



HORIZONS

Asset rich, energy poor Maximising Africa's natural resources to transform the continent

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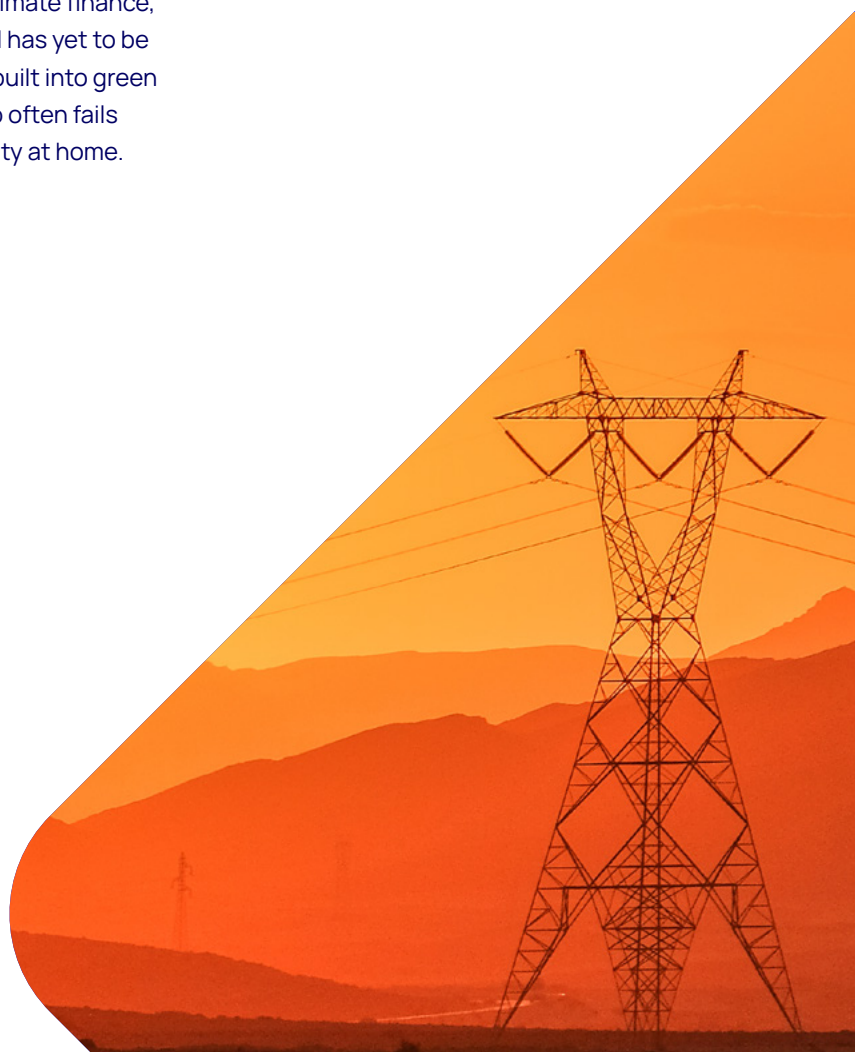


Energy poverty remains all too common across Africa. Some 600 million Africans still lack access to electricity, while four-fifths of the population continue to rely on traditional fuels such as wood, charcoal and biomass for cooking, resulting in chronic indoor air pollution and countless premature deaths each year.

This is not a resource issue. Africa is blessed with vast renewable power potential that could quickly transform its perilously low per capita electricity consumption. Africa is also a major hydrocarbon producer with world-class discovered oil and gas resources; Wood Mackenzie estimates remaining resources at 214 billion barrels of oil equivalent. What's more, Africa sits on a wealth of minerals crucial to global electrification, dominating global cobalt, platinum and manganese production and growing its output of copper, lithium and rare earth elements.

Concerted domestic and international efforts are required to rapidly increase energy access across the continent. Despite hundreds of billions of dollars in pledged climate finance, Africa's clean energy potential has yet to be realised. While its metals are built into green technologies worldwide, it too often fails to increase access to electricity at home.

