilitate better integration of variable renewable energy sources and improve overall energy management.
- Financing mechanisms: Innovative financing models, including pay-as-you-go (PAYG) solar systems, microfinance and community-based financing are crucial for making energy technologies accessible to low-income households. For instance, M-KOPA Solar has successfully implemented the PAYG model in Kenya, Uganda and Tanzania, providing solar PV home systems to over 1 million households that make small payments daily via mobile money, allowing for gradual ownership and immediate electricity access. In Ghana, Village Power has facilitated community-owned microgrids, enabling local residents to collectively invest in and manage their en-

ergy resources. Additionally, SolarAfrica has partnered with municipalities in South Africa through Public Private Partnerships (PPPs) to develop solar PV microgrids in underserved areas, while the African Development Bank (AfDB) has funded microgrid projects in Nigeria with grants and low-interest loans.

- Capacity building and training: To ensure sustainability of these systems, investments in training programmes for local technicians and engineers are needed. Building local capacity will empower communities to operate and maintain their energy solutions effectively, creating local employment opportunities.
- Regulatory framework: There is a need for clear guidelines for grid interconnections, tariff structures and quality standards.
- Local economy support mechanisms: Remote communities that lack electricity often experience limited economic opportunities. While introducing electricity can enhance productivity and stimulate local economies, many residents initially have low incomes and insufficient capital to invest in technology or machinery. Energy affordability requires support and investment in the local economy along with electrification to raise incomes and ensure the microgrid system's self-sufficiency.

4.1.4. Electrification investment opportunities in Sub-Saharan Africa

Achieving universal electrification in Sub-Saharan Africa represents a substantial investment opportunity. The International Energy Agency estimates that investments of over $30 billion per year would be needed to achieve full access to electricity by 2030 – more than eight times the current annual investment of ~$3.7 billion. Governments and development banks are increasingly seeking to leverage private capital through public-private partnerships, regulatory reforms and concessional finance. These developments signal a growing alignment between public policy and private sector incentives in addressing the continent's electrification deficit.

Private companies are already playing a key role in expanding electricity access, especially through off-grid and pay-as-you-go solar solutions. In 2023, the off-grid solar sector raised around $425 million, with many of these investments targeting Africa. The recent funding successes of various solar solution providers illustrate the robust investment opportunities in the energy access sector across Africa.

Beyond the off-grid segment, large-scale projects and development-backed programmes are creating further opportunities for investment. The AfDB has committed over $1.1 billion in financing for rural electrification in Nigeria alone, including direct funding for microgrids and grid extension. The World Bank Group (WBG) is supporting mini-grid deployment through a $750 million initiative expected to reach more than 16 million people. In parallel, donor coalitions such as the Just Energy Transition (JET) Partnership have pledged $8.5 billion to accelerate South Africa's clean energy transition. However, the US has withdrawn from the JET Partnership, cancelling $56 million in grant funding and $1 billion in potential commercial investment as on February 28, 2025.

The WBG, in collaboration with the AfDB, has launched 'Mission 300,' an initiative aimed at providing electricity to 300 million people by 2030. This initiative unites both the public and private sectors. The WBG is tasked with providing electricity to 250 million individuals, while the AfDB will address the needs of the remaining population. Between July 2023 and February 2025, the WBG successfully connected 21 million people across Africa and had a pipeline of projects designed to connect over 100 million more. These projects offer opportunities for technology providers, contractors and financiers to participate in infrastructure development, from utility-scale generation and transmission to community-based microgrids. With increasing clarity on tariffs, permitting and co-financing structures, the electrification agenda in Sub-Saharan Africa presents a timely and scalable opportunity for investors.

4.2. Power demand and supply outlook in Africa

4.2.1. Africa's power demand outlook

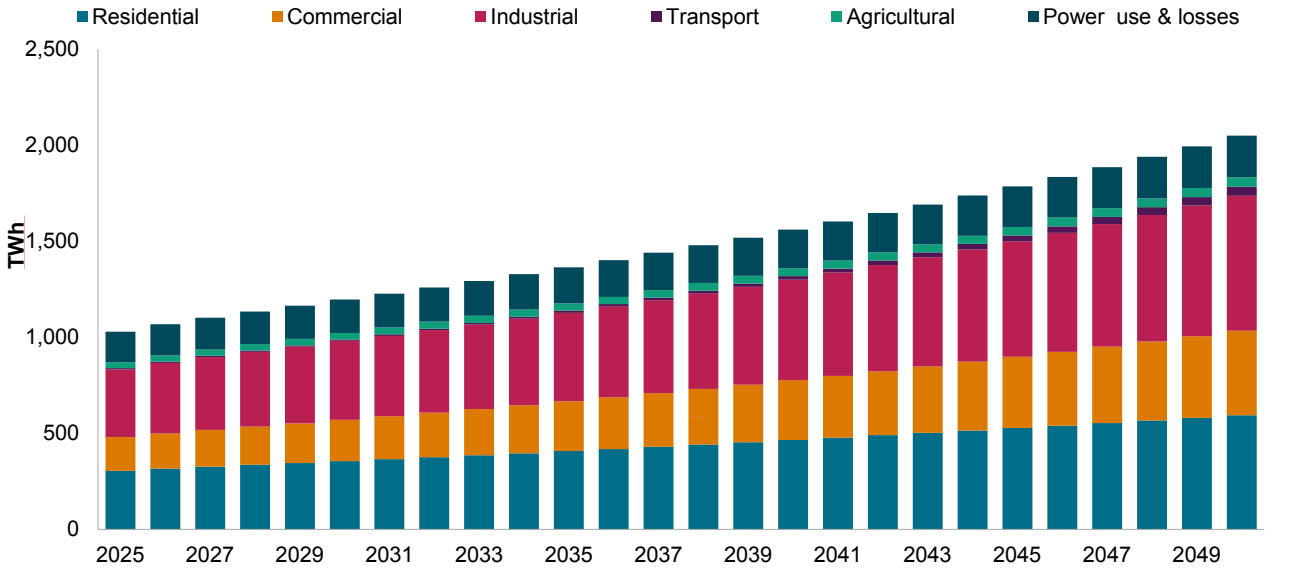
Africa's total power demand is projected to reach 1,028 TWh by 2025, excluding off-grid systems. Demand is expected to grow at a Compounded Annual Growth Rate (CAGR) of 3% from 2025 to 2050, ultimately reaching 2,291 TWh. Africa's power consumption per capita is projected to remain low, owing to inadequate infrastructure, limited electricity access in rural areas, high power costs and rapid population growth that outstrips improvements in power generation and distribution. In 2024, the average usage was only 500 kWh per person annually, significantly lower than the global average of over 3,000 kWh. It is projected to reach just 793 kWh by 2050, raising concerns about the continent's future well-being and quality of life.

Economic development in the industrial and commercial sector is expected to be the major driver of power demand in Africa. As countries industrialise and diversify their economies, the need for electricity to support manufacturing, services and infrastructure projects will grow.

The industrial sector accounts for 30% of Africa's total power consumption, with the residential sector 32% and the commercial sector 18%. Despite its high share in GDP, the agriculture sector is one of the least power-consuming industries.

The adoption of Electric Vehicles (EVs) is expected to have a minimal short-term impact owing to several challenges faced by various African countries, including power shortages, high electricity costs, a lack of EV charging points, the high initial cost of EVs and limited government incentives.

Figure 45. Power demand in Africa

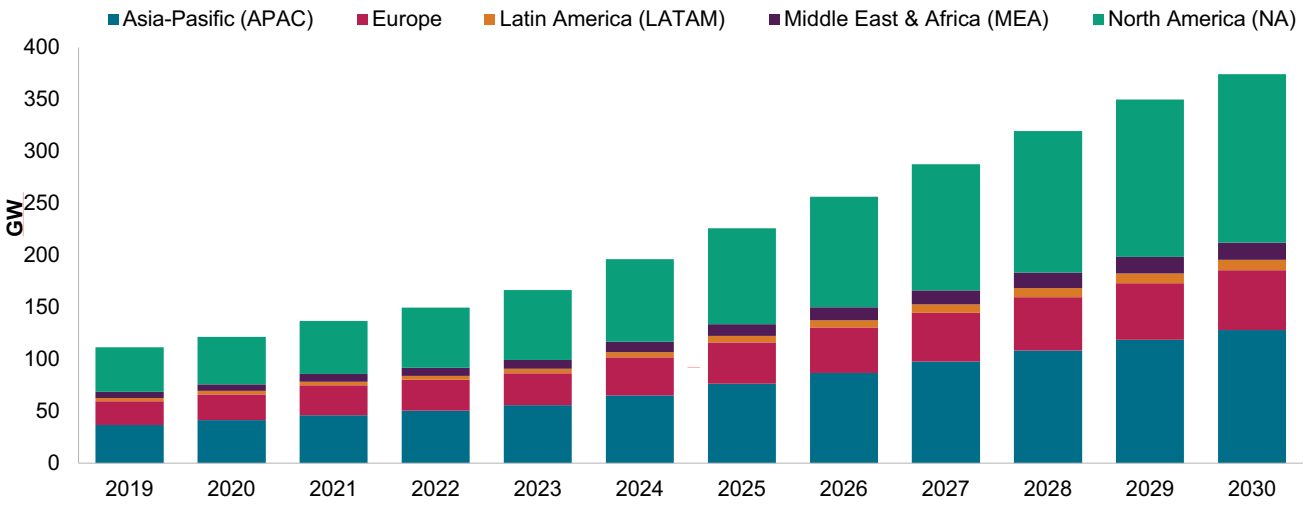


As of June 2025
Source: S&P Global Commodity Insights

4.2.2. Impact of data centres on power demand

As the digital economy continues to expand, the demand for electricity from data centres and IT infrastructure will also rise. The growth of cloud computing, e-commerce and mobile services will necessitate reliable and efficient power sources to support these technologies, driving investments in energy-efficient technologies and renewable energy integration within data centre operations, thereby enhancing overall sustainability. Global total data centre UPS power (MW), which is the power consumed by the IT equipment of data centres alone, is forecast to log a CAGR of 11% between 2024 and 2030, reaching 249 GW by year-end 2030. Considering the power needed for cooling and other ancillary loads, the total installed capacity will be 374 GW by 2030.

Figure 46. Total region-wise installed power at datacentres



As of July 2025
Source: S&P Global Market Intelligence, 451 Data Centre Knowledge Base 2024

The United States is at the forefront of data centre development globally but significant growth is expected across all regions. Africa's data centre power demand capacity is small with only 1% of the global share but is forecast to achieve a CAGR of 9% between 2024 and 2030 to reach almost 2 GW by year-end 2030. Despite this small contribution to total demand, African countries have the opportunity to take the lessons learnt from the exponential growth seen in other regions and apply them to its development.

The generative AI market is getting a lot of traction and is a driving factor for growth in data centre demand. It will hit an impressive $85 billion in revenue by 2029 against an estimated $16 billion in 2024. North America remains the biggest marketplace for generative AI, with the highest number of vendors and a very advanced infrastructure that can facilitate widespread adoption. Growth can be seen in other geographies as well, outpacing North America in some cases, largely due to lower baseline revenue figures. However, there are legal, censorship or infrastructure concerns in some countries that can possibly restrict market growth. Additionally, the evolving regulatory landscape will likely affect growth in the markets outside of North America, as well as the development of infrastructure in underserved markets by data centre and cloud service providers. Africa only has a small slice of the generative AI Market. It needs to establish its cloud infrastructure before moving on to exploring AI opportunities.

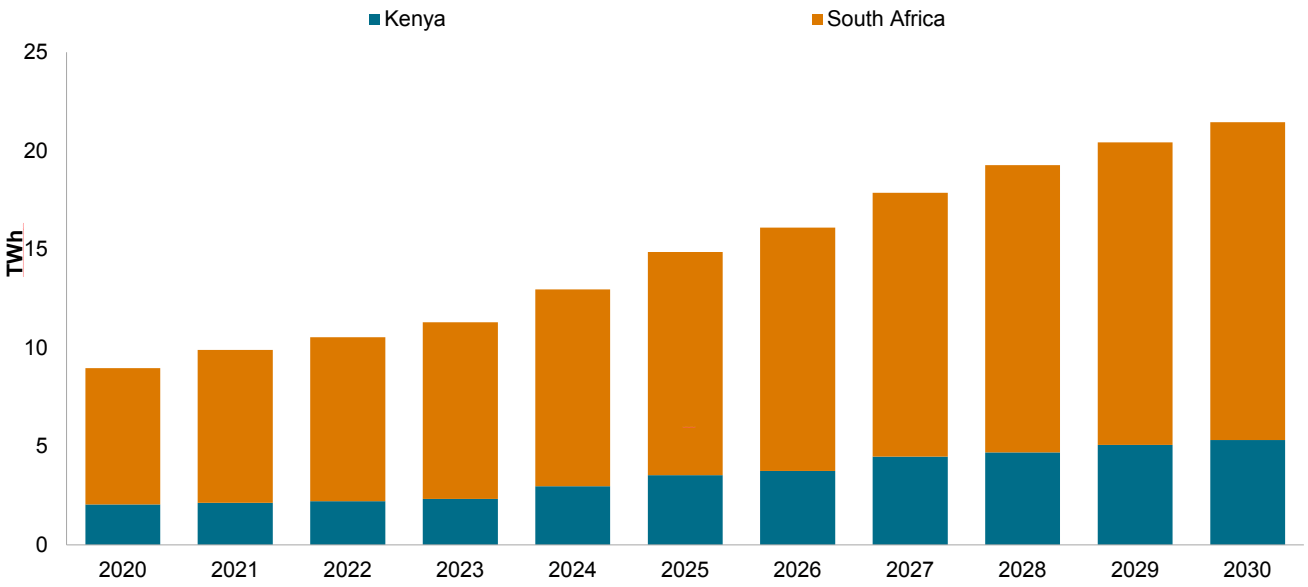
Africa is gradually shifting towards digitalisation. The development of cloud infrastructure in key markets such as South Africa, Kenya, Nigeria and Egypt could accelerate economic growth and facilitate digital transformation across the continent. The surging demand for data centres across Africa is emerging as a powerful catalyst for electrification on the continent. As data centres require substantial and reliable electricity to operate, their presence can serve as a stable demand anchor for power markets. This consistent and bankable demand encourages investment in new power generation and grid infrastructure, providing utilities and developers with a credible revenue stream that can justify large-scale power projects. In turn, these investments can expand electricity supply, improve grid reliability, and ultimately reduce the cost of power for both commercial and residential users by spreading fixed costs over a larger customer base.

Moreover, the growth of data centres often brings with it a push for innovative power solutions, including the integration of renewable energy sources and advanced grid management technologies, which can further enhance the sustainability and resilience of local power systems. As Africa continues to digitalise and attract global technology investment, the data centre boom has the potential to not only accelerate electrification but also foster economic development, create jobs and position the region as a key player in the global digital economy.

However, developing sustainable cloud infrastructure would involve several other issues as well that must be addressed, including data quality, telecom regulations, investment incentives and regional collaboration. Reliable power and adequate redundancy through multiple supply points are critical for the successful operation of data centres. However, Africa is generally not known to have reliable power supply, with many countries facing frequent outages and inconsistent electricity availability. A more favourable environment must exist to build a cloud ecosystem with policy coordination and infrastructure building from governments, investors and regional stakeholders. There is immense potential for strong demand across the continent, and if tapped, these collaborative efforts can position Africa as a serious contender in the global market.

Traditionally, Europe's data centres have handled much of Africa's data centre needs, but that is no longer tenable with consumers and enterprises requiring lower latency. There is also a growing focus on data sovereignty with local governments enacting regulations that require data to be stored locally. In response, the global cloud providers are reportedly developing pan-African strategies, with some already establishing their presence in locations such as South Africa. The trend is expected to drive demand for local data centre space throughout the region. Despite this anticipated growth, the impact of data centre demand on the overall power market ranges between countries. For instance, South African data centres are projected to consume just over 16 TWh of electricity by 2030, compared with a total power consumption of 253 TWh. In Kenya, the projected power demand is 19.2 TWh by the same year, with data centres expected to account for over 5 TWh of that total. This indicates that data centres will play a slightly smaller role in South Africa's overall power demand, primarily due to the country's existing high levels of industrialisation and power consumption. In contrast, data centres in Kenya are projected to consume around a quarter of the total power demand by 2030, thus exerting a more significant influence on the power sector.

Figure 47. Data centre-driven power demand for Kenya and South Africa



As of July 2025
Source: S&P Global Market Intelligence, 451 Data Centre Knowledge Base 2024

From telecommunications to hyperscale: Evolution and growth in South Africa's data centres

South Africa is the largest data centre market in Africa, and with recent cloud zones going live —such as Microsoft in 2019, Amazon Web Services (AWS) in 2020 and Google in the pipeline — large-scale growth is expected in the next few years as the market migrates from a telecommunications and retail colocation model to a wholesale data centre hub. The demand for cloud services is being driven by companies' increasing demand to accelerate their digital transformation strategies and migrate from on-premises infrastructure. Owing to the complexities of the market, cloud providers have predominantly opted to lease facilities rather than build their own. The present expansions in Johannesburg are at a larger scale than previously envisioned as the providers prepare for the expected hyperscale demand for data centre capacity. The market is now operating at over 83% utilisation, which we expect will continue over the next two years, fuelled by hyperscale and tier-two cloud demand, as well as reselling of cloud services by service providers. This utilisation is expected to increase to over 94% towards 2030 as demand catches up. There is a particularly strong demand for facilities in or near Johannesburg and Cape Town. Johannesburg benefits from a diversified mix of wholesale and retail demand and both international and local providers. Interest by foreign investors seeking to acquire a share of the market via land acquisitions, data centres or partnerships remains robust.

Kenyan data centre market: Anticipating growth amid low utilisation and rising cloud demand

Kenya is Africa's third-largest data centre market with around 40 MW of data centre IT load capacity, just behind South Africa and Nigeria as of end-2024. The local data centre players are building speculatively, anticipating higher demand from the cloud providers, as reflected by the lower than 40% utilisation rates projected through 2025 to 2028. The country has a stable political environment and consistent economic development with a young population having access to education and technology that helps create a skilled labour force for the data centre industry. Kenya is also home to a considerable number of local start-ups and international investment from foreign technology firms. The Government of Kenya has been prioritising digitalisation, presenting possibilities for growth in the data centre sector such as through the National Data Centre under construction in Konza, which forms part of Kenya's Vision 2030 smart city initiative. Nairobi, the capital and largest city in Kenya, is the biggest data centre market in the country and is responsible for 90% of its entire data centre supply in terms of megawatts. The Nairobi market is predicted to register a 30% CAGR from 2023 to 2028, while total supply will surpass 155 MW of IT load by the end of 2029. Cloud providers, aware of the limitation of provision from South Africa to East Africa in the long run, are seeing growing interest from data centre providers that aim to leverage expected future demand.

