

The role of natural gas in Africa's energy transition



Neil Ford



The Africa Center

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1: Africa's current and future energy needs

Limited access to electricity has long constrained both quality of life and economic growth across much of Africa. About 42 percent of the continent's population still lives in homes without any access to national grids, mini-grids, or even standalone renewable energy systems.^{1,2} With 19 percent of the world's population, Africa accounts for just 3.1 percent of global electricity demand.³ Indeed, the majority of people without access to electricity live in sub-Saharan Africa.⁴ This depresses living standards and stymies commercial and industrial development across the continent.

Average annual electricity consumption in Africa (excluding South Africa) was just 180 kilowatt-hours (kWh) in 2021, compared with 6,500 kWh in Europe and 13,000 kWh in the United States.⁵ Most people in sub-Saharan Africa consume less electricity in a year than an average US fridge.⁶ Power supplies in the region are not only inadequate, they are often unreliable, with outages a feature of life from Nigeria to South Africa. Sub-Saharan Africa also has the lowest per capita gas consumption of any region, at less than one-quarter of the global average,⁷ and accounts for just 4 percent of global gas demand.⁸

According to the United Nations' Sustainable Development Goal 7, UN member states committed to achieving "access to affordable, reliable, sustainable and modern energy for all" by 2030. This target will not be reached by that date as the current pace of progress is nowhere near fast enough to connect 600 million African people in the next five years. Still,

a growing number of African governments are pushing for universal access to electricity for their countries, and helping them succeed should be a global priority.

It is critical to tackle this challenge now while electrification efforts are being stepped up and over half the African population has access to electricity at home for the first time. Moreover, a significant increase in power generation will be needed to achieve universal electrification at a time of massive demographic growth. The United Nations forecasts that the population of sub-Saharan Africa will grow from 1.3 billion at present to 2.2 billion by 2054 and 3.3 billion by 2100.⁹ Power demand will expand even further with the adoption of electric vehicles and construction of new data centers.

It is technically possible to rapidly increase African electrification rates through renewables backed up with battery energy storage systems (BESS), hydroelectric schemes, and geothermal power (where available). Yet change on such a scale would require massive global investment that is not a realistic prospect in the foreseeable future, particularly given the recent drastic cuts to international aid budgets by some western governments.¹⁰

Africa's untapped and associated gas reserves can provide part of the solution by supporting renewable energy in boosting electrification rates.¹¹ Although gas-fired generation is typically more expensive than solar,¹² it delivers the baseload, round-the-clock capacity needed to fuel a rapid increase in

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- 1 International Energy Agency, "SDG7 Database," September 2023, <https://www.iea.org/data-and-statistics/data-product/sdg7-database#access-to-electricity>.
 - 2 Akinwumi Adesina, keynote speech, African Development Bank Group Berlin Energy Transition Dialogue, March 28, 2023, <https://www.afdb.org/en/news-and-events/multimedia/video/keynote-speech-dr-akinwumi-adesina-president-african-development-bank-group-berlin-energy-transition-dialogue-germany-tuesday-28-march-2023-60058>.
 - 3 Ember, "Africa: Electricity Access Remains an Urgent Problem Across the Continent," last updated June 13, 2025, <https://ember-energy.org/countries-and-regions/africa/>.
 - 4 Ibid.
 - 5 African Development Bank, "Light Up and Power Africa: A New Deal on Energy for Africa," <https://www.afdb.org/en/the-high-5/light-up-and-power-africa-%E2%80%93-a-new-deal-on-energy-for-africa>.
 - 6 International Gas Union, "Gas for Africa: Assessing the Potential for Energising Africa," 2023, <https://www.igu.org/press-releases/2023-gas-for-africa-report>.
 - 7 Wood Mackenzie, email message to author, June 24, 2025.
 - 8 Ibid.
 - 9 United Nations, "Global Issues: Population," last accessed July 9, 2025, <https://www.un.org/en/global-issues/population>.
 - 10 Organisation for Economic Cooperation and Development, "Cuts in Official Development Assistance," June 26, 2025, https://www.oecd.org/en/publications/cuts-in-official-development-assistance_8c530629-en/full-report.html.
 - 11 Associated gas is natural gas found alongside crude oil that can be produced for commercial use or reinjected to aid oil production but which is sometimes (wastefully) flared or burned off.
 - 12 International Energy Agency, "Rapid Rollout of Clean Technologies Makes Energy Cheaper, Not More Costly," May 30, 2024, <https://www.iea.org/news/rapid-rollout-of-clean-technologies-makes-energy-cheaper-not-more-costly>.

intermittent renewable energy production. What's more, there is a substantial amount of gas expertise in Africa, as gas is the continent's primary source of electricity, accounting for 43 percent of production in 2024.¹³

In response to the climate crisis, fossil fuel output will taper down, but some production will continue for many years. Emissions from gas-fired plants are at least half as high as those from coal, making gas a driver of climate change. Yet the African continent accounts for such a small proportion of global per capita emissions that new gas projects on the continent would be fair and justified where they would have a demonstrable impact on living standards and where failing to develop them would act as a brake on electrification efforts. Moreover, as this report will demonstrate, gas appears to be either a necessary or commercially viable option only in specific African countries.