Frustration is also palpable among governments and the oil and gas industry at the slow pace of upstream investment. The resource is there, but projects are hamstrung by above-ground risks, underdeveloped local gas markets, limited access to finance and the Global North's focus on Africa's emissions – even as wealthier countries bolster their own energy security with more oil and gas production. Emissions cannot and should not be dismissed, but with Africa accounting for only 3.5% of global emissions, an argument can be made that it needs to draw on all of its resources to industrialise, while the rest of the world needs to decarbonise faster.



To achieve this goal, Africa must also look inwards. Expanding both conventional and renewable power generation capacity should be an open goal across much of Africa, but progress is hindered by weak regulation, limited infrastructure and a lack of bankable offtakers. Successive governments in many African nations have too often failed to make the most of their hydrocarbon endowment to deliver demonstrable economic benefits for their people. African leaders are vocal in their determination to develop their oil and gas resources with or without outside help, but must address challenges at home to make this happen.

Unlocking its immense low-carbon energy potential and mineral resources while accelerating the development of its untapped oil and gas reserves can give Africa a fighting chance at future energy prosperity.



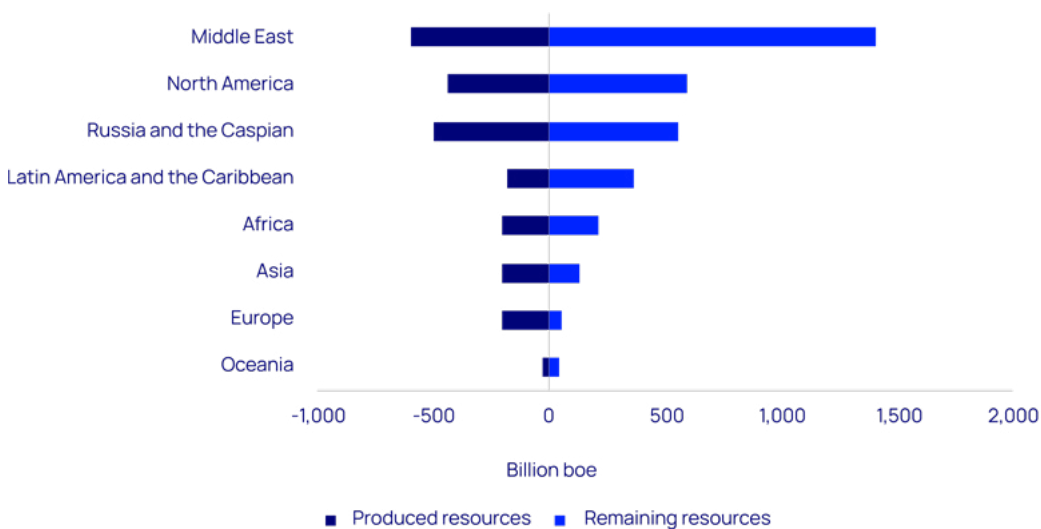
How to maximise Africa's energy endowment

Africa has the resources to achieve energy sufficiency. It is home to some of the world's highest solar irradiation levels and boasts excellent wind resources, particularly along its coastlines and in its highlands. It also has significant undeveloped hydropower potential, especially in Central and East Africa. Wood Mackenzie forecasts Africa's total solar and wind capacity to grow by almost 600% over the next decade - albeit from a very low base - as rapidly declining solar costs, in particular, make projects increasingly viable.

Meanwhile, Africa's oil and gas resources could be higher, with exploration drilling continuing. Increasing investment would allow explorers to unlock significant advantaged barrels, especially in offshore basins. Wood Mackenzie estimates 43 billion barrels of oil equivalent (boe) of exploration upside in Africa out of a total of 137 billion boe of identified prospects globally.

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Figure 1:
Africa's produced and remaining oil and gas resources



Source: Wood Mackenzie Lens Upstream

Capitalising on clean energy is key

Africa's electricity consumption deficit is staggering. Sub-Saharan Africa's glaringly inadequate access to electricity is perpetuated by underinvestment in infrastructure and insolvent public electrical utilities. Transmission and distribution networks remain underfunded and are a constraint on future generation projects. Given the scale of financial challenges facing public utilities, a greater share of investment should be directed to more nimble solutions. Incentivising decentralised, bottom-up, solar-and-storage grids and off-the-grid power-supply alternatives could rapidly deliver electricity access for millions of people. Ability to pay remains a challenge, meaning subsidising the lowest income end-users could be a consideration.