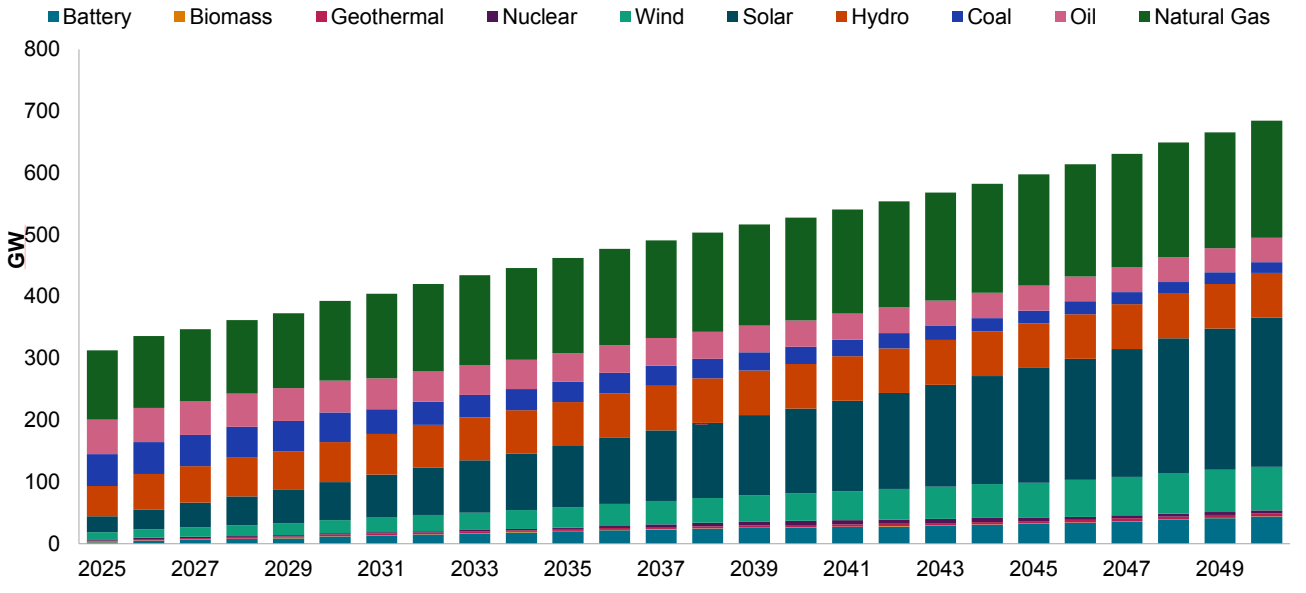
4.2.3. Africa's power installed capacity outlook

Africa's power supply landscape is characterised by a diverse mix of power supply technologies, each playing a crucial role in meeting the continent's growing power demand. Africa has an installed capacity of 313 GW, with fossil fuels still dominating the capacity mix. Natural gas is projected to account for 40% of the installed capacity mix by 2025, followed by coal at 21% and oil at 10%. However, the electricity sector is witnessing a significant shift towards more sustainable sources.

Africa possesses immense renewable energy potential across solar, wind, hydropower, and geothermal sources, according to the International Renewable Energy Agency (IRENA). Africa has vast solar energy potential, receiving 2,000–3,000 kWh/m^2/year of solar irradiation, yet only a small portion is utilized. It is estimated by IRENA that wind power could provide around 1,300 GW, especially in North, East, and Southern Africa where wind speeds are favourable. The continent is also estimated to holds about 1,100 GW of hydropower potential, with only 11% currently developed. While geothermal resources in the East African Rift are estimated to be capable of providing 15–20 GW.

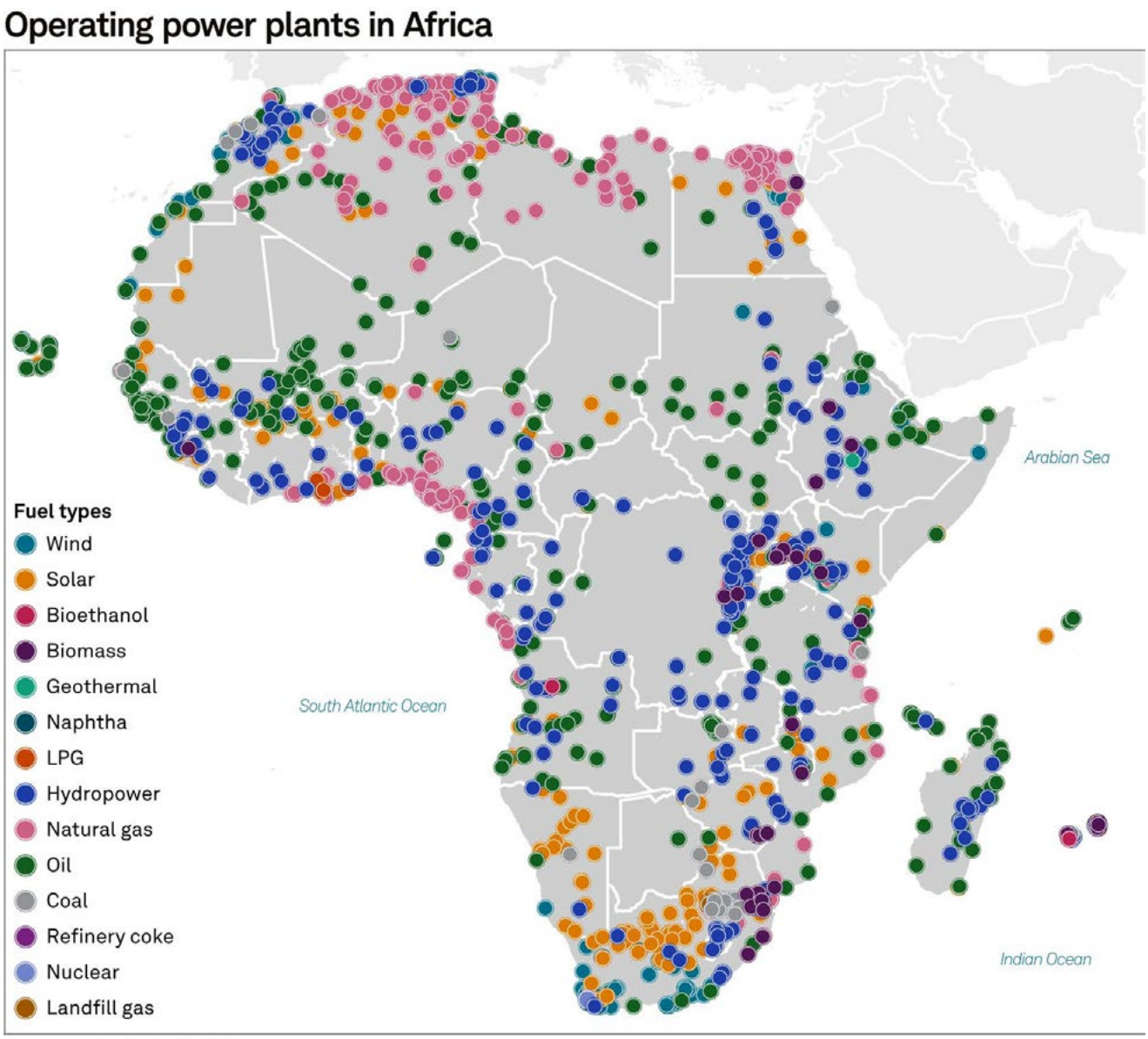
Hydropower harnessing the continent's abundant water resources remains a key renewable source, contributing 16%, with countries such as Ethiopia, Lesotho, Mozambique, the DRC and Zambia. Solar and wind are quickly gaining traction in Africa due to decreasing costs and rising investments. Currently, these sources account for 9% of the installed capacity mix and are projected to increase to 41% by 2050. Also, geothermal energy presents significant untapped potential, particularly in East African countries such as Ethiopia and Tanzania. Meanwhile, biomass and waste-to-energy solutions are emerging as viable options for rural electrification and sustainable waste management.

Figure 48. Installed capacity in Africa



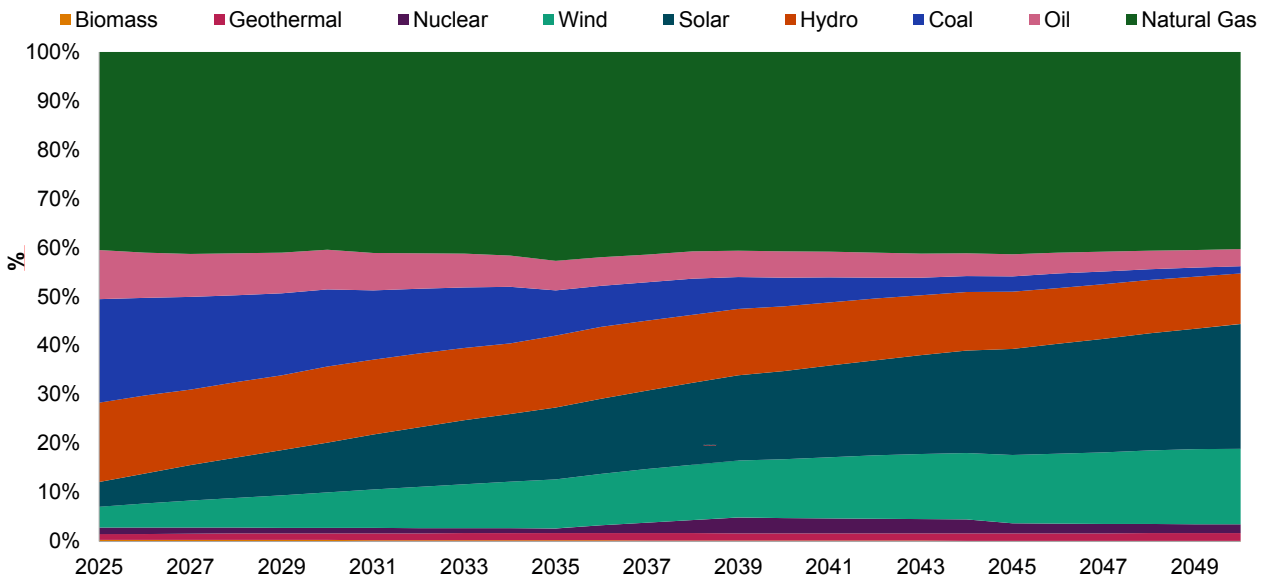
As of June 2025
Source: S&P Global Commodity Insights

Figure 49. Operating power plants in Africa



Data compiled July 15, 2025.
Sources: Global Power and Renewables (Connect); Upstream Content, a product of S&P Global Commodity Insights: 251282-01.

Figure 50. Power generation by fuel



As of June 2025
Source: S&P Global Commodity Insights

Despite its available natural resources and increasing generation capacity, Africa continues to face significant challenges related to power shortages. These shortages are primarily driven by insufficient power generation capacity, and unreliable, outdated and often inadequate transmission and distribution infrastructure. The issues hinder the continent's ability to meet the growing demand for electricity, impacting economic development and the quality of life for millions of people.

Challenges affecting electricity supply in Africa

- **Insufficient power generation capacity**
  Many African countries struggle to generate enough electricity to cater to the growing demand, which limits economic growth and access to basic services. For example, Nigeria faces chronic shortages because of inadequate generation facilities, resulting in frequent blackouts and reliance on costly private generators.
- **Outdated and unreliable infrastructure**
  Even where generation is sufficient, aging infrastructure leads to frequent breakdowns and unreliable supply, undermining economic activity and public trust. In South Africa, for instance, old coal plants often fail, forcing the utility Eskom to implement load shedding.
- **High transmission and distribution losses**
  Technical inefficiencies and power theft cause significant losses during transmission and distribution, reducing the amount of electricity that reaches end-users. Niger, for example, loses up to 47% of its electricity; the DRC and Namibia also experience high losses.
- **Limited investment and financing**
  Many countries lack the financial resources to invest in power infrastructure, resulting in low electrification rates and slow progress. Chad, for example, has one of the world's lowest electrification rates due to limited investment.
- **Political and regulatory challenges**
  Weak governance and complex regulations can delay or derail power projects, deterring investors and slowing development. Despite its vast hydropower potential, the DRC faces significant regulatory and governance barriers.
- **Climate change and environmental factors**
  Changing weather patterns and environmental risks threaten the reliability of power supply, especially where hydropower is dominant. Zambia, for example, has seen loadshedding caused by droughts that affected hydropower output.

To address these persistent power supply challenges, Africa must adopt a holistic and strategic approach that goes beyond simply expanding generation capacity. Key considerations include prioritising investment in modern, resilient infrastructure; fostering regulatory and governance reforms to attract private capital and support project delivery; and leveraging innovative financing models such as blended finance and public-private partnerships. It is also essential to adopt advanced technologies to modernise the grid to reduce losses, improve grid management and diversify the power mix to enhance resilience. This makes coordinated action between governments, investors and the private sector critical to unlocking the continent's vast energy potential.

4.2.4. Contribution of natural gas to Africa's power system

Natural gas serves as a pivotal transition fuel for electricity generation in Africa, enabling countries to shift from more polluting power sources such as coal and oil towards cleaner alternatives. As many African nations face significant electricity deficits, natural gas presents a viable option to expand electricity generation capacity while reducing carbon emissions. The flexibility of natural gas plants allows for a quick ramp-up and -down in response to fluctuating demand, making them an ideal complement to solar and wind energy. This adaptability is crucial for stabilising the grid and ensuring a reliable power supply as countries increase their investments in renewable energy infrastructure.

Explorable and sufficient indigenous natural gas is found only in select countries across Africa, which imposes geographical limitations on its use in the power sector. However, the development of regional power pools is increasingly being viewed as a viable solution. These power pools would facilitate the sharing of gas-generated electricity from countries with indigenous gas resources or LNG import terminals to those that lack such resources, all through an interconnected transmission network. This approach not only enhances power access but also promotes regional cooperation in addressing power needs.
As of 2025, Africa's gross natural gas production is projected to reach 331 Billion Cubic Meters (Bcm), with Algeria, Nigeria and Egypt at the forefront of production. Natural gas currently constitutes 40% of electricity generation across the continent, with North Africa's gas generation alone making up 32% of the generation on the continent. While the capacity for natural gas generation is projected to expand by over 77 GW by 2050, its share in the overall power system is expected to remain stable at approximately 40%. This underscores the vital role of natural gas as a transitional fuel. However, it is not anticipated to become the dominant power source due to the increasing affordability, scalability and the rapid growth of renewable energy technologies.

In countries that are heavily reliant on coal for baseload power, particularly South Africa and Morocco, the imperative to reduce emissions in line with Nationally Determined Contributions has prompted plans to phase out coal power. This transition is expected to result in a significant decline in coal-generated electricity in Africa, from 217 TWh in 2025 to just 29 TWh by 2050. It is anticipated that gas generation and renewables together will have to step in to fill this gap. A similar trend is observed in nations that predominantly depend on oil for baseload power, such as Nigeria, Angola and Senegal. While natural gas is recognised for emitting fewer carbon emissions than coal and oil, concerns persist regarding whether emissions from gas power could impede the achievement of net-zero targets.

Some countries are at the forefront in developing policies and regulations to support future gas-to-power initiatives and have begun to replace oil and retire coal power plants. The table below illustrates some of these initiatives.

Table 6. Selected countries that have stated gas-to-power ambitions

Country	Current gas-to-power	Future gas-to-power ambitions	Coal retire-ment	Oil replace-ment	Potential origin of gas supply
Nigeria	✓	The gas master plan has gas-to-power as a central pillar	✗	✓	Current and contingent domestic sources
South Africa	✗	The gas utilisation master plan strongly emphasises the importance of converting gas into power	✓	✓	LNG imports directly into South Africa or via Mozambique; domestic sources are small and require infrastructure
Senegal	✓	The gas-to-power strategy is specifically designed around converting gas resources into electricity generation capacity, with the aim of having 3 GW of gas-to-power installed capacity by 2050	✓	✓	Domestic sources contingent on the development of LNG-integrated projects and the development of gas infrastructure to onshore projects; LNG is currently being imported for power
Ghana	✓	The gas master plan emphasises gas-fired power generation for energy security	✗	✓	Pipeline imports from Nigeria; LNG imports or contingent domestic resources are future options
Tanzania	✓	The natural gas utilisation master plan includes important provisions for generating electricity with natural gas	✗	✗	Contingent domestic sources
Mozambique	✓	The natural gas master plan includes substantial gas-to-power components	✗	✗	Present and contingent domestic sources
Angola	✓	The finalised gas master plan has ambitions for new gas assets and oil-to-gas switching	✗	✓	Present and contingent domestic sources

Source: S&P Global Commodity Insights

Using gas for power generation in Africa faces several challenges, primarily related to infrastructure and supply chain issues as many countries lack the necessary infrastructure for efficient gas transportation and distribution. Additionally, the reliance on imported gas can create vulnerabilities due to fluctuating global prices and geopolitical uncertainties, which can disrupt supply. There are also concerns about the environmental impact of gas extraction and combustion, as well as regulatory and policy uncertainties that can deter investment in gas power projects. These challenges highlight the critical need for investment in infrastructure and supply chain improvements to enhance gas power generation in Africa. It also highlights the need for strategic thinking around the impacts of technology available. Failure to address these issues may impede Africa's ability to utilise natural gas effectively.