Gas-to-power projects carry high upfront investment costs but are often easier to finance when attached to big export projects. The United States and Qatar, in particular, are investing heavily in new liquefied natural gas (LNG) production capacity to satisfy global demand, but European gas markets are keen to secure new sources of supply to displace piped Russian gas, and many Asian countries are switching from coal to gas-fired generation. As a result, there is scope for both new African LNG plants and pipelines under the Mediterranean Sea

that could support power production in much of West Africa, while also generating export revenues for Nigeria.

Securing financing for African gas projects will be a crucial challenge, especially in light of the high capital costs for operating projects on the continent and investors' reluctance to fund hydrocarbon schemes in recent years. However, the new African Energy Bank and the Trump administration's support for oil and gas investment could make a considerable difference. US Secretary of Energy Chris Wright said in March that the United States would partner with African governments and companies to support the development of projects using natural gas and other energy technologies, including by providing capital.¹⁴ Indeed, the Trump administration acted quickly to approve \$4.7 billion in funding from US Export-Import Bank for TotalEnergies' Mozambique LNG scheme.¹⁵

This report will set out why it is reasonable for Africa to develop its own gas reserves to drive electrification, explain how gas can fit into a broader energy transition on the continent, examine which countries would benefit from developing gas projects, and discuss the relationship between gas exports and local consumption. It will conclude with recommendations for how all stakeholders can utilize the continent's natural gas resources to promote electrification at the lowest possible climate cost.

13 "Africa: Electricity Access Remains an Urgent Problem."

14 EnergyNet, "U.S. Secretary of Energy Chris Wright Outlines Trump Administration Approach to Energy Development in Africa," March 7, 2025, <https://www.poweringafrica-summit.com/industry-news/us-secretary-energy-chris-wright-outlines-trump-administration-approach-energy-development-africa>.

15 NJ Ayuk, "Trump's Second Term: A Rare Opportunity for Real African Energy Independence," March 31, 2025, <https://energychamber.org/trumps-second-term-a-rare-opportunity-for-real-african-energy-independence/>.

2: What role should natural gas play in Africa's energy transition?

a) Most African countries account for a tiny proportion of global emissions but desperately need improved power supplies¹⁶

Developing new gas-fired power plants in Africa to boost living standards and promote industrial growth would help the continent achieve a just energy transition.¹⁷ While effort should be made to rein in greenhouse gas (GHG) emissions in Africa as elsewhere, the energy transition burden of each country should be based on its absolute per capita emissions rather than year-on-year changes in its emissions. The world's poorest countries, including most African states, have played a very small role in driving climate change, and Africa is responsible for just 3.7 percent of carbon emissions from burning fossil fuels—a far lower per capita share than any other region.¹⁸ Per capita carbon emissions in 2021 stood at 1.04 metric tons/year in Africa, four times less than the global average of 4.69 metric tons/year¹⁹ and far lower than the US average of 14 metric tons/year.²⁰

New African gas-fired power projects should be developed where they can help speed up much-needed electrification, particularly as new fossil fuel projects continue to be developed elsewhere. The United States plans to ramp up

domestic oil production,²¹ while China began construction of 94.5 gigawatts (GW) of new coal-fired power plants last year.²² By contrast, South Africa—which has the biggest installed generating capacity on the continent—has a total generation capacity of just 63.4 gigawatts.²³