Solar power should be a priority

Despite having an estimated 40% of the world's best solar potential, Africa is home to less than 2% of current global solar capacity, and the pace of African solar installations fell year on year in 2024. This was largely due to a significant decline in South Africa, which has seen improvements in conventional grid power supply. Despite this slowdown, overall solar capacity across Africa will increase from 11.4 GW in 2021 to 31 GW by the end of this year.

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More innovative solutions can help grow capacity faster, enabling Africa to take greater advantage of the massive drop in solar panel costs globally, as well as the opportunity to pair solar with battery storage. Low-cost modular forms of power are increasingly attractive, with commercial and industrial customers that rely on diesel generators now combining them with solar panels and batteries or replacing diesel entirely. This shift is not only improving reliability and price certainty, but also reducing costs and emissions.

Developing both micro- and mini-grid projects is a proven way to connect rural areas and ensure widespread access to electricity through renewables. In Nigeria, for example, mobile containerised mini-grids are now delivering clean power to rural areas at pace, with projects operational within days.



Increasing access to clean energy finance

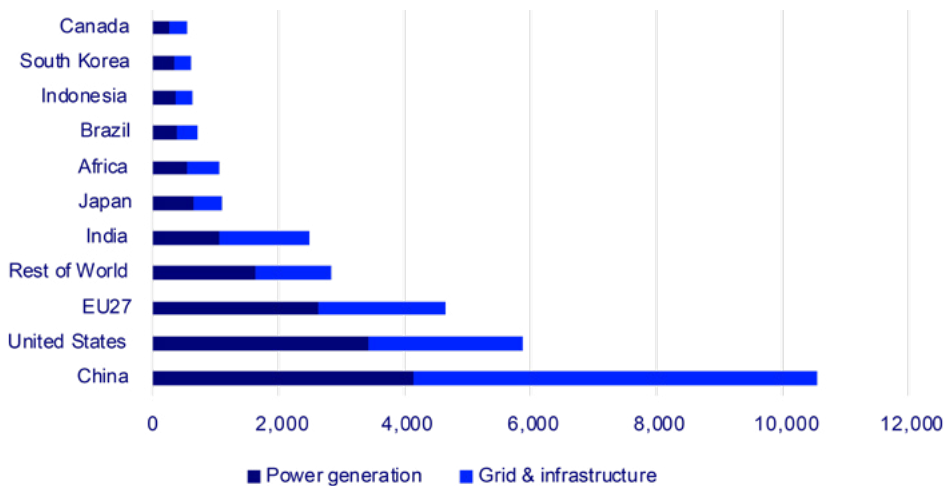
Increasing conventional thermal power generation capacity across Africa is a necessity, but accelerating investment in its huge low-carbon energy potential should be a global priority. At present, the continent attracts just over 2% of global energy investment. Increasing this will dramatically improve electricity access, including through off-grid projects and advancing solar-and-battery solutions.

Africa's major clean energy bottleneck is inevitably capital formation. Despite Organisation for Economic Co-operation and Development (OECD) countries pledging billions of dollars in annual climate finance for Africa, competing capital commitments are making targets more challenging. China could also lean in more, with access to Africa's mineral wealth being linked to increased climate finance for the region. Without this, investment in African clean energy supply and grids will continue to trail the rest of the world.

At present, the continent attracts just over 2% of global energy investment

Africa's challenge is not only accessing its share of pledged climate finance, however. Global commitments to decarbonise may have weakened, but the goal of a just transition remains. Lenders should be encouraged to consider greater support for commercial lending through bolder finance initiatives to support investments in renewables and electricity infrastructure. By expanding concessional and blended finance, for example, African clean energy projects will be better positioned to access affordable debt and reach scale.