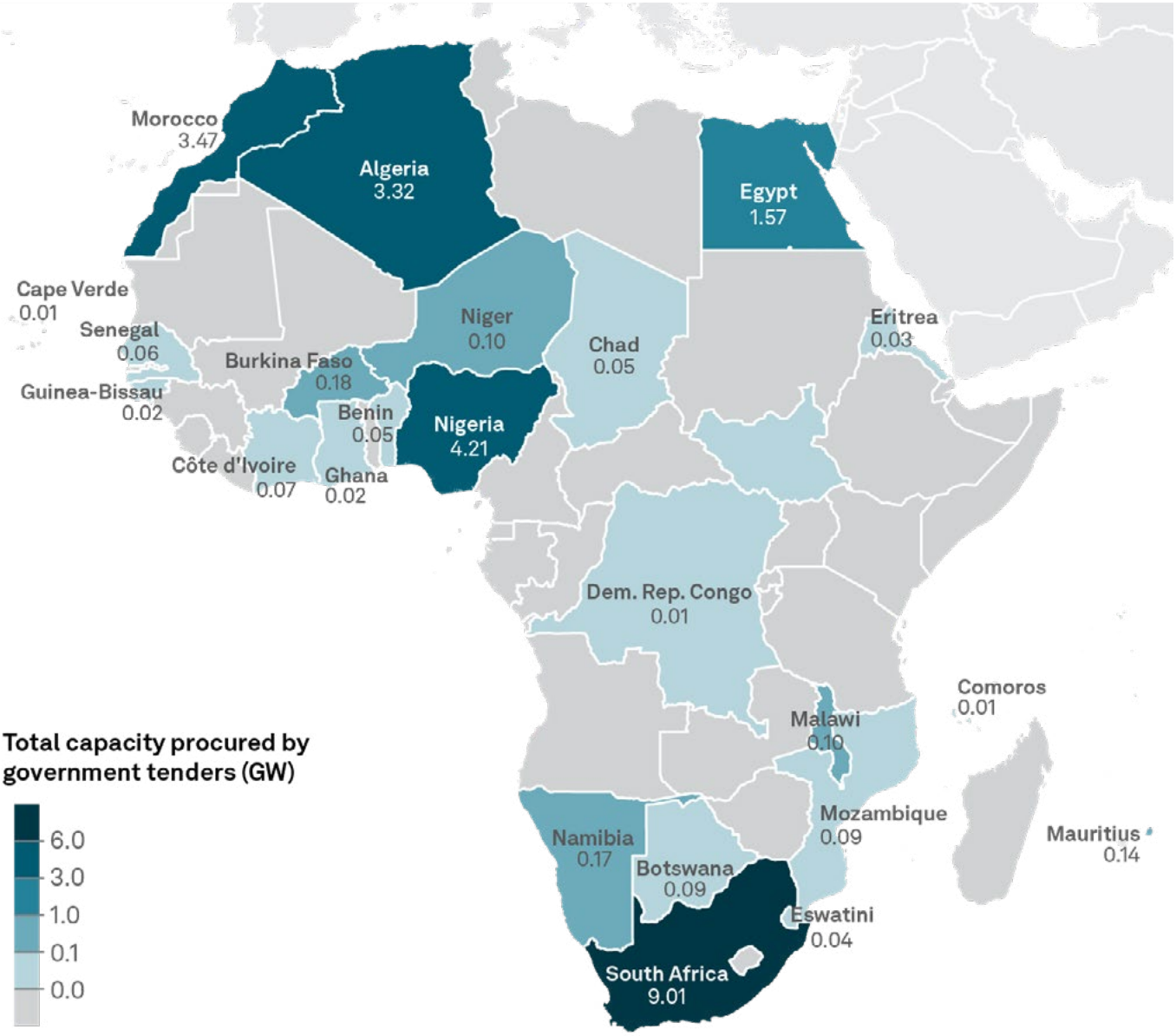
4.2.5. Unlocking Africa's wind and solar potential

The share of coal-fired and oil- and natural gas-based power generation has been continuously dropping in Africa over the past few years. In contrast, the share of renewables has increased as national governments and companies actively seek less carbon-intensive power sources. The current 9% generation contribution of solar and wind sources to the electricity mix, is projected to increase to 41% by 2050. Overall renewables, incorporating hydro, geothermal and biomass, is projected to provide 53% by 2050.

Africa has made significant strides in renewable power procurement over the past decade, driven by a growing commitment to sustainable energy and the urgent need to address power shortages. By July 2024, the continent had auctioned around 25 GW of renewable energy capacity, primarily from solar and wind sources. These initiatives have been bolstered by supportive policies aimed at fostering investment and encouraging the development of infrastructure necessary for renewable energy projects.

National governments across Africa have implemented various measures, including competitive tendering processes, feed-in tariffs and power purchase agreements, to attract domestic and international investors. This policy support has been crucial in reducing the cost of renewable energy and increasing its share in the power mix. Notable market leaders such as South Africa, Morocco and Egypt have successfully developed large-scale renewable projects, showcasing the potential of public-private partnerships and innovative financing models.

Figure 51. Government procurement programmes for renewable energy across Africa

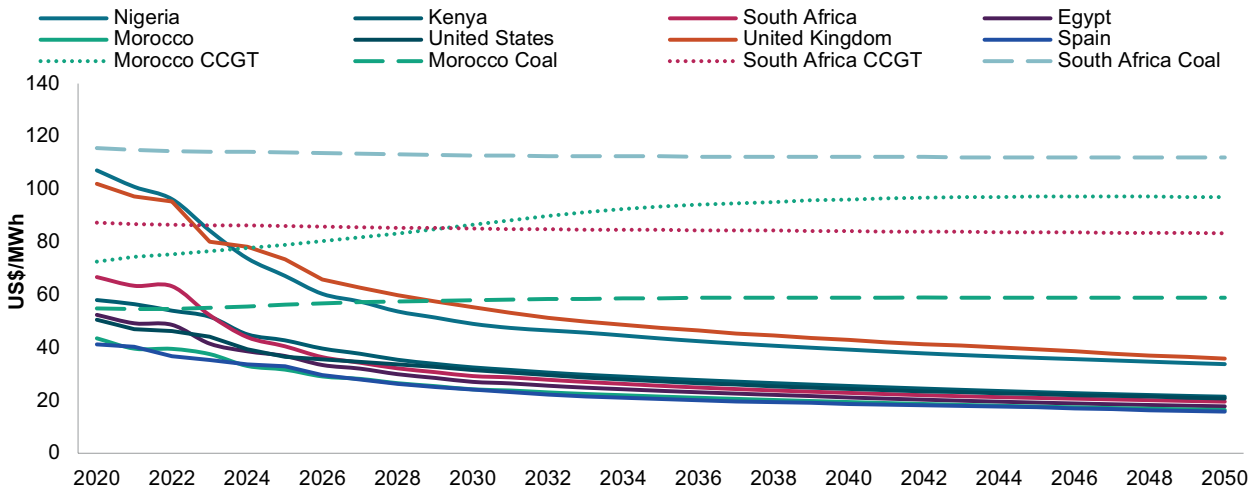


Data compiled July, 2025.
Includes projects that have not reached Financial Close.
Source: S&P Global Commodity Insights.

Private offtake through power purchase agreements is rapidly gaining traction as an alternative to government procurement in Africa, with ~11 GW of capacity secured via private deals. This shift is largely driven by the private sector's need for energy security, cost predictability and the ability to meet environmental, social, and governance targets. Private offtake arrangements offer more flexibility, faster timelines and reduced exposure to regulatory delays against government-led tenders, making them attractive in markets. Conversely, public procurement processes can be slow or uncertain. South Africa, Morocco and Egypt are leading in private offtake for renewable energy, accounting for most privately negotiated power purchase agreements in Africa. These countries have established clear policy frameworks, streamlined regulatory processes and provided strong investment incentives, making them attractive markets for private sector participation. Their proactive approach has enabled faster project development and greater investor confidence.

The transition to renewable energy sources is driven by decreasing capital costs and the overall Levelized Cost of Electricity (LCOE) of renewable technologies across the globe. The LCOE for renewable technologies in Africa reflects a promising trend towards more affordable and sustainable power generation. For 2025, the LCOE of utility-scale solar PV projects was competitive, ranging from $32 to $67 per MWh, compared with 73 $/MWh in the United Kingdom. This reduction has been fuelled by advancements in solar technology and supply chains across the continent, particularly in South Africa and Kenya.

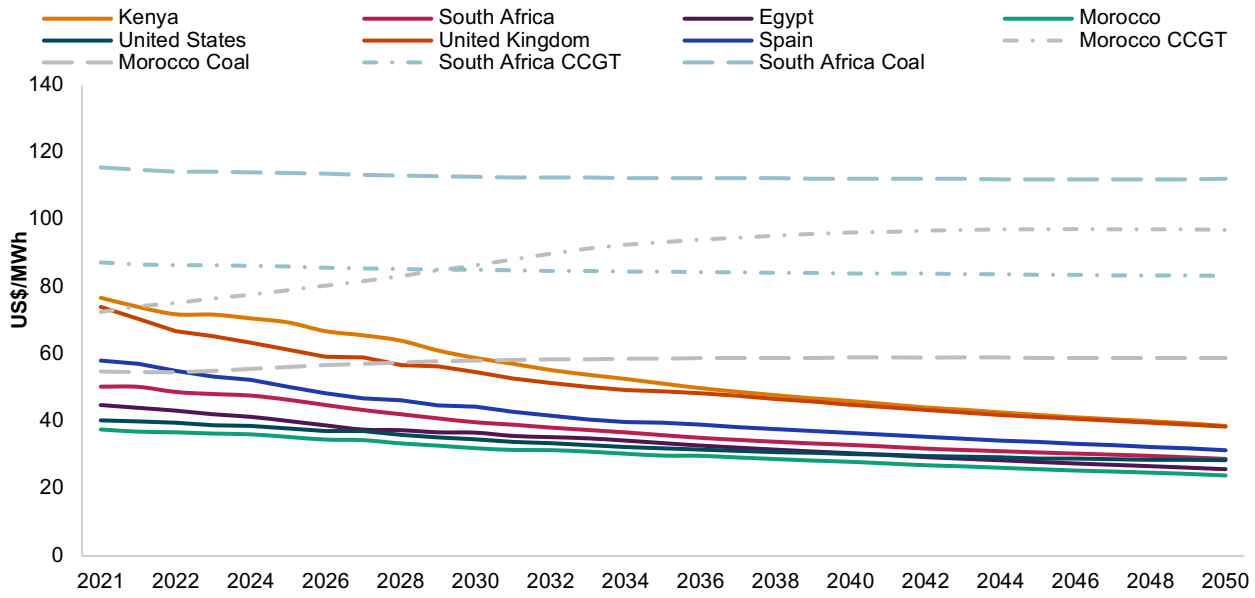
Figure 52. Solar PV vs, CCGT and Coal LCOEs



Data compiled July 04, 2025.
Source: S&P Global Commodity Insights.

Wind energy is also gaining traction as a viable renewable option in Africa, with current LCOE estimates between $37 and $71 per MWh. The development of onshore wind farms, particularly in regions with favourable wind conditions such as the Cape Provinces in South Africa and parts of Kenya, has contributed to this competitive pricing. As turbine technology and supply chains improve with increased capacity, the LCOE for wind energy is projected to decrease further, with forecasts suggesting $33 to $59 per MWh by 2030.

Figure 53. Onshore wind vs. CCGT and Coal LCOEs



As of July 2025
Source: S&P Global Commodity Insights

Both PV and wind have more affordable LCOE prices compared with gas generation and coal in South Africa, Egypt and Nigeria. However, a key challenge remains in the intermittency of these sources and the need for dispatchable power.

Battery storage is vital for improving the reliability and reducing the intermittency of renewable energy systems. It stores excess power generated during peak production periods and dispatches it during times of high demand. Currently, the LCOE for battery storage in Africa is $150 to $300 per MWh. Despite the ongoing high costs, the launch of the Battery Energy Storage Independent Power Producers Procurement Programme (BESIPPPP) in South Africa, along with a growing number of hybrid renewable projects co-located with batteries across the continent, indicates that governments are increasingly recognizing battery storage as a vital support for their renewable energy ambitions.

On the other hand, batteries exhibit inherent storage limitations characterised by a direct correlation between the required storage duration and the associated costs; specifically, as the duration of energy storage increases. However, ongoing advancements in battery technology and increased production capacity are expected to drive costs down significantly, making energy storage solutions more economically viable for integrating renewable energy into the grid. Despite this, other complimentary solutions are needed to support renewable energy integration, reliability and mitigate unserved energy across the continent.

The comparative cost difference for renewable energy generation, gas and thermal generation across different countries provides a valuable insight into the most cost-effective technologies for each. Wind and solar generation show a clear advantage as prices continue to decrease, whilst gas to power and coal show little improvement in costs and, in some cases, increased costs. This is only an indication of part of the needs, since renewables will require dispatchable power to ensure reliability of the power system. Hydro and geothermal could be an alternative solution, but only for select countries. Each country needs to assess which combination of power sources will strike an optimum balance between affordability, reserve margin requirements and emission reductions.

4.2.6. Emerging small scale nuclear reactors

Africa currently has only one operational nuclear power plant, Koeberg in South Africa. However, several countries, including Egypt, Ghana and Kenya, are exploring nuclear energy to meet rising electricity demand, with Egypt already in construction stages. However, the LCOE for nuclear remains high, estimated to range between $85/MWh and $154/MWh. It is projected to stay high through 2050 compared with solar PV ($20 - 34/MWh) and onshore wind ($24 - 48/MWh), which are expected to decline further. This makes nuclear less competitive in Africa, where energy affordability is critical.

Traditional nuclear generation facilities necessitate substantial capital investment owing to their large scale and intricate design. This means new nuclear projects require either strong domestic financial backing or substantial foreign investment. In Africa, foreign investment often comes with high-risk premiums due to regulatory instability, political uncertainty and concerns over long-term payment guarantees. These factors can make nuclear projects financially unviable, compared with alternatives. In contrast, renewable energy projects, particularly solar and wind, offer quicker returns, lower upfront costs and greater scalability, making them more attractive.

Yet, nuclear offers a unique advantage: it delivers stable baseload power, crucial for replacing fossil fuel generation and for stabilising grids that increasingly depend on intermittent renewable sources. Without sufficient battery storage, which remains underdeveloped and costly in Africa, relying exclusively on solar and wind power can result in intermittent and unreliable power supply. In this context, nuclear could play a strategic balancing role. If robust offtake agreements and secure payment mechanisms can be established, nuclear energy could become a viable option in Africa.

Small Modular Reactors (SMRs) may help overcome traditional barriers, offering smaller, more flexible project scales and lower capital requirements. The dominant SMR technology is still emerging, with several competitive designs currently under development. SMRs also hold strong potential for captive power applications, including data centres, mining operations and microgrids, where consistent, off-grid power is essential. Currently, only one SMR project is planned in Africa, a 50 MWe facility in South Africa, which remains in the early planning stages.

4.2.7. Africa's renewables investment outlook

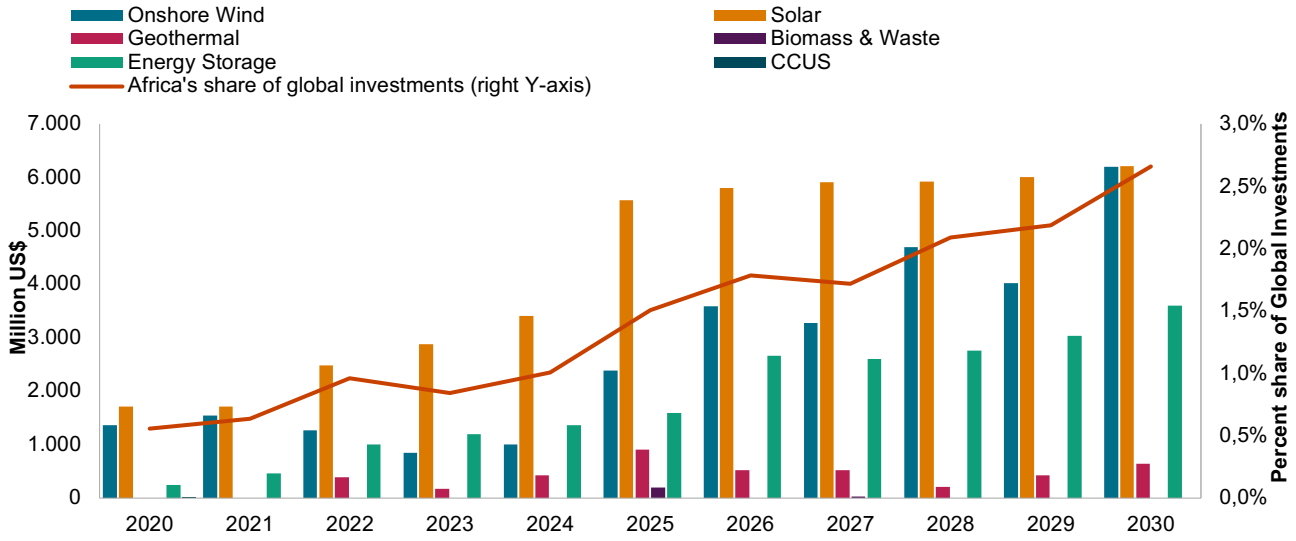
As Africa seeks to reduce energy poverty and make sustainable choices to combat climate change, investments in renewable energy sources such as solar, wind and hydroelectric are becoming essential.

The continent is endowed with abundant natural resources, and growing demand for electricity presents a unique potential for clean power investments. Africa's renewable energy sector holds the potential to reshape the power landscape and enhance energy security for millions. However, given Africa is the second most populous continent in the world, the scale of investment in the renewable energy sector remains significantly behind that of other global initiatives.

Between 2020 and 2025, Africa invested $34 billion in clean power technologies, with 52% directed towards solar power and 25% towards onshore wind. Despite this investment, Africa's share of global investments is projected to be just 1.5% in 2025.

From 2026 to 2030, Africa is projected to invest $68 billion, raising its share of global investments to a peak of 2.7%. The increasing share is positive news; however, it remains marginal compared with the rest of the world.

Figure 54. Africa renewables investment outlook



Data compiled June 30, 2025.
Source: S&P Global Commodity Insights.

Although Africa has made progress in power-related investment, it lags other regions due to the perception of high risks associated with investing in African energy markets. These markets are often characterised by political instability, regulatory uncertainties and inadequate infrastructure. Investors are concerned about the potential for policy changes, corruption and bureaucratic hurdles that can delay projects and increase costs. The lack of a robust financial ecosystem, including limited access to capital and high interest rates, further deters investment in power technologies.

To accelerate renewable energy investment, African nations need to address several structural and financial barriers that have slowed progress. Key priorities include strengthening political and regulatory stability, essential for building investor confidence and reducing perceived risks. Establishing clear, long-term policy frameworks and transparent regulatory processes can help attract both domestic and international capital.