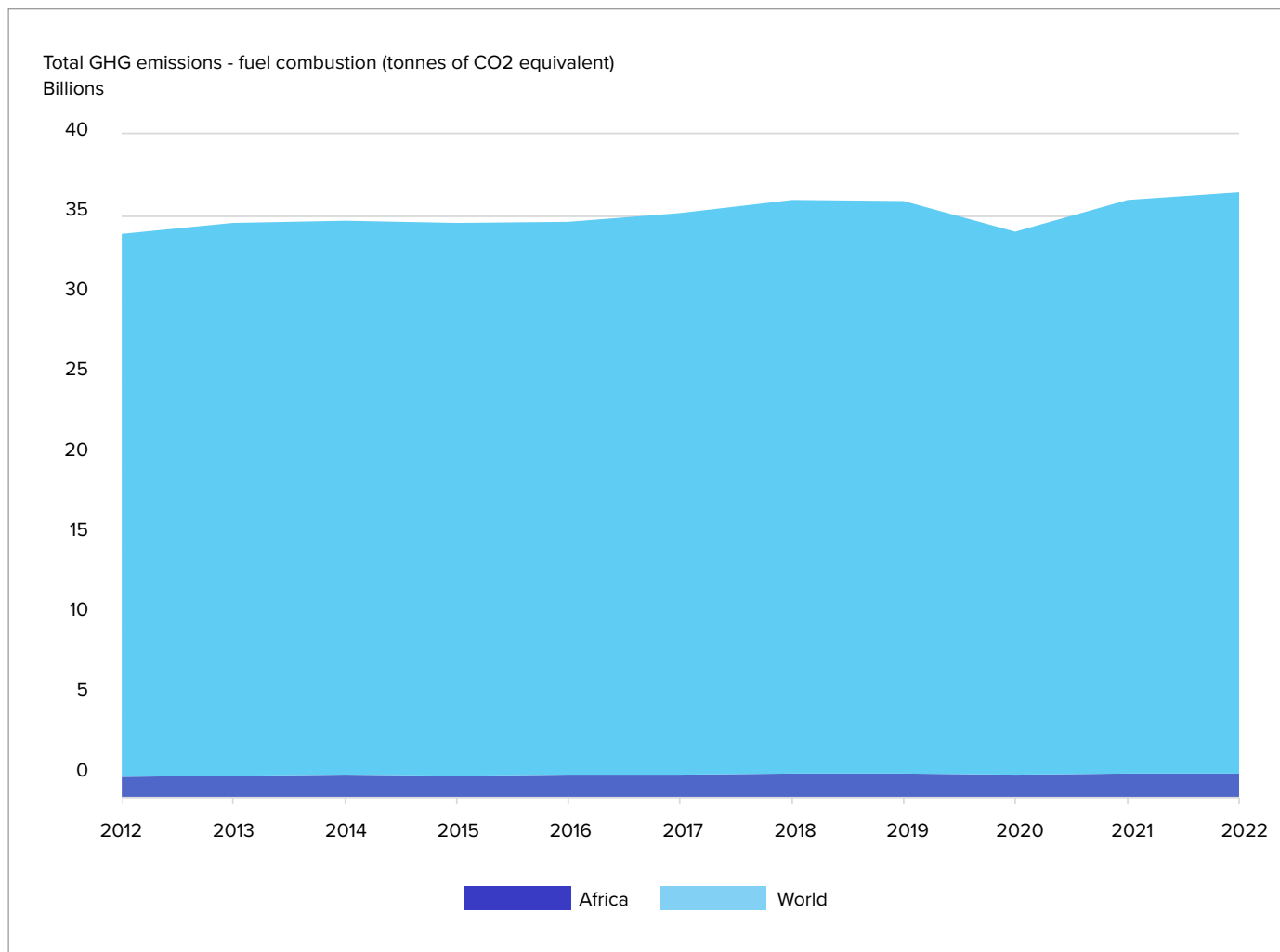
In the United States, after years of negligible new gas-fired capacity, developers are building a string of gas plants, leaving some to wait up to seven years for delivery of gas turbines.²⁴ A single Texas power company, NRG Energy, said on May 12 that it plans to acquire 13 GW of gas-fired generation capacity²⁵—seven times the total generating capacity of Uganda.

It was anticipated that a series of planned terminals would boost US liquefied natural gas (LNG) export capacity from 90 million metric tons per annum (mtpa) to 200 mtpa²⁶ even before President Trump lifted the ban on new projects. New gas-fired plants are also being developed in Europe, with 20 GW of new capacity planned in Germany by 2030.²⁷ It is therefore difficult to expect African countries to refrain from developing projects when the big polluters are failing to do so.