Figure 2:
Cumulative 2050
global power and
grid capex by
country/region,
US\$ billion



Source: Wood Mackenzie Lens ETS

Using Africa's mineral resources to Africa's advantage

The continent's mineral wealth is supporting global development and is underpinning electrification and energy access around the world. Africa is the dominant source of cobalt, accounting for over two-thirds of global mine output, while its copper production now makes up around 20% of total supply. African copper, lithium, cobalt, manganese and rare earth elements are increasingly built into clean technologies worldwide.

While these minerals provide valuable revenues to numerous African governments, most of the production is exported to China for processing before end-use in renewable energy and battery manufacturing. Given the scale of risk-tolerant Chinese investment in resource-rich African countries, this could present Africa with an opportunity to strike deals with China for investment in clean energy projects at home in return for access to its critical mineral resources.

Maximising Africa's hydrocarbon riches

Increasing Africa's low-carbon energy supply is essential, but not the only show in town. The continent also needs to maximise its oil and gas production. Despite the scale of existing discoveries, only around a third have been commercialised, one of the lowest rates in the world.

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Many African producers have ambitious plans to boost oil and gas output, but are increasingly frustrated by the challenges involved. Major barriers include poor governance, weak regulation, limited local gas markets which all contribute to a lack of access to competitive finance for local companies.

Nonetheless, Africa's major producers are determined to grow output. Regional heavyweight Nigeria has set a target of doubling oil production to 3 million barrels per day (b/d) and gas output to 12 billion cubic feet per day (bcfd) by 2030, while Angola left the Organization of the Petroleum Exporting Countries (OPEC) in 2023 specifically to facilitate greater liquids production. To hit these targets, regulators in both countries have introduced fiscal incentives to stimulate investment, attracting nearly US\$20 billion in project final investment decisions (FIDs) since 2024.

Elsewhere, Libya aims to restore output to 2 million b/d before 2030 - from around 1.4 million b/d currently - after years of above-ground disruption. Offshore Africa is less vulnerable to disruption, and discoveries there could be developed more quickly, as in Côte d'Ivoire. Namibia's deepwater Orange Basin, meanwhile, is another bright spot for new oil production.

Africa is already a major LNG player

Africa accounts for almost 10% of global liquefied natural gas (LNG) supply, and this can continue to play a major role in the monetisation of hydrocarbon resources. With force majeure recently lifted on the TotalEnergies-led Mozambique LNG project, East Africa is set to become a major LNG exporting region. Meanwhile, the ExxonMobil/Eni Rovuma LNG project, also in Mozambique,

continues to make progress towards FID. Together, these projects will transform the country's economy and could support local gas power, petrochemical and industrial investments. Africa is also a leader in floating liquefied natural gas (FLNG), boasting 6 out of 10 operational projects worldwide and more to come under current plans.

Future revenues from Africa's oil and gas projects will support economic growth and increased energy access. Under Wood Mackenzie's base-case scenario, the region's oil and gas is expected to generate an average US\$109 billion annually in government revenue through 2030. With only a third of Africa's hydrocarbon resources developed, this should be higher if more hydrocarbons are monetised.



Natural gas could be Africa's next big hydrocarbon story

Despite its leading role in LNG, Africa itself consumes only 4% of the world's gas supply and has the world's lowest gas consumption per capita – less than one-quarter of the global average.

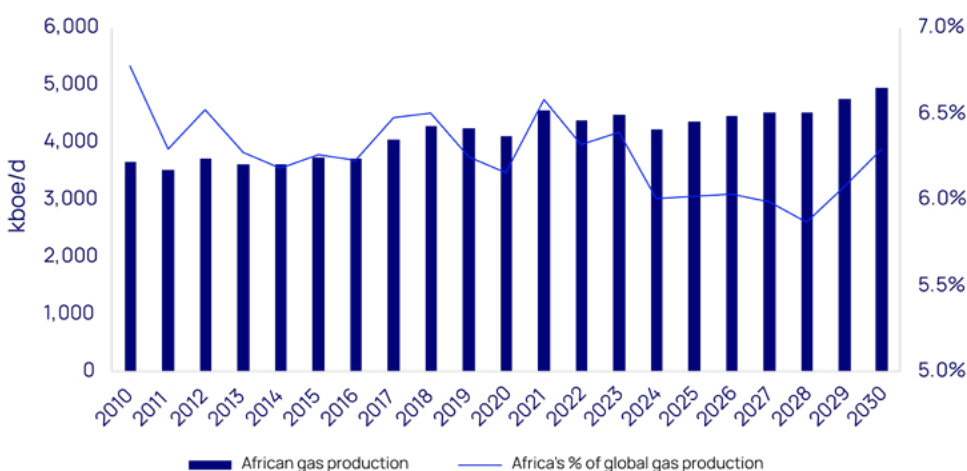
Whether Africa produces its gas for export or develops domestic markets is not a binary decision. For the Majors, securing export volumes will remain the obvious lure. However, accelerated LNG development across West Africa and Mozambique could also be an anchor for fostering local gas demand.