Given limited fiscal space, African governments may not be able to offer large-scale direct financial incentives. Instead, they should focus on leveraging blended finance models, where public funds are used strategically to de-risk projects and crowd in private investment. This can include providing partial risk guarantees, supporting project preparation and facilitating access to concessional loans from development finance institutions. The PPPs and innovative financial instruments, such as green bonds and aggregation platforms for small-scale projects, have also proven effective in mobilising capital for clean power in Africa.

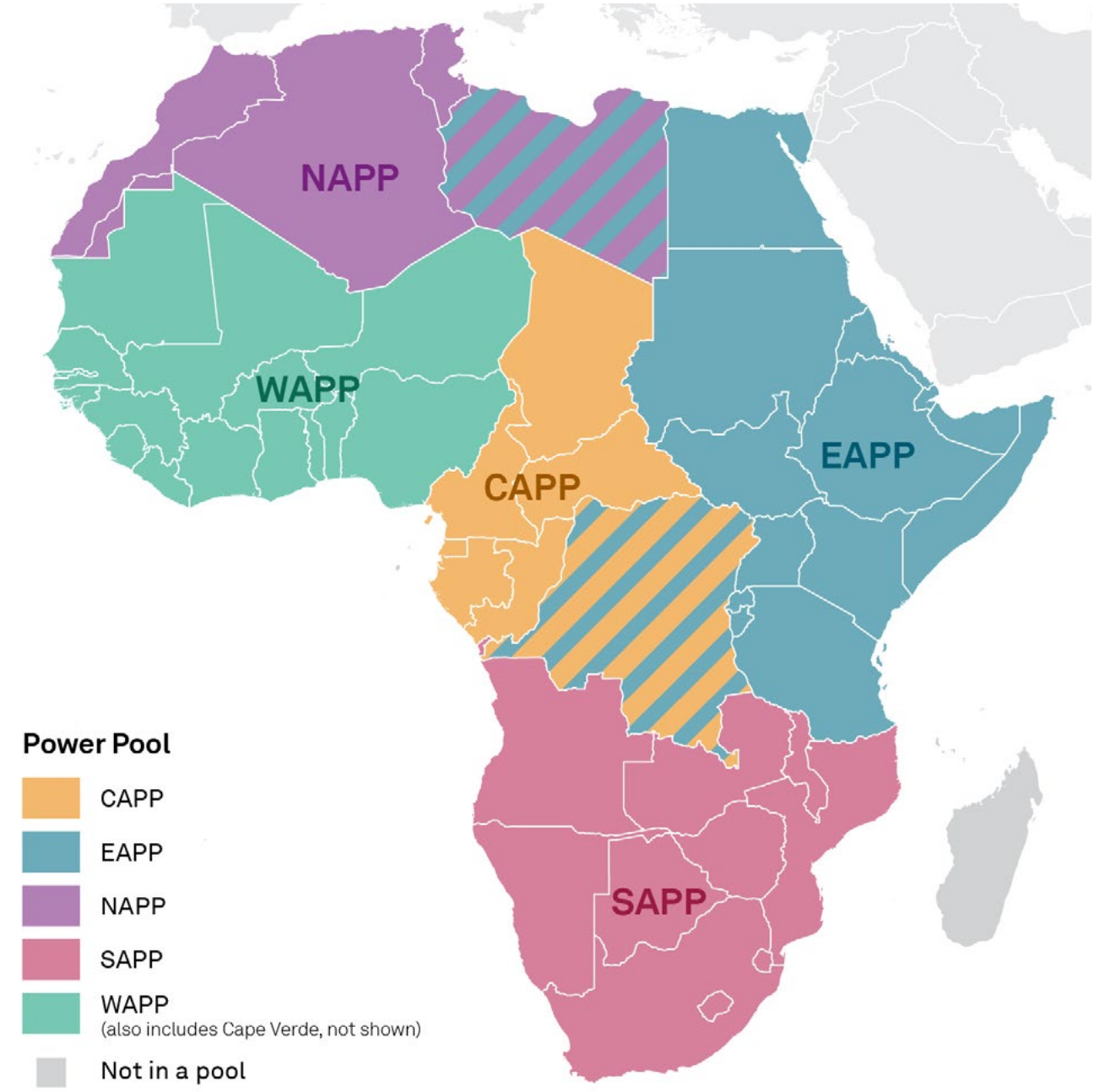
4.3. Regional integration through power pools can support the continent's power ambitions

Regional electricity integration in Africa could help address the continent's electricity challenges. Developing a larger, interconnected electricity market allows countries to create alternative offtake solutions, reducing project risks and attracting more investment in electricity infrastructure. Regional integration can also lower electricity costs for consumers and businesses through economies of scale, enhanced competition and diverse power sources.

4.3.1. Insights into Africa's power pools

Five regional power pools have been established across the continent. These power pools—spanning southern, eastern, western, central and northern Africa—are collaborative frameworks that enable neighbouring countries to interconnect their electricity grids, share resources and coordinate energy policies.

Figure 55. Detailed member composition of each power pool



Data as of July, 2025.
Source: S&P Global Commodity Insights.

The Southern African power Pool (SAPP) stands out as the most advanced and successful. SAPP's achievements are rooted in its robust institutional framework, high degree of grid interconnection and a transparent, competitive electricity market that has enabled efficient trading and resource optimisation. This has allowed SAPP to serve as a model for regional integration, with member countries benefiting from reliable power exchanges and a diversified generation mix.

The West African Power Pool (WAPP) has made notable progress, particularly in expanding cross-border interconnections and increasing electricity trade. However, WAPP's market is still maturing, and its growth is hampered by incomplete grid links, regulatory fragmentation and persistent financial challenges such as payment arrears. The Eastern Africa Power Pool (EAPP) is also making strides, with several large-scale interconnection projects underway. Yet, its development is slowed by political and regulatory fragmentation, infrastructure gaps and occasional security tensions among member states.

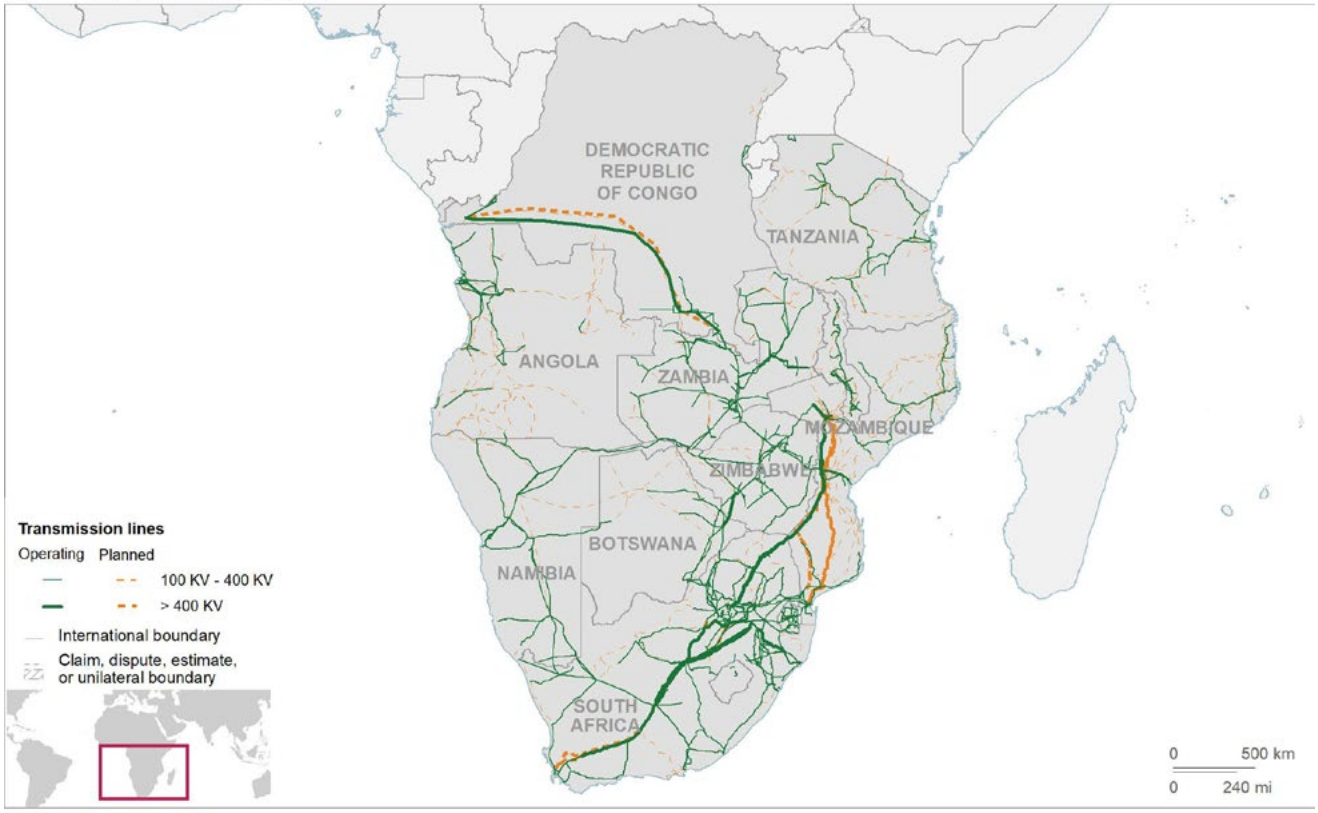
The Central African Power Pool (CAPP) remains the least developed, with minimal cross-border trade and limited infrastructure. Political instability, weak governance and a lack of investment have all contributed to its slow progress. Meanwhile, the North African Power Pool (NAPP) boasts some of the continent's most advanced infrastructure, but regional electricity trade is limited since most countries prefer bilateral agreements and focus more on integration with European markets than with sub-Saharan Africa.

Efforts to integrate these regional pools into a single, continent-wide electricity market are gaining momentum. The African Single Electricity Market, spearheaded by the African Union, aims to create the world's largest electricity market by 2040, harmonising technical standards, regulatory frameworks and infrastructure planning across regions. However, this vision faces significant barriers, including geographical distances, technical incompatibilities, the vast infrastructure needed, political fragmentation and differing national interests.

4.3.2. SAPP power pool overview

SAPP has 12 member countries, which include the main power utilities and private participants from each nation. While recognised as the most advanced power pool, the need for further improvements to unlock true market potential remains.

Figure 56. Existing and planned transmission lines in the SAPP

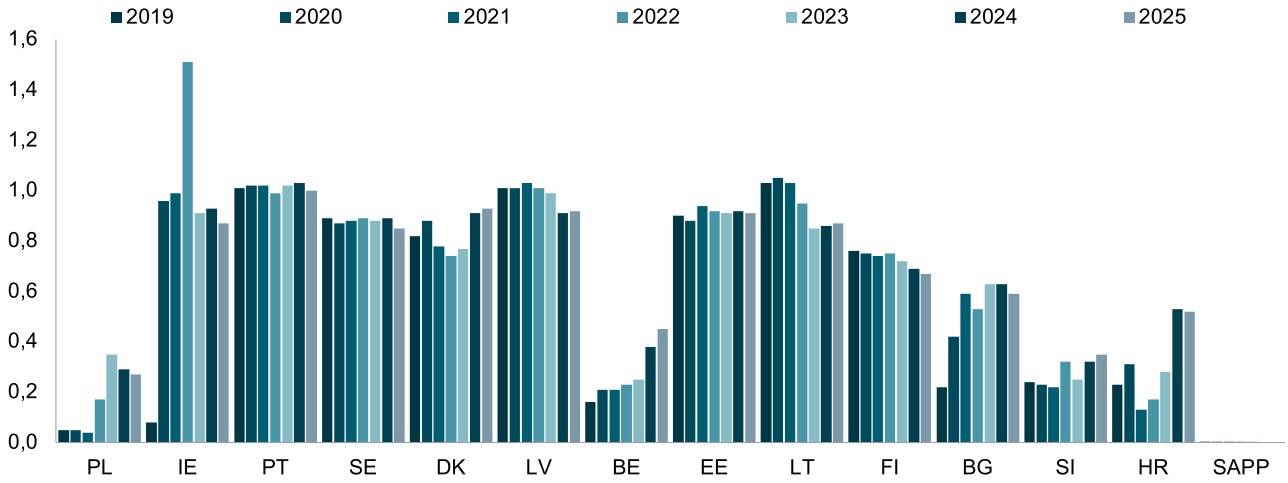


Data compiled: Jul. 16, 2025.
Source: Upstream Content, a product of S&P Global Commodity Insights.

Market liquidity is a crucial indicator of a well-operating electricity market. In 2023, 7.7 TWh was traded over the SAPP, compared with a total demand of 344 TWh, which amounts to ~2%. Of this total traded power, around 80% comes from bilateral trades, followed by the day ahead market (DAM) with 13%. This dominance of bilateral contracts further reduces the scale of the DAM against total power demand and reduces its ability to stabilise the network through the market mechanism.

A key metric used to assess liquidity is the 'churn factor', defined as the overall volume traded through exchanges and brokers and expressed as a multiple of physical consumption. The chart below shows most European power markets that are considered mature have been trading 24+% of physical power consumption via the DAMs. This compares with less than 1% currently for DAM trade in the SAPP. This low level of liquidity remains a major constraint to the effectiveness of the SAPP market.

Figure 57. European DAM churn factor compared against SAPP



Data compiled July 10, 2025.
Source: ACER - European Union Agency for the Cooperation of Energy Regulators; SAPP

As of July 2025
Source: ACER - European Union Agency for the Cooperation of Energy Regulators; SAPP

The SAPP faces significant challenges that limit trading and exacerbate transmission constraints, primarily due to congestion in transmission lines, which restricts power trade. While the percentage of blocked trades in the SAPP DAM improved from over 40% before 2018 to 1.3%, this change is largely due to reduced trading activity rather than market enhancements. Coordinated investment in transmission facilities are essential to maximise the power pool's benefits. However, funding gaps for critical infrastructure improvements and insufficient financial resources for developing transmission corridors present major barriers. Attracting favourable financing is difficult, partly due to non-cost-reflective wheeling tariffs that increase perceived risks. Addressing these financial challenges is crucial for advancing infrastructure and enhancing trading capabilities.

4.3.3. Integration of Europe and North Africa transmission networks

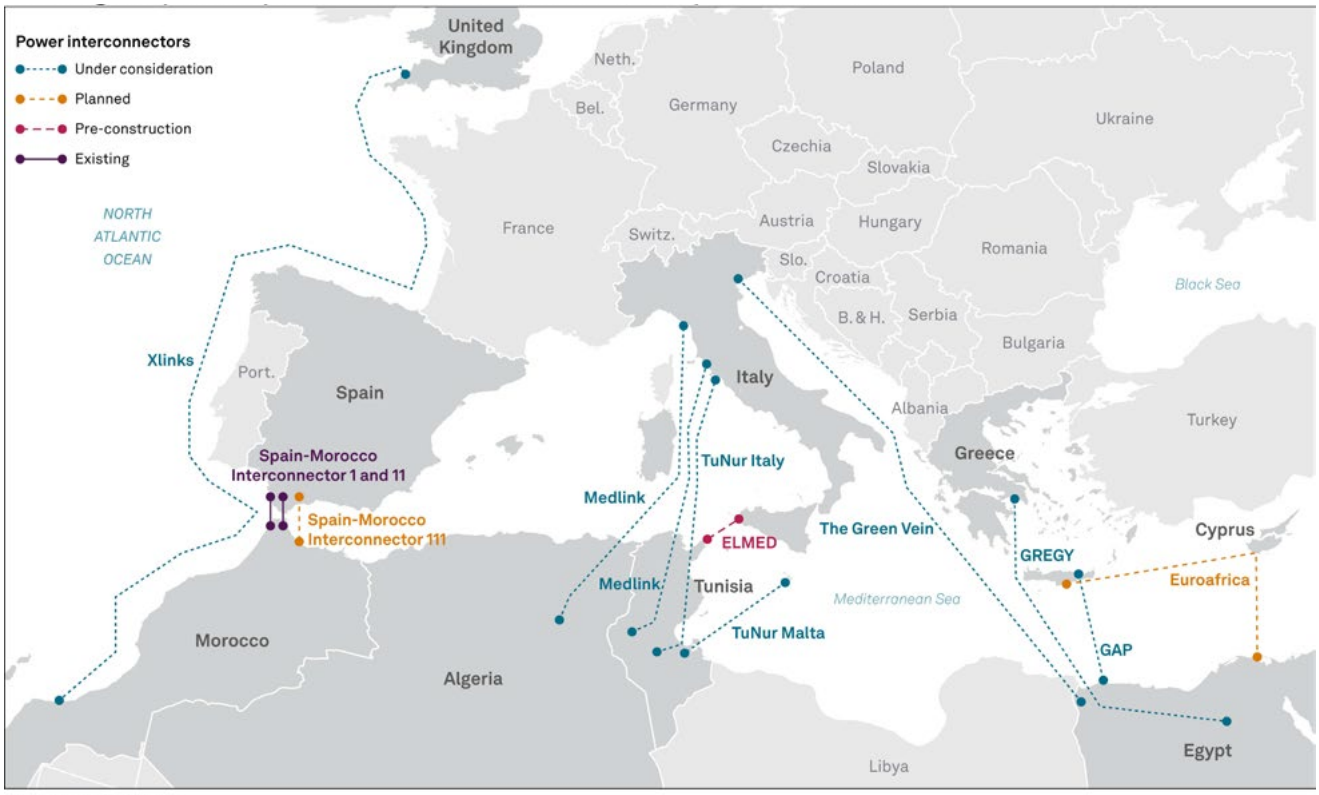
The North African countries aim to enhance international power trading opportunities by exporting electricity from renewable generators to European markets. Currently, there is only one existing interconnector between Europe and Africa. The 1,400 MW interconnection line between Spain and Morocco was commissioned in 1997, with an extension to the second line completed in 2006. Plans are to construct a third transmission line with a capacity of 700 MW, which is expected to be commissioned in 2026. The ELMED interconnector seems to be furthest along with an expectation completion in 2028. The interconnector, comprising 600 MW will be constructed between Tunisia and Italy at an estimated cost €850 million. The project has been led by STEG and the Terna Group since 2003, with the World Bank providing financing of $268.4 million to Tunisia in 2023.

Projects under consideration

Several other power interconnection projects are underway between North Africa and Europe. However, many of these projects face significant hurdles, both technical and economic, that complicate their development.

- The Xlinks project aimed to build a 3,600 MW transmission line from **Morocco** to the UK but is frozen since June 2025 when the UK government declared that it would not support this project.
- **Algeria** is developing the Medlink project, which will feature two 2,000 MW lines to export renewable energy to Italy by 2030.
- In addition to Elmed **Tunisia** plans to connect with Italy via a 2,000 MW line by 2034.
- **Egypt** is involved in multiple projects, including the Green Vein interconnection to Italy, expected to be operational by 2032, and the GREGY project to Greece, set for 2030, which aims to export renewable energy and support green hydrogen production. The Greece-Africa Power Interconnector (GAP) plans to enhance green hydrogen production between Greece and Egypt and is expected to start in 2030.

Figure 58. Europe to Africa interconnectors



Data compiled July 2025.
Cable routes depicted on this map are schematic representations and do not reflect precise geographical accuracy.
Source: S&P Global.

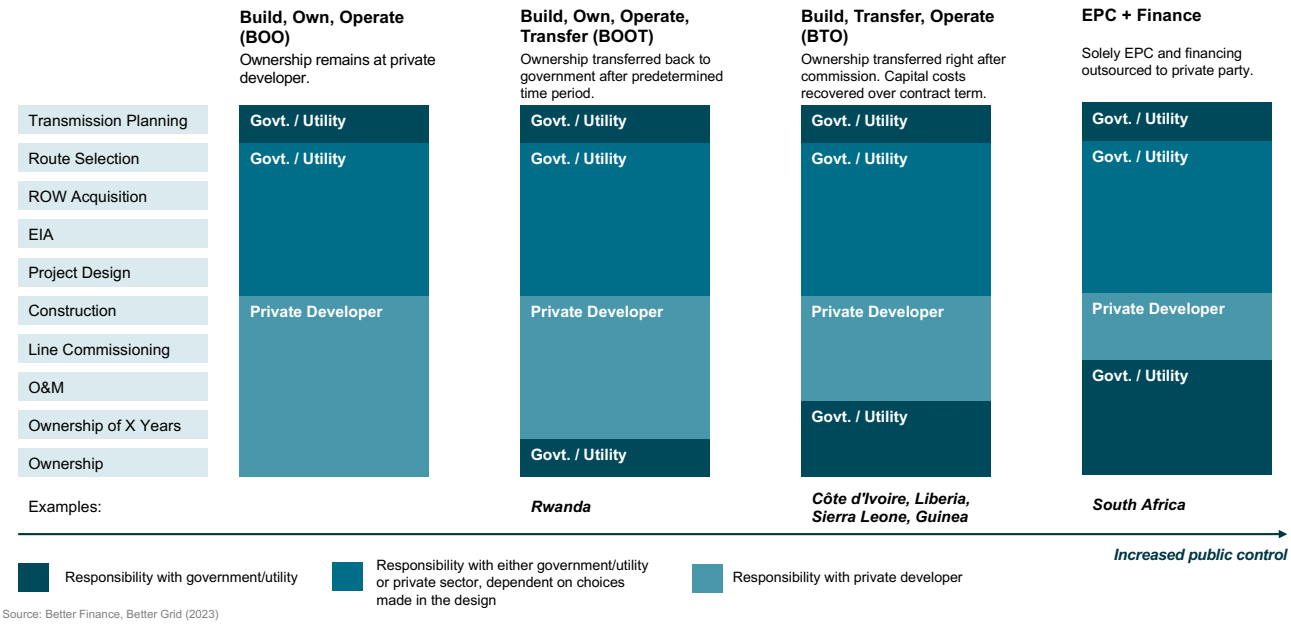
4.3.4. PPPs needed to support Africa's infrastructure financing gap

Across Africa, governments are grappling with mounting public debt and persistent fiscal constraints. This limits their ability to finance large-scale infrastructure projects solely through public funds. Innovative approaches such as PPPs have emerged as vital tools for bridging the infrastructure financing gap and accelerating project delivery. PPPs present significant opportunities for developing interconnectors across the continent, as they can effectively mobilise resources, expertise and technology from the public and private sectors. By leveraging private investment and government support, PPPs can facilitate the construction and operation of critical transmission infrastructure.

There are four main models used to allow the private sector to participate in the transmission infrastructure development.

- Build, own and operate: The private entity is responsible for the entire lifecycle of a project, including financing, construction, ownership and operation. It bears financial risks, manages the construction process and operates the facility. It retains revenue generated from the project, recovering its investment over time. The public sector provides regulatory oversight, ensures compliance with national energy policies and may facilitate necessary permits. It may also approve tariff structures to ensure fair pricing for consumers.
- Build, own, operate and transfer: The private entity is responsible for financing, constructing and operating the project for a predetermined duration. It collects revenue from the operations, which are used to recover costs and generate profits. The ownership is transferred to the public sector after the transfer period. This model provides regulatory oversight and may offer incentives to attract private investment. The Kigali Power Transmission Project in Rwanda is an example of such a model.
- Build, transfer and operate: The private entity is responsible for financing and constructing the project, after which it transfers ownership to the public sector. The Côte d'Ivoire, Liberia, Sierra Leone and Guinea (CLSG) interconnector operated under such a model, with $508.62 million allocated for constructing a 225 kV, 1,300 km transmission line to connect CLSG countries to the WAPP. The project involved TRANSCO CLSG, the regional transmission company, European Investment Bank, AfDB, World Bank, Kreditanstalt für Wiederaufbau and various CLSG governments.
- Engineering, procurement and construction, and finance: The private entity is responsible for designing, procurement of material and construction. In some cases, the contractor may also arrange financing, taking on the associated risks. The public sector typically retains ownership of the project and provides regulatory oversight. It may also be involved in financing or securing funding from external sources.

Figure 59. Exploring PPP models



Source: Better Finance, Better Grid (2023)

4.4. Strategic market reforms to strengthen power across Africa

The power sector in Africa exhibits a diverse landscape, characterised by vertically integrated and liberalised structures. The vertically integrated models are typically dominated by state-owned utilities that control the electricity supply chain, including generation, transmission and distribution. The model can lead to inefficiencies, limited competition and challenges in meeting the growing power demands. Moreover, the inability of governments to increase their debt burden under a vertically integrated market further complicates infrastructure investments, as these utilities often struggle to attract private capital due to perceived risks and regulatory uncertainties. In addition, the lack of transparency and accountability in state-owned enterprises can deter investment and hinder operational efficiency.

In contrast, liberalised power sectors encourage competition by allowing multiple independent entities to participate in generation and distribution. The benefits of such reforms include enhanced efficiency, increased investment and better access to electricity, which are crucial for economic growth and development. Furthermore, liberalisation can lead to better pricing mechanisms and more targeted subsidies, ultimately benefitting consumers and promoting sustainable energy practices.

More advanced stage reforms include wholesale electricity markets. Wholesale markets enhance competition, leading to lower prices and improved service quality for consumers. They promote efficient resource allocation by dispatching the least-cost generation sources, increase reliability through diverse supply options and incentivise investment in renewable energy. The market also provides flexibility to respond to demand fluctuations and enable risk management through financial instruments.

However, the path to reform faces resistance from entrenched interests within state-owned utilities. Market reforms can also result in monopolies and exacerbating inequalities in energy access if they are not meticulously designed. Additionally, the transition to a liberalised market requires certain regulatory capacity and institutional frameworks, which may be lacking in many African countries. Past global outcomes highlight the need for careful planning and stakeholder engagement to ensure that reforms are effectively implemented and address the unique challenges faced by each country.

Figure 60. Assessing of unbundling and wholesale development

	Transition from vertically integrated model to liberalized market	Main utility unbundling efforts	Independent transmission system operator	Regulated market	Private participation	Wholesale market
South Africa	✓	✓	✓	✓	✓	✓
Zambia	✓	⊘	⊘	✓	✓	⊘
Kenya	✓	✓	✓	✓	✓	⊘
Ghana	✓	✓	✓	✓	✓	⊘
Nigeria	✓	✓	✓	✓	✓	✓
Uganda	✓	✓	✓	✓	✓	✓
Morocco	⊘	⊘	⊘	✓	✓	⊘
Egypt	✓	✓	✓	✓	✓	⊘
Tanzania	✓	✓	⊘	✓	✓	⊘

Developing ✓ Completed ✓ Not Materialized ⊘

Kenya

Kenya is actively engaged in the process of unbundling its main power utility, Kenya Power and Lighting Company (KPLC), as part of broader reforms to improve the efficiency and reliability of its electricity sector. The initiative is driven by the need to address high electricity costs, frequent outages and a growing demand for electricity, particularly in the context of the country's Vision 2030 development plan. The unbundling process involves separating KPLC's functions into distinct entities responsible for generation, transmission, distribution and retail.

A key step in the process is the establishment of the Kenya Electricity Transmission Company, which is responsible for electricity transmission. This segregation is intended to ensure that the transmission network operates independently, providing fair access to all electricity producers, including Independent Power Producers (IPPs).

However, the unbundling of KPLC faces resistance from various stakeholders, including labour unions concerned about job security and the potential for service disruptions during the transition. Additionally, the regulatory framework needs to be strengthened to support the new market structure and ensure effective oversight of the unbundled entities. Financial constraints also pose a challenge, as KPLC has faced issues related to high levels of debt and operational inefficiencies. Despite these challenges, the unbundling of Kenya's main power utility is seen as a crucial step towards achieving a more sustainable and efficient power sector.

Kenya is also actively advancing reforms to transition its electricity sector toward a competitive wholesale market. The government's National Energy Policy 2025–2034 outlines a clear commitment to moving from a single-buyer model, historically dominated by KPLC, to a more open and competitive market structure. However, the process is challenged by regulatory, infrastructural and market design issues, as well as the need to manage the transition from a long-standing monopoly. While the policy direction is clear, successful implementation will depend on addressing these barriers and building confidence among all market participants.

South Africa

South Africa's power sector is undergoing unbundling after being vertically integrated for many years, with Eskom managing the generation, transmission and distribution sectors. Eskom is in the process of being divided into three distinct entities. The National Transmission Company South Africa (NTCSA) was established, registered and approved by the National Energy Regulator of South Africa as the system operator and functions independently. The independent status allows NTCSA to adopt a more favourable debt structure, which is crucial to attract financing for its reinforcement projects. By operating as a standalone entity, NTCSA can leverage its improved creditworthiness and access to capital markets, enabling it to secure funding for essential infrastructure upgrades and expansions. Moreover, the NTCSA's ability to operate independently from Eskom's legacy issues allows it to implement more transparent and accountable financial practices, which could further improve investor confidence.

The next focus is on separating the generation and distribution sectors, with plans to create the National Electricity Distribution Company of South Africa (NEDCSA). It is projected that NEDCSA will comprise a distribution business managing infrastructure, retail business handling customer interactions, an power trading unit and a social business addressing obligations such as electrification.

South Africa has faced several challenges in the unbundling of Eskom into three separate entities. One major obstacle is the complex regulatory and legal framework governing the energy sector. This has made the separation process lengthy and difficult to navigate. There are concerns regarding the financial viability of the new entities as Eskom has historically been burdened with substantial municipal debt, which complicates the transition. Resistance from various stakeholders, including labour unions and political groups, has also posed challenges, as there are fears that unbundling could lead to job. Lastly, the poor operational capacity at Eskom coal power plants shifted management's focus to prioritise operational improvements over unbundling efforts.

In addition to unbundling, South Africa is the most prominent example on the continent of pursuing wholesale electricity market reforms through its own national legislative and regulatory processes. South Africa is working towards launching the first stages of a wholesale electricity market in April 2026, with full implementation by 2031. The proposed design includes a multi- approach, featuring the day-ahead, intraday and balancing markets. The reform process aims to address long-standing issues related to power supply reliability, affordability and sustainability. However, it also presents challenges, such as managing network constraints and vested contracts, and ensuring sufficient dispatchable capacity. Additionally, the market code is not fully developed and raises questions around how the market will operate and be governed in a fair and transparent way.

Zambia

Zambia's power sector is currently dominated by the Zambia Electricity Supply Corporation Ltd (ZESCO), which holds three licenses from the regulator to operate as a power generator, transmission and system operator, and distributor. At this stage, ZESCO remains unbundled. The Copperbelt Energy Corporation owns power generation and transmission assets in the Copperbelt region and purchases bulk power from ZESCO to distribute to mining areas.

While the power market in Zambia has been deregulated, allowing for participation from IPPs, it remains under the oversight of the Energy Regulation Board (ERB). There are concerns regarding ERB's independence as its regulatory decisions can significantly impact the competitive landscape and investment climate for private participants. Ensuring that the ERB operates with transparency, impartiality is crucial for fostering confidence among investors and promoting a truly competitive electricity market.

There is a growing consensus among private market participants regarding the necessity for ZESCO's unbundling. It is seen as essential for fostering a more competitive environment that can attract private investment and enhance operational efficiency and service delivery. By separating the generation, transmission, and distribution functions and reducing the monopoly of ZESCO over the electricity supply chain, the country can encourage new entrants into the market. This shift could lead to better pricing mechanisms and increased reliability of electricity supply, ultimately benefitting consumers and supporting economic growth.

Zambia's biggest challenge in deregulating the power sector is the resistance from various stakeholders, including government entities and labour unions, who are concerned about potential job losses. Additionally, financial constraints have posed significant challenges as ZESCO has struggled with high levels of debt and operational inefficiencies, which obstruct private investment. The lack of a reliable and transparent pricing mechanism, resulting in low tariffs, has hindered the establishment of a fair market environment, deterring private sector participation. Finally, infrastructure deficits and the need for substantial capital investment in the electricity grid further complicate the transition to a more competitive power market.

Nigeria

Nigeria has made notable progress in reforming its electricity sector, having established a partially operational wholesale electricity market through the unbundling of the Nigerian Electricity Supply Industry and introduction of competitive market structures since 2015. The country has encouraged private sector participation and is a key player in the WAPP, supporting regional electricity trade. However, Nigeria faces persistent infrastructure deficits, regulatory uncertainty and issues with market liquidity and payment discipline. High inflation, unreliable grid infrastructure and governance concerns also hinder the sector's full potential. In addition, improving grid reliability, ensuring transparent regulation and strengthening market enforcement are crucial for Nigeria to realise the benefits of a fully competitive wholesale electricity market.

Countries in Africa recognise the critical benefits and urgent need for power market reform to enhance efficiency, attract investment and ensure reliable electricity access for their population. While many nations have established regulated power sectors that facilitate private participation, the pace of reform remains inconsistent across the continent. While several countries have started unbundling vertically integrated utilities, others are yet to make progress on this crucial step.

Furthermore, it is noteworthy that only three countries are currently developing action plans for wholesale electricity markets, underscoring the limited progress in creating robust market structures to support a more dynamic and competitive power landscape. This disparity in progress reveals the complexities and challenges faced by African countries in their reform journeys, influenced by varying political, economic and regulatory contexts.

Reforms in the power market enable IPPs to participate competitively, fostering innovation and driving down costs while improving service delivery. For end users, these changes enhance access to reliable electricity at lower prices, increasing competition and empowering consumers with more choices. Additionally, a clear market framework reduces investment risks, enabling governments to attract substantial capital for infrastructure and renewable energy projects. To accelerate the transition towards more efficient and sustainable power markets, it is imperative for African governments to commit to comprehensive reform strategies that prioritise unbundling, establishment of wholesale markets and integration of renewable energy sources.

Chapter 05

5. Energy Transition in Africa

The chapter provides an overview of Africa's role in energy transition spanning the value chain, from critical minerals to decarbonisation of the oil and gas industry.

Africa contributes just 5% of global energy-related emissions despite being home to 19% of the world's population, underscoring its minimal historical responsibility for climate change and its unique position in global decarbonisation efforts

By 2060, Africa's population is projected to rise to 28% of the global total, yet its share of energy-related emissions is expected to remain modest at just 9%, reflecting both the continent's low per capita energy use and the opportunity to pursue a low-carbon development pathway

New emissions regulations from the International Maritime Organization (IMO) and the EU Methane Regulation are accelerating demand for low-carbon fuels and emissions transparency, positioning Africa as a potential green fuel supplier while also highlighting the need for investment in methane monitoring and maritime infrastructure upgrades.

The EU's CBAM introduced a carbon price on high-emission imports such as aluminium, cement and steel, creating both a compliance risk and a strategic opportunity for investors to back decarbonisation and carbon market development in Africa, where domestic carbon pricing is still nascent.

Africa's abundant renewable resources and strategic location position it as a competitive producer and future exporter of low-carbon hydrogen and derivatives, offering investors long-term opportunities in green industrialisation, job creation and sustainable fertiliser production, especially amidst accelerating global demand for clean fuels.

Despite infrastructure and offtake challenges, early investments in hydrogen projects—particularly those co-located with renewables and aligned with export markets—can unlock first-mover advantages.

Africa's upstream oil and gas sector faces high emissions intensity, with flaring accounting for nearly half of total upstream emissions in 2024. Monetising associated gas and capturing vented methane present significant opportunities for economic growth and emissions reduction, but progress is hindered by regulatory, infrastructure and financing challenges.

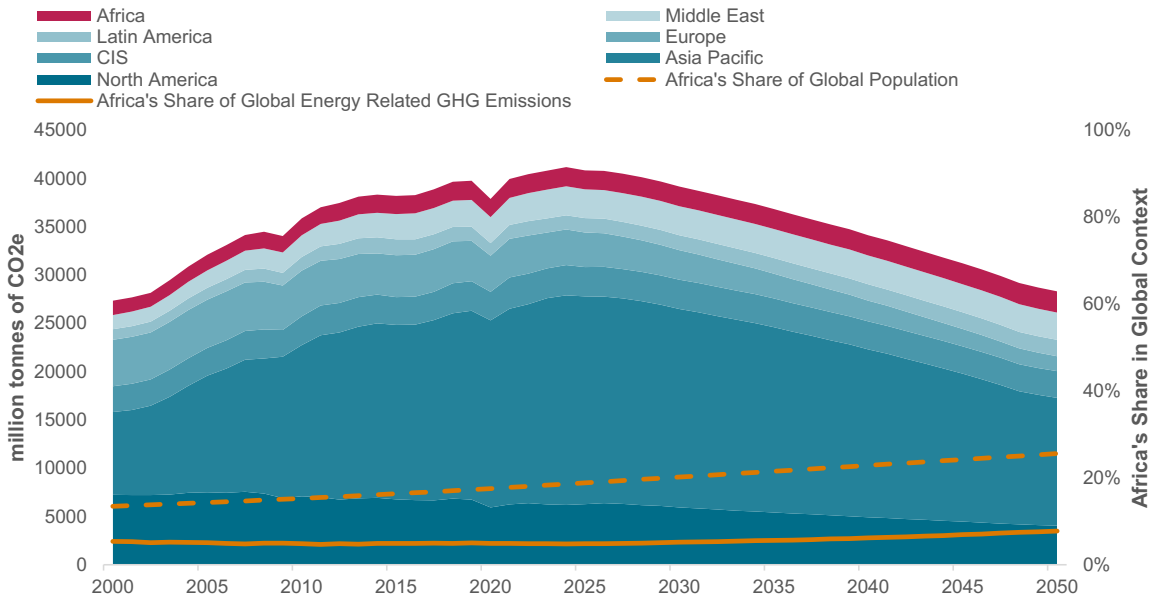
International charters such as the OGDC and World Bank's GFRM are driving the momentum toward zero routine flaring and near-zero methane emissions by 2030, with growing pressure from global disclosure standards.