Governments and companies are increasingly recognising this opportunity. To develop domestic gas markets in the most economical way, African governments are overhauling regulations for gas development, clarifying fiscal rules and, in many instances, implementing gas master plans, such as Nigeria's Decade of Gas initiative, which kicked off in 2021, and the Republic of Congo's gas masterplan launched in early 2025.

However, developing an adequate gas-to-power transition across Africa needs problem-solving throughout the value chain, from financing upstream gas projects and combined cycle gas turbine (CCGT) generators to installing transmission and distribution infrastructure. Governments across Africa also need to incentivise investors with competitive feedgas pricing and consumer tariffs. Other stumbling blocks deterring large-scale gas projects for the domestic market are identifying and securing credible offtakers and guaranteeing payments.

As with liquids, there are positive developments underway. Recently discovered deepwater gas in Côte d'Ivoire, for example, is being earmarked to supply significant volumes of gas into local power and industrial sectors, as well as exports via FLNG. Despite the obstacles, a growing number of proposed cross-border gas pipelines point to increasing regional cooperation towards gas-driven economic growth. Affordability challenges remain, but displacing diesel and fuel-oil demand in power and industry with gas is the most economic route to monetisation and will contribute to emissions reduction.

Figure 3:
African gas
production
and share of
global total



Source: Wood Mackenzie Lens Upstream

Meeting Africa's upstream emissions challenge head on

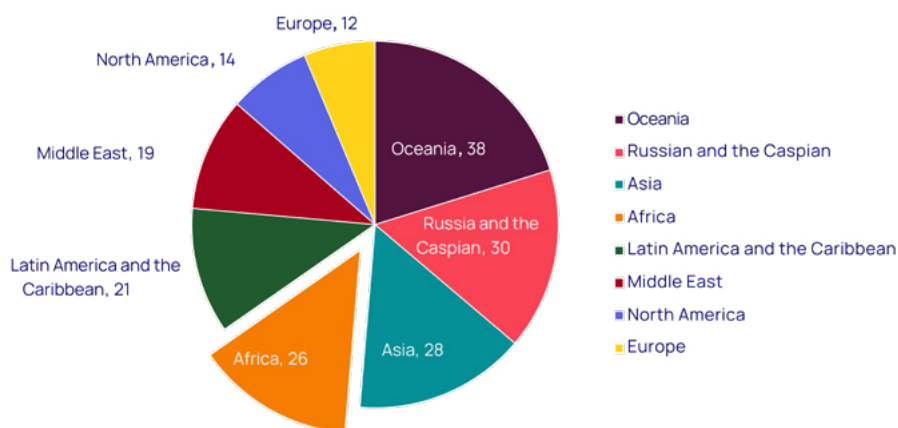
Few places on earth understand the impact of climate change more than Africa. However, Africa's own emissions are not the problem. In Wood Mackenzie's base-case Energy Transition Outlook, Africa's total contribution to global emissions climbs to just 6% by 2050, despite its strong population growth and rising energy demand.