Africa is poised to play a pivotal role in the global clean energy transition, supplying key critical minerals such as cobalt, copper, platinum group metals (PGMs) and lithium, as demand surges to fivefold by 2035. Beyond extraction, the continent has a strategic opportunity to move up the value chain into processing and refining, unlocking greater economic value, provided there is sustained investment in infrastructure, governance and skills development.

5.1. Africa's Emissions Outlook

Africa currently accounts for just 5% of global energy-related emissions today, yet it is home to 19% of the world's population - this is expected to grow to 26% by 2050. While per capita energy related GHG emissions in Africa are projected to decline from 1.3 metric tons of CO_2 equivalent in 2025 to 0.9 by 2050, total emissions are expected to rise by 19% over the same period. As a result, Africa's share of global energy related emissions is forecast to increase to 8% by 2050. Africa's energy related emissions per capita are expected to remain well below the global average, which is forecast to decrease from 5 metric tons of CO_2 equivalent in 2025 to 3 by 2050.

Figure 61 Africa's share of emissions and share of global population



Data compiled September 13, 2025

Source: S&P Global Commodity Insights

This demographic and emissions trajectory highlights Africa's growing importance in the global energy landscape. The path forward is uniquely complex. Economic development remains a top priority, and many countries continue to rely on energy-intensive sectors and traditional fuels like biomass. These structural realities make large-scale decarbonization more challenging. Still, Africa's evolving energy profile will play a critical role in shaping global climate outcomes.

5.2. International Regulations in Africa

5.2.1. International Maritime Organization

In April 2025, the IMO approved a landmark set of regulations targeting maritime carbon emissions as part of its broader net-zero framework. These regulations introduce a global GHG pricing mechanism that will impose penalties on ships based on their carbon intensity, with enforcement expected to begin in 2028. The move aligns with other regional mandates such as the EU's FuelEU Maritime initiative, collectively accelerating the decarbonisation of global shipping.

As the industry transitions away from fossil fuels, demand is expected to surge for low-carbon alternatives, particularly hydrogen derivatives, such as green ammonia and methanol. Global demand for ammonia as a marine fuel (bunkering) is projected to reach ~1.75 million tonne per year by 2030, rising to 4.5 million tonne by 2035, driven by regulatory pressure and the shipping sector's need to meet decarbonisation targets.

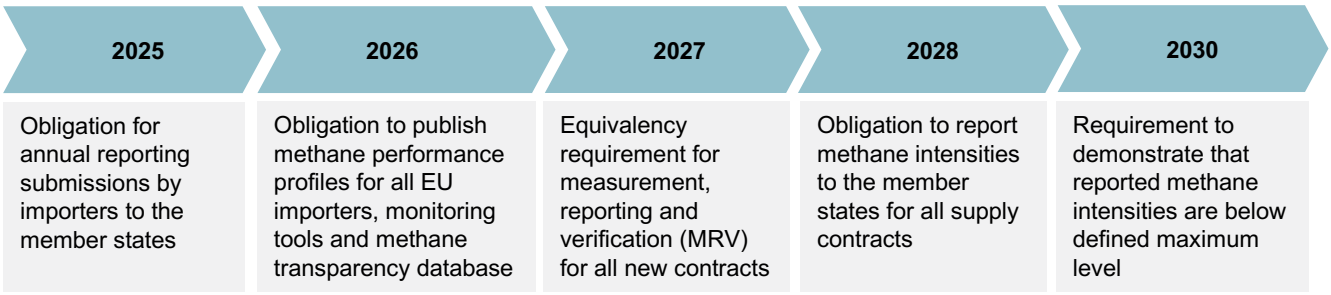
For Africa, this presents an opportunity as a potential supplier of green ammonia and will also require some transformation of its own maritime landscape, with bunkering hubs needing to handle and manage the new fuels methanol (see section 5.3).

5.2.2. EU Methane Regulation

Regulatory requirements from Europe and Asia may pose an additional burden on oil and gas upstream operators to decarbonise gas value chains for export. These include imminent EU methane tax on fossil fuel imports and initiatives such as the Coalition for LNG Emission Abatement toward Net-zero (CLEAN), launched by Japanese and South Korean companies, to reduce methane emissions through the LNG value chain.

The **EU Methane Regulation** is the first of its kind applying to fossil fuels produced outside a country's borders. The regulation will come into effect from 2025 through to 2030 and aims to stop the avoidable release of methane, both in the EU and in global supply chains.

Figure 62. EU Methane Regulations – Key implementation timeline



By 2028, Africa's piped and LNG exports to Europe will have the obligation to report methane intensities for all supply contracts. Investments and training will be vital to build the capability required for the measurement, reporting and verification of methane intensities. By 2030, those suppliers with the highest intensities will need to take action to meet the EU Methane Regulation's standards or risk missing out on a high-paying accessible market.

5.2.3. Carbon Border Adjustment Mechanism

The EU's CBAM introduces a de facto carbon price on embedded emissions in imported goods, creating a powerful incentive for African exporters to decarbonise. CBAM is designed to level the playing field between EU producers paying carbon taxes under the EU Emission Trading scheme and imports that are not subject to carbon taxes. Following a transitional period from 2023-2025, the implementation phase from 2026 sees a carbon tax payable on exports to the EU across aluminium, cement, electricity, fertiliser, hydrogen and iron and steel products. The impact of CBAM is phased in from 2026-2034, becoming particularly powerful post-2030 as carbon prices are anticipated to rise in real terms. Several African countries are particularly exposed, including Mozambique (aluminium), Egypt (fertiliser and iron and steel), power interconnectors from North Africa to Europe and Zimbabwe (iron and steel). However, some African exports subject to CBAM are relatively low-carbon and could benefit from its implementation – penalising more carbon intensive competitors. For instance, Mozambique's aluminium power needs have historically been reliant on hydropower, giving it a favourable emissions profile.

In the absence of robust domestic carbon pricing mechanisms across most African countries, CBAM acts as a proxy, aligning external market pressures with internal decarbonisation efforts. Given CBAM is only payable when national carbon taxation is absent/insufficient, it creates an incentive for African countries that export the impacted CBAM products to Europe to establish their own carbon markets to retain carbon tax revenue within the country.

For investors, CBAM makes CCS projects more financially viable, especially in sectors such as cement, steel and fertilisers that are directly exposed to it. It can help de-risk CCS investments by providing clarity on the carbon cost savings that support upfront capital expenditure.

5.3. Outlook for consumption and supply of low-carbon hydrogen (and derivatives) in Africa

Africa is rapidly emerging as a player in the global low-carbon hydrogen economy. With abundant renewable energy resources, the continent is uniquely positioned to produce low-carbon hydrogen at scale, opening an opportunity to drive sustainable industrialisation and create millions of jobs. Africa's competitive edge in electrolytic hydrogen stems from its vast solar and wind resources, extensive land availability and proximity to major export markets. It is estimated that the continent will have the technical potential to produce over 9 million tonne of low-carbon hydrogen annually by 2035.

Low-carbon hydrogen has a key role in the decarbonisation of many sectors, including:

Figure 63. Sectors in which low-carbon hydrogen is crucial to decarbonisation

5.3.1. Domestic consumption of low-carbon hydrogen and derivatives

Low-carbon hydrogen derivatives are more expensive than fossil-based alternatives, as such, are unlikely to be consumed at scale unless driven by regulation and policy with fiscal support. In Africa, mining and maritime are two sectors that have shown promise of development.

Decarbonisation of heavy-duty vehicles: Global demand for hydrogen fuel for heavy-duty vehicles (HDVs) is expected to increase 12x over 2025-2030. In the long term, hydrogen is forecast to form 25% of the total HDV fuel mix. However, in Africa, the penetration of hydrogen in the HDV fuel mix is expected to be limited as the regulatory pressure to adopt lower-carbon fuels is less than in regions such as Europe and the cost is higher than traditional fossil fuels. Mining operations could be an exception as international mining companies with Scope 1 targets are looking at low-carbon hydrogen as a key option to decarbonise their operations.

Decarbonisation of maritime: Adoption of the IMO regulation is expected to have implications for African ports and maritime infrastructure. Investments will be needed to upgrade and build new bunkering infrastructure to manage the new fuels. New storage and safety systems, fuel supply-chain logistics and training for workers and operators are a few of the areas where investments are required to capitalise upon the regulation.

Industrial decarbonisation: Low-carbon hydrogen has the potential to be a viable decarbonisation option for industrial processes; however, sufficient carbon pricing will be needed to displace fossil-based hydrogen from industrial usage. With the exception of some CBAM-impacted industries, no other sectors are expected to consume low-carbon hydrogen and derivatives at scale.

Renewable ammonia for fertilisers: Given Africa's rapidly growing population and challenging arability, fertiliser supply is essential to future food security. Therefore, supply vulnerabilities are extremely concerning, particularly for land-locked countries where transport infrastructure and border conflict may disrupt typical trade routes. Approximately 85% of fossil-based ammonia currently produced globally is used in agriculture, highlighting the dependence on this source. Developing a domestic supply of fertilisers, particularly through ammonia produced from electrolytic hydrogen, will be a sustainable alternative to imports. It will enhance both resilience and self-sufficiency. Keeping costs of production comparable with fossil-based hydrogen will be the key, especially as this practice is nascent for most of the continent.

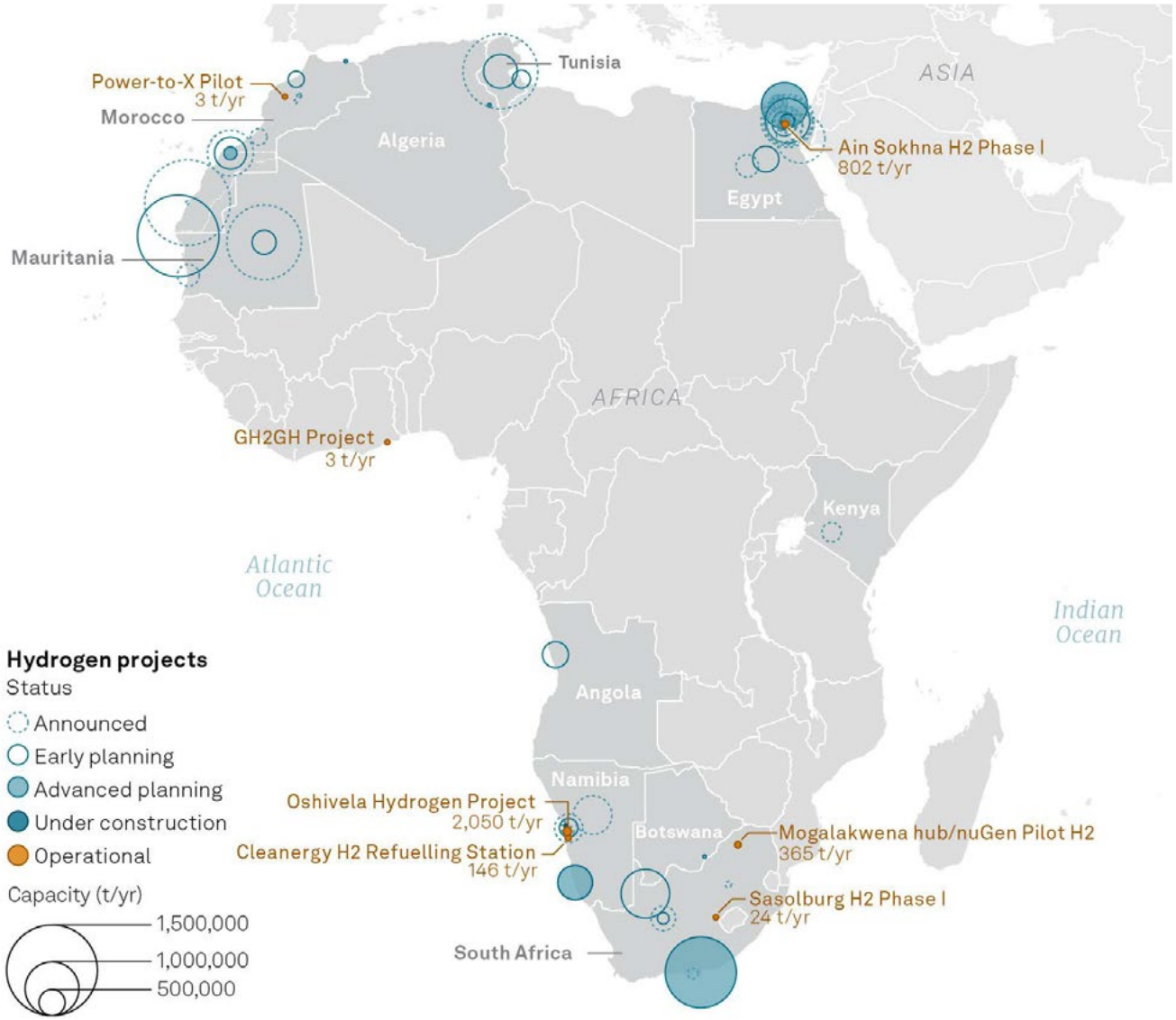
5.3.2. Export potential

Africa has significant potential to be an exporter of hydrogen, either as a liquid by pipeline from Northern Africa to Europe or using ammonia as a carrier to other international markets.

Regulations on emissions and fuel blends in advanced economies in Europe and Asia-Pacific offer the continent the opportunity to become a major exporter.

Major projects and their development stages are shown on the map below:

Figure 64. Africa renewable hydrogen projects



Source: S&P Global Commodity Insights

The competition for green electrons and limited renewable generation capacity mean that sourcing power for hydrogen production in Europe is challenging. Aligning African projects with export markets that have a high willingness to pay through strategic offtake agreements supports project competitiveness and accelerates the route to final investment decision (FID).

Achieving FID for renewable hydrogen projects in Africa is challenging, primarily due to offtake uncertainty. Developers are facing difficulties in securing long-term contracts with buyers, which creates hesitance in committing substantial capital.

The following can be potential solutions for these challenges:

- Establishing government-backed offtake agreements. They can provide a safety net for investors, ensuring a guaranteed market for produced hydrogen.
- Fostering regional collaborations. They can help create a more integrated market, enhancing buyer confidence and reducing LCOH from economies of scale.
- Developing robust regulatory frameworks that support hydrogen production and trade. They will be crucial in attracting investments.

While Africa currently lacks infrastructure for large-scale hydrogen production, storage and export, the continent holds significant potential to become a global hub for renewable hydrogen, especiall in regions with the right enabling conditions. Areas with access to abundant renewable energy resources can benefit from hybrid systems that offer higher output capacity factors due to the complementary nature of their generation profiles. If these regions also have access to water resources, either through freshwater or desalination potential, and are near existing or planned transport infrastructure, such as pipelines or ports for hydrogen derivatives such as ammonia, they are strong candidates for early green hydrogen development.

Co-locating electrolysis facilities with new renewable energy projects can reduce transmission losses and improve project economics. Moreover, international collaboration can help finance and co-develop critical infrastructure, while also securing long-term offtake agreements. Establishing clear regulatory frameworks and integrated infrastructure planning will be essential to unlocking this opportunity. Africa can position itself as not only as a renewable hydrogen producer but also as a key player in the global energy transition.

5.4. Role of CCS and CCUS in Africa

Africa currently has two dedicated carbon capture, utilisation and storage (CCS) projects that are operational:

- The Clover Alloys Chrome Chemical Plant in South Africa. Active since 2013, it captures 170,000 tCO_2/year from flue gas from a chemicals complex.
- The Project Hummingbird DAC+S pilot in Kenya. Launched in 2024 by Octavia Carbon, it captures and stores 1,000 tCO_2/year using 100 direct air capture (DAC) machines, with CO_2 injected into the Rift Valley basalt by Cella Mineral Storage. Three more DAC projects are planned in the country, the largest expected in 2028 with a 1,000,000 tCO_2/ year capacity.

The largest "completed" project to date is the In Salah project in Algeria, where a total of 3.8 million tCO_2 has been captured. It was suspended in 2011 due to concerns about the integrity of the seal. A similar project is under feasibility assessment by Eni in Libya under the Structures A&E project and in line with ENI's decarbonisation strategy, a CCS plant is also planned.