Africa is not asking for a free pass on its upstream emissions, though it is increasingly determined to develop its own oil and gas with or without the help of others. Critics specifically call out Africa's emissions from oil and gas production. However, Wood Mackenzie data show that African upstream scope 1 and 2 emissions in 2025 are around 125 million tonnes of CO₂ equivalent (MtCO₂e), corresponding to less than 9% of global upstream emissions. Nor is Africa the worst-performing region from an emissions intensity perspective. Western countries and financial institutions holding back capital that could help develop Africa's gas resources because of the emissions it would generate risk contributing to energy poverty, especially as countries across North America, Europe and Asia double down on gas use in their economies.

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None of this deflects from the need for Africa to continue to minimise emissions. The Majors are leading the way with low-carbon upstream projects, such as Baleine in Côte d'Ivoire, which are demonstrating Africa's potential to develop its resources sustainably. Elsewhere, Eni's FLNG projects in the Congo and Mozambique have optimised energy-efficiency technologies, while the Agogo 'green' floating production storage and offloading vessel offshore Angola is piloting one of the first post-combustion carbon capture units and advanced electrification, automation and digitalisation. Several African governments are also stepping up, enacting anti-flaring laws and carbon-neutrality policies to demonstrate their commitment to supporting the sustainable development of their oil and gas resources.

Figure 4:
Global upstream
(scope 1 and
2) emissions
intensity by
region (2026-30,
tCO₂e/kboe)



Source: Wood Mackenzie Lens Upstream

Shifting geopolitical winds could help: the Trump administration has voiced its support for upstream investment across Africa, which could improve access to capital for the continent's oil and gas producers.

US Energy Secretary Christopher Wright earlier this year delivered a clear message that Africa must be free to develop its oil and gas resources on its own terms, echoing calls from across the continent. Greater access to capital is essential, but can only happen in tandem with local efforts to ensure investors see tangible progress on governance and more attractive policies and terms.

Ways to transform Africa's energy landscape

Increasing energy access across Africa must be a global priority. The solutions lie in Africa working to maximise its own resources with the support of the rest of the world – including Western countries and China.

- **Innovative solutions can transform electricity access.** Africa's electrical utilities face major insolvency challenges, but are not the only option for increasing power supply. Decentralised, bottom-up solar-and-storage mini-grids and off-the-grid clean power alternatives are already playing a role in markets across West and North Africa.
- **Delivery of climate finance.** The OECD countries need to increase delivery of pledged climate finance. China's access to Africa's mineral resources could also be more closely tied to Chinese investment in clean power. Doing so will help boost Africa's renewable generation capacity and other low-cost modular solutions.
- **Replacing traditional cooking fuels with cleaner energy.** Low-cost, clean electricity and liquified petroleum gas (LPG) for cooking will transform the lives of hundreds of millions of people. Initiatives like the World Liquid Gas Association's roadmap to expand access to LPG for cooking across Africa are leading the way.
- **Realising the full potential of Africa's oil and gas resources.** Many African leaders have signalled their willingness to work towards better governance and more competitive oil and gas regulations to support greater investment. To this end, the African Petroleum Regulators Forum was established in September 2025 to strengthen policies, promote investment and address investor concerns.
- **Increasing access to capital for indigenous exploration and production companies.** The Majors and other international oil and gas companies continue to play a key role in Africa, but local producers need financial support to deliver on smaller and more marginal fields. In response, African nations have established the African Energy Bank to shore up funding for new projects by local companies.
- **Natural gas can play a greater role in Africa's energy mix.** LNG exports make sense for Africa, but developing domestic gas markets, expanding gas power capacity and building out gas-based industries should be helping to drive economic growth, displace oil products and reduce emissions. Caribbean countries, including the Dominican Republic and Trinidad and Tobago, provide workable examples of how gas markets can be expanded in developing economies.

Conclusion: the future is calling

By 2050, Africa will be home to around 2.5 billion people, almost a billion more than its current population. The continent's youthful population should be the catalyst for rapid growth in manufacturing and services, presenting a valuable and skilled workforce and a vast energy consumer base.

Without urgent action to increase energy access now, however, this potential is at risk of being lost. The future of African energy must be a balanced, resource-driven approach that urgently maximises the abundance of clean energy potential and mineral resources while accelerating hydrocarbon investment. The prospect of future generations facing energy poverty should not be an option.

Without urgent action to increase energy access now, however, this potential is at risk of being lost.



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