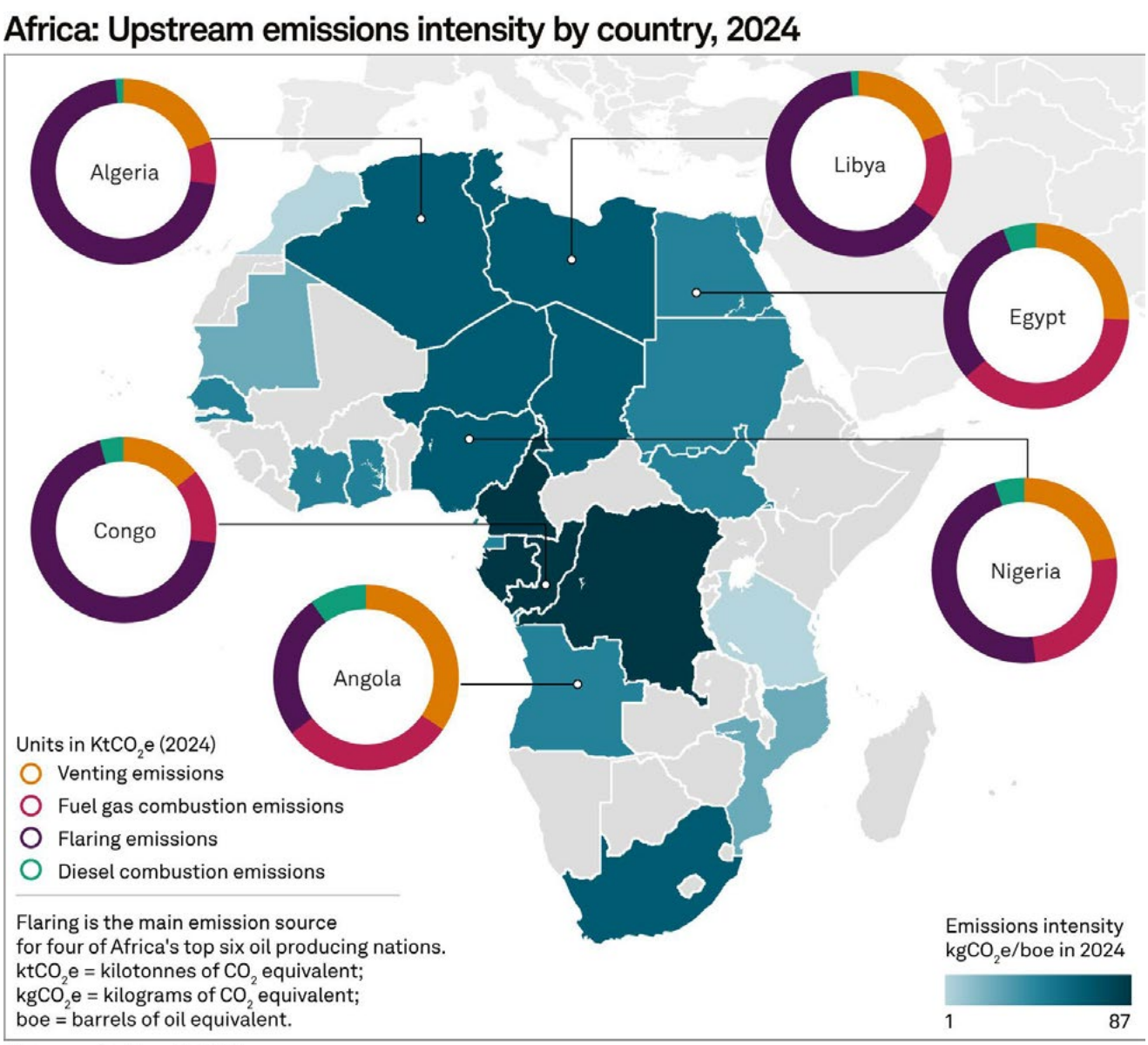
Despite a growing interest, no significant CCUS projects are expected in Africa in the short to medium term. To change this, more storage sites need to be characterised and transport infrastructure, particularly shared CO_2 pipelines, developed. Designing and retrofitting some of the older industrial facilities can be technically and economically challenging. A clear revenue model is required to reach an FID, whether it is the cost avoidance of carbon taxes or CO2 required for enhanced oil or gas recovery.

5.5. Emissions reduction in upstream oil and gas decarbonisation

5.5.1. Flaring in Africa

Since 2010, Africa's overall emissions intensity in the upstream oil and gas sector has remained relatively flat, on average hovering around 40 kg CO2/ boe, with variations across countries. In 2024, flaring across the continent accounted for 48% of the total upstream emissions.

Figure 65. African upstream emissions intensity by country, 2024



Data compiled Jan. 21, 2025.
Source: S&P Global Commodity Insights: 250256-01.

Monetising associated gas instead of flaring and capturing vented methane can offer African countries a path to economic growth, energy security and environmental sustainability if it can be done at scale. By capturing and utilising gas for power generation or industrial use, companies can unlock new revenue streams while reducing harmful emissions. However, regulatory complexity, infrastructure gaps and financing constraints remain significant hurdles.

5.5.2. Partnerships and charters aimed at reducing emissions

In response, both domestic and international charters and partnerships are increasingly being established to curb flaring and reduce venting emissions.

Many IOCs and NOCs operating in Africa are committed to both the World Bank's Global Flaring and Methane Reduction Partnership (GFRM) and the Oil and Gas Decarbonization Charter (OGDC).

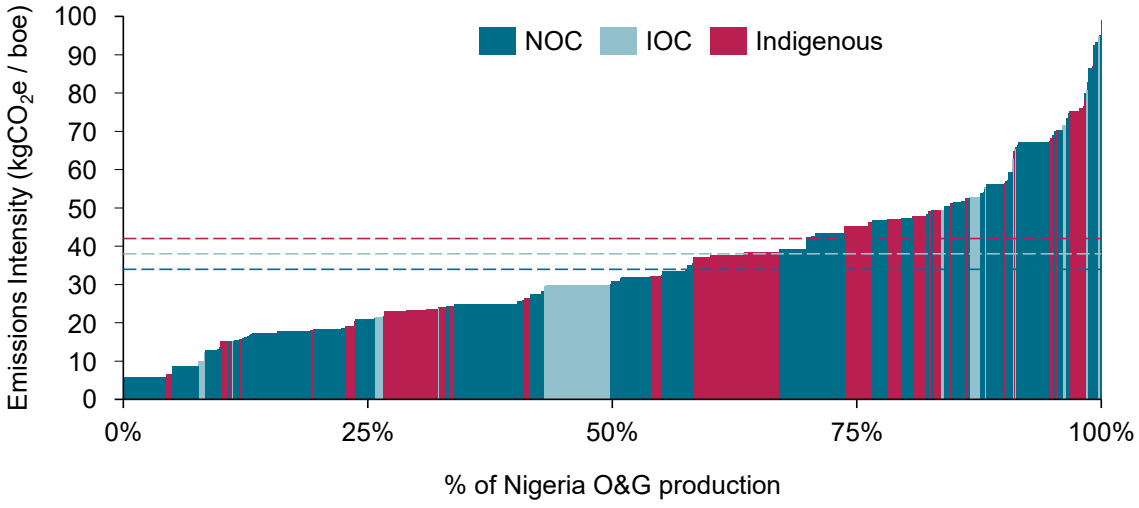
- The OGDC is a voluntary pledge by operators, with the main goals being achieving net zero by 2050 with zero routing flaring and near zero methane by 2030. It was launched in December 2023 at COP28
- The World Bank GFRM, with participants across governments, companies and institutions, is a global effort to reduce gas flaring and methane emissions from oil and gas operations. Its focus areas include providing technical and financial support to countries and companies and driving towards data transparency and monitoring of glaring and methane emissions

Furthermore, IOCs are subject to growing disclosure requirements from bodies such as the US Securities and Exchange Commission (SEC) and the Task Force on Climate-related Financial Disclosures (TCFD).

5.5.3. Deep dive on Nigeria

The overall production weighted average GHG emissions intensity of Nigeria was 38 kgCO2e/boe, with asset-level emissions intensity varying significantly, ranging from 6 kgCO2e/boe to 101 kgCO2e/boe for fields accounting for 99% of production. Notably, 32 of the 61 assets had emissions intensity lower than 56 kgCO2e/boe while accounting for 90% of the total production.

Figure 66. Study area GHG intensity and total production by operator type, 2024



IOCs accounted for 82% of the country's total production, with an emissions intensity of 39 kgCO2e/boe, which is close to the region's average. GHG intensity of assets operated by indigenous companies was 37 kgCO2e/boe and that of the NOC was 113 kgCO2e/boe. This is quite unique as the emissions intensity of assets operated by IOCs is not better than the average, suggesting a huge scope for improvement by implementing certain operational procedures and using detection and measurement technologies to abate emissions. However, there are green shoots as IOCs have started to implement best operational practices to end routine flaring and advanced technologies such as drone-based detecting tech-

niques to curb emissions and capture value. A few significant decarbonisation projects have begun to emerge, such as the flare-out of the Ofon field by TotalEnergies, which includes adding low-pressure compressors to reroute gas to market instead of flaring.

Hypothetically, if offshore Nigeria assets reduce their flaring emissions intensity to the levels of the UK, it would result in an additional revenue of over $220 million each year at gas prices in the domestic market.

Higher emissions are a low-hanging fruit and offer significant opportunity for Nigeria and industry players to increase the commercialisation of gas and enhance the sustainability profile of the country's oil and gas sector. Nigeria is at a critical juncture as it has implemented a range of progressive policies to increase its production, though the effective execution of these initiatives on the ground is crucial. Successful implementation will not only mobilise investments but also instil confidence in industry players and financial institutions.

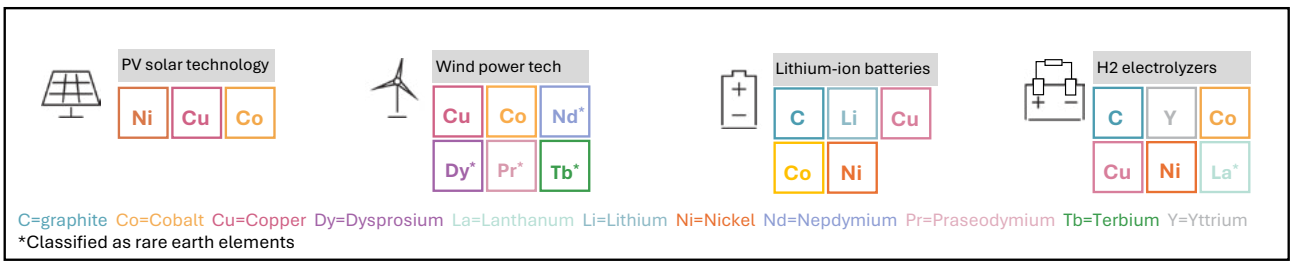
5.6. The importance of Africa in energy transition from a critical minerals perspective

5.6.1. Global context

Our energy infrastructure globally is undergoing a profound transformation from traditional fossil fuels to clean technologies. At the heart of this transition lies a growing reliance on critical minerals, which are essential to the performance and scalability of many clean energy systems.

Clean technologies, such as solar panels, wind turbines, and electric vehicles (EVs), require significantly more critical minerals than their conventional counterparts. As the deployment of clean energy infrastructure and EV adoption accelerates, global demand for these minerals is projected to increase up to five-fold by 2035 over 2023.

Figure 67. Key critical minerals required for the renewable energy transition



Numerous supply-demand forecasts in the market suggest the likelihood of substantial supply deficits of various essential minerals, particularly as we approach the end of the 2020s and beyond. This potential shortfall at the end of the decade raises several important questions: Where can these minerals be sourced from? Can they be extracted and processed sustainably? And how will projects be developed when confronted with the immediate short-term challenge of sufficient — or even excessive — supply and suboptimal prices? Amid rising geopolitical risks and supply chain security concerns, various countries are responding to this call to action, each employing distinct strategies to address these challenges.

5.6.2. Africa's mineral wealth

Africa is home to some of the world's richest deposits of critical minerals, positioning the continent as a pivotal player in the global supply chain. There has been growing global interest in the continent's mineral resources, particularly from China and the US. China-based companies have been actively mining in Africa for more than two decades, bolstered by substantial governmental support, which has positioned the country as the continent's largest source of foreign direct investment. The country's significant investments in the African minerals sector and infrastructure, particularly through its trillion-dollar Belt and Road Initiative, have made it the primary commercial partner for numerous countries there.

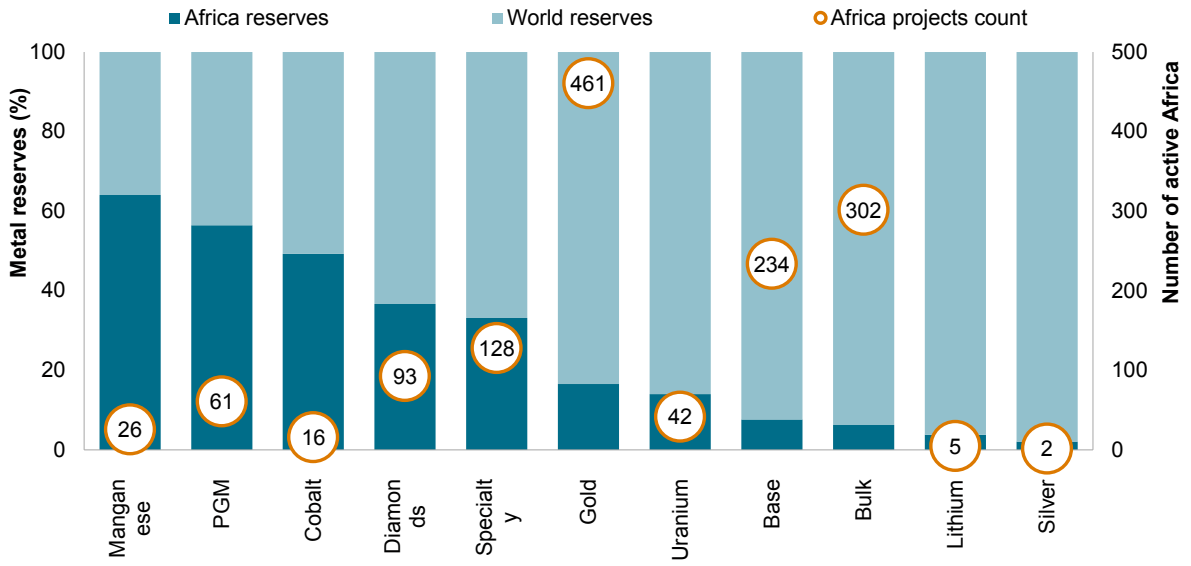
Security concerns, including shifting geopolitical tensions, possible supply chain disruptions and the concentration of mineral refining capacity in China, have brought Africa's mineral endowment into focus. Rising geopolitical tensions and supply-chain vulnerabilities have prompted US policymakers to seek partnerships with countries in the continent. Various other countries have secured bilateral agreements, ranging from strategic partnerships to cooperation agreements with African countries to secure mineral access, promote joint ventures and integrate mineral value chains.

Figure 68. Critical minerals are driving the diplomatic agenda across key geopolitical flashpoints

Source: S&P Global Commodity Insights

In 2024, Africa remained a major global source of critical minerals. The continent led in the production of **cobalt, copper, gold,** and **platinum group metals (PGMs),** including **platinum, rhodium, iridium,** and **ruthenium.** It also gained ground in **lithium,** with output concentrated in **Zimbabwe** and smaller volumes in **Mali, Namibia** and **South Africa.** The **DRC** dominated global cobalt supply and ranked second in copper production. Africa's rich reserves of energy transition metals and traditional resources position it as a key player in the global mining landscape.

Figure 69. Africa's critical mineral reserves in the global context



As of December 2024
Source: S&P Global Market Intelligence

PGM = platinum group metals
Specialty includes antimony, graphite, ilmenite, lanthanide, lithium, niobium, rutile, scandium, tantalum, titanium, tungsten, vanadium, yttrium, zircon and heavy mineral sands
Base includes copper, lead, molybdenum, nickel, tin and zinc
Bulk includes bauxite, chromite, coal, iron ore, phosphate and potash

Table 7. Top 10 cobalt-producing mines, 2024 (calendar)

Global Rank	Project	Location	Primary commodity	Production - Cobalt ('000 tonne)	Global production share - Cobalt (%)	Cumulative global production share - Cobalt (%)
1	Kisanfu	DRC	Copper	51.92	19.95	19.95
2	Tenke Fungurume	DRC	Copper	48.08	18.48	38.43
3	Kamoto	DRC	Copper	27.20	10.45	48.88
4	Metalkol RTR	DRC	Copper	21.67	8.33	57.21
5	Mutanda	DRC	Copper	7.90	3.04	60.24
6	Chambishi	Zambia	Copper	5.64	2.17	62.41
7	SICOMINES	DRC	Copper	5.50	2.11	64.52
8	Pumpi	DRC	Coppe	5.00	1.92	66.44
9	Jinchuan	China	Nickel	3.26	1.25	67.70
10	Moa Bay	Cuba	Nickel	3.21	1.23	68.93

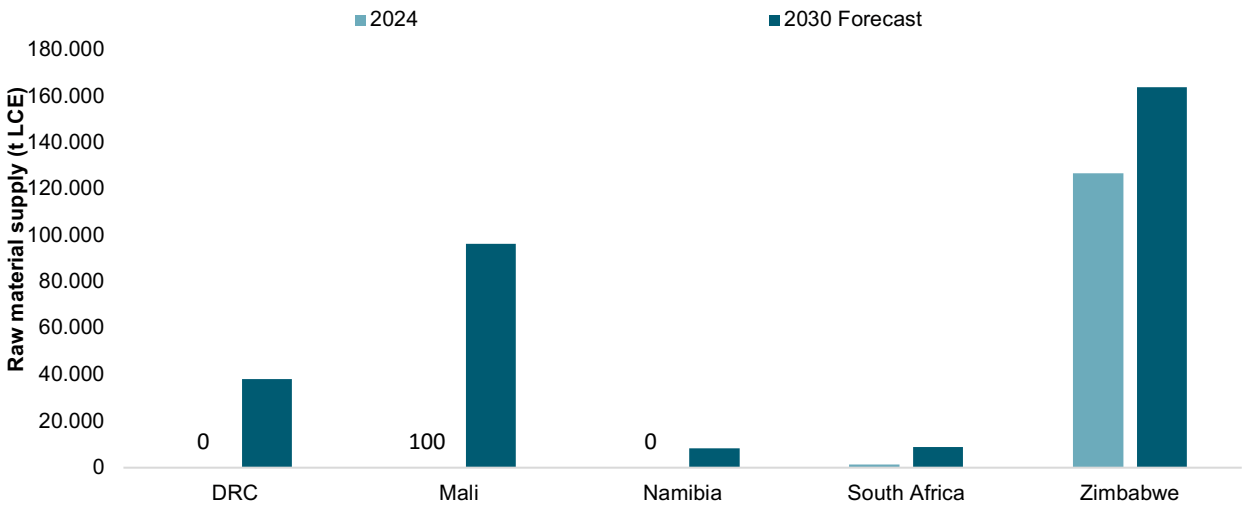
Source: S&P Global Market Intelligence

- The DRC has a broader strategy to promote local beneficiation by aiming to develop domestic refining capacity to convert cobalt hydroxide into higher-value cobalt metal.
- The government is seeking to capture more value from its mineral wealth by fostering downstream industrial development, creating jobs and integrating more deeply into the global battery and technology supply chains.
- Ethical and sustainable production is a parallel objective, with the country positioning itself as a responsible supplier of critical minerals through improved traceability and environmental standards.
- In February 2025, the DRC imposed a four-month cobalt export ban to curb oversupply and stabilise falling prices. While copper exports continued, cobalt producers were forced to warehouse the material, straining cash flows and government revenue. The ban was extended by another three months in June 2025.
- The policy succeeded in lifting global cobalt prices, but also led to domestic stockpiling and fiscal pressure, prompting a government-led review in May 2025 to assess its effectiveness and explore alternative mechanisms.
- A transition to export quotas is now under consideration. This is a more flexible tool to manage supply and support prices while allowing producers to maintain profitability. However, its success will depend on enforcement and regulatory transparency.

Mineral spotlight: Lithium

Lithium in Africa is mainly mined from hard rock deposits. It is extracted from a mineral called spodumene and turned into concentrate before being shipped for further processing. Africa produced 124,230 metric tonne of lithium carbonate equivalent (LCE) in 2024. The output is expected to grow over 150% by 2030, led by Zimbabwe, Mali and new projects in the DRC, Ghana, and Namibia

Figure 70. Africa's lithium production set to more than double by 2030



Source: S&P Global Market Intelligence

- The continent holds 26.7 million metric tons of identified lithium resources, accounting for 5% of the global total.
- Africa has transitioned from exporting raw lithium ore to shipping concentrate; however, battery-grade chemical refining remains limited—currently viable only in Morocco.
- Governments are increasingly promoting local value addition, with countries such as Zimbabwe, Ghana, the DRC, Namibia and Tanzania banning lithium ore exports and imposing higher export taxes on less-processed forms (lithium ore) to encourage domestic processing.
- Zimbabwe is leading beneficiation efforts, having banned lithium ore exports and introduced a 2% royalty on lithium sales, while advancing a $450 million refinery at the Mapinga industrial park.
- Africa's lithium mines are cost-competitive, with production costs ranging from $250 to $650 per metric ton of spodumene concentrate, well below the global benchmark price of approximately $800 per metric ton on a Free on Board (FOB) Australia basis. Several projects have been developed quickly and at relatively low capital costs, particularly in Zimbabwe and Mali.
- State participation in mining ventures is increasing, with countries such as Mali and Ghana mandating state-owned entities and local investors to hold equity stakes, aiming to retain more economic value from lithium development.
- Infrastructure and logistics remain a challenge, as all major lithium-producing countries are landlocked. Despite political and regulatory risks, Africa's lithium sector offers strong growth potential, supported by abundant resources, rapid exploration and increasing global demand for battery materials.
- In 2024, Zimbabwe featured prominently in the global lithium production landscape, with two of the top 10 lithium-producing projects located in the country. These projects collectively accounted for 7.42% of global lithium output, highlighting Zimbabwe's growing strategic importance in the lithium supply chain.

Table 8. Top 10 lithium-producing mines, 2024 (calendar)

Global rank	Project	Location	Production – LCE* ('000 tonnes)	Global production share – LCE* (%)	Cumulative global production share – LCE* (%)
1	Greenbushes	Australia	210.00	15.88%	15.88%
2	Salar de Atacama	Chile	179.60	13.58%	29.46%
3	Pilgangoora	Australia	96.98	7.33%	36.80%
4	Salar de Atacama	Chile	69.00	5.22%	42.02%
5	Wodgina	Australia	61.37	4.64%	46.66%
6	Mount Marion	Australia	60.69	4.59%	51.25%
7	Bikita	Zimbabwe	58.16	4.40%	55.65%
8	Galaxy	Canada	57.62	4.36%	60.00%
9	Arcadia	Zimbabwe	40.00	3.03%	63.03%
10	Chaerhan Lake	China	38.77	2.93%	65.96%

Source: S&P Global Market Intelligence

* Lithium commodity production is in lithium carbonate equivalent

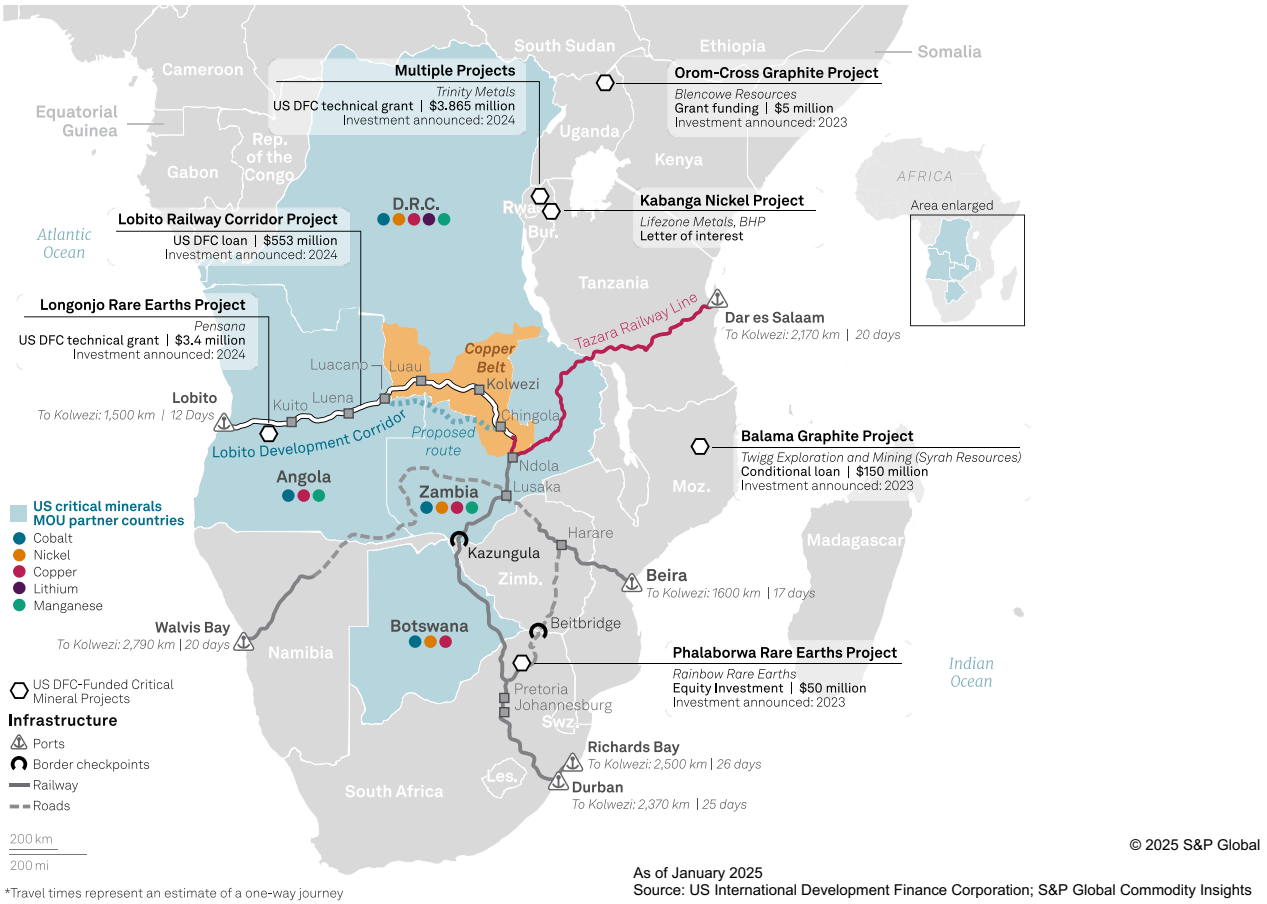
5.6.3. Initiatives, partnerships to enhance critical mineral supply chains in Africa

China has been a dominant force in Africa's mining sector for over two decades, emerging as the largest foreign direct investor on the continent, driven by strong government support and initiatives such as the trillion-dollar Belt and Road Initiative. However, the US, among others, is stepping up efforts to secure critical mineral supply chains through strategic partnerships and infrastructure investments. Key initiatives include the following:

- The expansion of the Lobito Corridor, a rail project linking Zambia and Angola, to create a transcontinental trade route to facilitate mineral exports. It is backed by a $553 million loan from the US International Development Finance Corporation (DFC) and collaboration with the EU.
- A battery supply chain partnership with the DRC and Zambia.
- The DFC, established in 2019, has invested over $200 million in African mining projects, prioritising infrastructure and critical minerals. In 2022, the Biden administration launched a strategy to help African nations leverage their natural resources for sustainable development and diversify global supply chains. This included a memorandum of understanding (MoU) with the DRC and Zambia to develop local battery industries.
- The US also co-founded the Minerals Security Partnership (MSP) to promote responsible sourcing and processing of minerals.

Nations such as the DRC, Zambia, and Mozambique who are rich in geological resources offer host governments a strategic opportunity to capitalize on growing concerns from the US amongst others over the security of critical mineral supply chains. Despite political uncertainties, these countries are well-positioned to attract investment and expand their mining sectors in response to global demand.

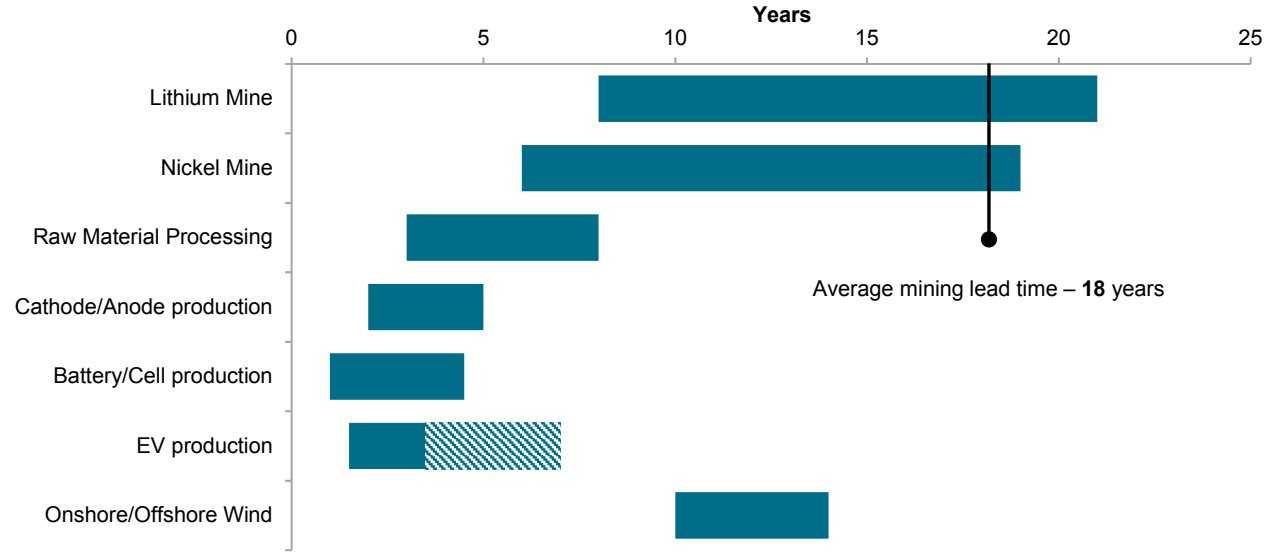
Figure 71. US partnerships in critical minerals across Africa



5.6.4. What would it take to develop in-continent valorisation of critical minerals?

The development of critical mineral supply chains, from extraction to refining, requires lengthy timelines and substantial upfront capital. Projects are exposed to sharp commodity price swings, lengthy permitting processes and geopolitical shifts, which deter private investors and have contributed to underinvestment in key supply chain segments.

Figure 72. Mining lead time



As of June 2025
Source: S&P Global Commodity Insights

China has overcome these barriers through long-term, state-backed investments across the supply chain, establishing dominance in both resource access and processing capacity. Its model demonstrates the value of patient capital, vertical integration and policy consistency in achieving critical mineral resilience.

As global demand for critical minerals surges—driven by the energy transition, electric vehicles and geopolitical shifts—Africa's position as a resource-rich continent is coming into sharper focus. However, to move beyond raw material extraction and capture greater economic value, African nations must overcome structural barriers to local processing and refining.

Building resilient, in-country or regional value chains will require coordinated action across policy, infrastructure and capability development. To accelerate this transition, it is imperative to shift the focus of current discussions on cobalt and lithium from extraction volumes to the rapid development of industrial capacity.

Africa's lithium sector, in particular, has demonstrated the feasibility of rapid mine development, with projects such as Arcadia and Goulamina reaching commercial production within a few years of discovery. However, refining capacity remains limited, with only Morocco hosting battery-grade chemical processing facilities.

The success of vertically integrated Chinese operations underscores the importance of coupling mining with downstream infrastructure. Refocusing policy and investment conversations on enabling quick, cost-effective development of refining and conversion facilities—through shared infrastructure, concessional finance and regulatory clarity—can unlock greater value capture. This pivot is essential not only for economic diversification but also for positioning Africa as a strategic node in global battery supply chains.

Specifically, the following strategies can help unlock Africa's downstream potential in a rapidly evolving global minerals landscape.

- **Establish stable and transparent regulatory frameworks**
  Long-term investment in refining and processing infrastructure requires predictable legal and fiscal environments. Frequent changes to mining codes, export rules and tax regimes—as seen in Zimbabwe, Mali and the DRC—undermine investor confidence. Governments should prioritise regulatory clarity, streamline permitting processes and ensure consistent enforcement to attract both domestic and foreign capital.

- **Invest in shared infrastructure and clean energy**
  Refining is capital- and energy-intensive. Most African lithium mines currently rely on diesel or coal-fired power, which raises costs and ESG risks. Governments and regional blocs should prioritise investment in shared industrial infrastructure, such as roads, rail and renewable energy corridors, to support clusters of processing facilities. Public-private partnerships and concessional financing can help de-risk these investments.

- **Promote regional cooperation and value chain integration**
  Given the fragmented nature of African markets and the landlocked geography of many resource-rich countries, regional cooperation is essential. Harmonising export policies, environmental standards and investment incentives across borders can enable economies of scale. For example, lithium mined in Mali could be refined in coastal Ghana or Côte d'Ivoire, provided trade and infrastructure agreements are in place.

- **Build local technical capacity and enable technology transfer**
  Africa's refining ambitions are constrained by a shortage of skilled labour and limited access to advanced processing technologies. Governments should incentivise joint ventures that include commitments to local hiring, training, and research and development (R&D). Partnerships with universities, technical institutes and international development agencies can accelerate workforce development and technology diffusion.

- **Align incentives with market realities**
  While resource nationalism, including export bans and local processing mandates, aims to retain more value in-country, these policies must be calibrated to market conditions. Forcing downstream investment during periods of low commodity prices or without adequate infrastructure can backfire. Instead, governments should offer phased incentives (e.g., tax holidays and infrastructure support) tied to project milestones and market signals.

Africa holds a strategic opportunity to position itself not only as a supplier of raw materials but also as a competitive hub for midstream and downstream processing. Realising this vision will depend on stable governance, regional collaboration, and long-term investment in infrastructure and skills development. By aligning policy ambitions with market realities, African countries can build a more inclusive and future-ready critical minerals ecosystem.

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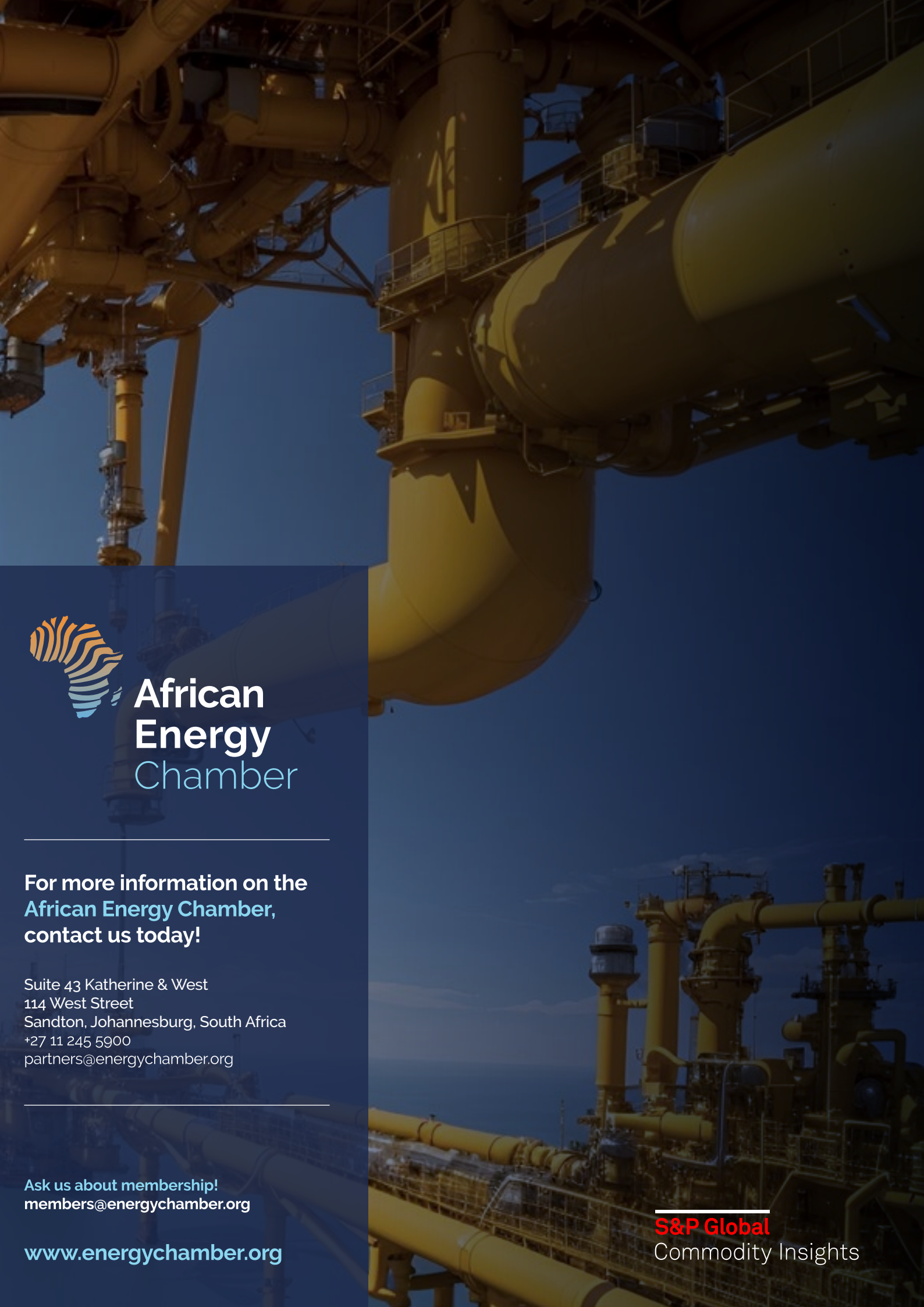

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