Asking low-emitting, energy-poor countries to forgo gas development while wealthier countries continue to expand

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- 16 This section makes use of the following article written by the author: "If the International Community Wants to Curb Fossil Fuel Emissions, It Must Make Africa a Serious Clean Energy Offer," *Africa Source*, March 20, 2025, <https://www.atlanticcouncil.org/blogs/africasource/if-the-international-community-wants-to-curb-fossil-fuel-emissions-it-must-make-africa-a-serious-clean-energy-offer/>.
- 17 A just energy transition is the process of transitioning to a low-carbon economy in a way that is fair to all, including those negatively impacted by the decline of fossil fuel production.
- 18 International Energy Agency, "How Much CO2 Do Countries in Africa Emit?," last accessed July 9, 2025, <https://www.iea.org/regions/africa/emissions>.
- 19 "Gas for Africa: Assessing the Potential," 31.
- 20 International Energy Agency, "Global Energy Review: CO2 Emissions in 2021," March 2022, <https://www.iea.org/reports/global-energy-review-co2-emissions-in-2021-2>.
- 21 Shariq Khan, "Oil Settles Down after Trump Repeats Pledge to Boost US Supply," Reuters, February 6, 2025, <https://www.reuters.com/markets/commodities/oil-pares-losses-after-saudi-price-increase-2025-02-06/>.
- 22 Qi Qin and Christine Shearer, "When Coal Won't Step Aside: The Challenge of Scaling Clean Energy in China," February 13, 2025, <https://energyandcleanair.org/publication/when-coal-wont-step-aside-the-challenge-of-scaling-clean-energy-in-china/>.
- 23 U.S. Energy Information Administration, "Country Analysis Brief," October 29, 2024, chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://www.eia.gov/international/content/analysis/countries_long/South_Africa/pdf/SAfrica_CAB_FY24_final.pdf.
- 24 Jared Anderson, "US Gas-Fired Turbine Wait Times as Much as Seven Years; Costs Up Sharply," S&P Global, last accessed June 30, 2025, <https://www.spglobal.com/commodity-insights/en/news-research/latest-news/electric-power/052025-us-gas-fired-turbine-wait-times-as-much-as-seven-years-costs-up-sharply>.
- 25 Ibid.
- 26 Reuters, "US LNG Projects Boosted by Trump's Export Permit Restart," January 21, 2025, <https://www.reuters.com/business/energy/us-lng-projects-boosted-by-trumps-export-permit-restart-2025-01-21/>.
- 27 Enerdata, "Germany Plans to Develop 20 GW of Gas Power Plant Capacity by 2030," April 11, 2025, <https://www.enerdata.net/publications/daily-energy-news/germany-plans-develop-20-gw-gas-power-plant-capacity-2030.html>.

Figure 1: Africa's limited contribution to GHG emissions— IEA



Sources: IEA (2024), Greenhouse Gas Emissions from Energy

their production capacity is hypocritical. According to the World Economic Forum in 2020, tripling African power production using gas-fired plants would only add 1 percent to global emissions.²⁸

Per capita emissions in most African countries are “lower than what is compatible with a 1.5C degree world, so even if they grow substantially, the continent would not exceed its fair share of emissions,” wrote a leading researcher on the need to assess Africa’s energy transition strategies on a country-by-country basis.²⁹

b) It is possible to integrate more natural gas within a broadly low emissions power sector

It is difficult to overstate the energy poverty of most of sub-Saharan Africa. With some notable exceptions, particularly in South Africa and North Africa, most of the continent has constrained access to reliable power supplies. It is easy to argue that this energy poverty should be overcome by focusing entirely on clean energy. The continent could leapfrog gas use and expensive gas infrastructure, in favor of moving straight to green technologies, in the same way that it has in large part bypassed landline

28 Mark Thurber and Todd Moss, “12 Reasons Why Gas Should Be Part of Africa’s Clean Energy Future,” World Economic Forum, July 23, 2020, <https://www.weforum.org/stories/2020/07/12-reasons-gas-africas-renewable-energy-future/>.

29 Philipp Trotter, honorary research associate at the Smith School of Enterprise and the Environment, University of Oxford, email message to author, July 7, 2025.

technology in favor of mobile telecommunications. Solar should certainly be the centerpiece of power strategies in most African countries, considering the continent represents 60 percent of the world's solar potential,³⁰ and yet it produced just 4 percent of all solar power in 2024.³¹

Africa also has attractive wind resources, although in more limited areas that include South Africa, Morocco, and Egypt. Geothermal energy is another very attractive contribution to any generation mix: It is a renewable source of energy that provides baseload energy because it is “always on.” However, it is available in only a few African countries, mainly along the line of the Great Rift Valley and most notably in Kenya.

BESS can store solar energy and then release it into grids for two to four hours to cover evening peak demand. Long duration energy storage (LDES) projects hold the promise of stabilizing longer-term fluctuations in intermittent power production.

Immediate and substantial investment is needed in these technologies, but they alone cannot achieve 100 percent electrification in many African countries in the near future. Solar power, for instance, may be cheaper than gas-fired capacity per unit of energy³² and will become even cheaper over time, but it does not produce power outside of daylight hours.

The BESS sector is at an early stage of development in Africa, as costs remain high and expertise low. As for LDES, the only commercially viable technology today is pumped storage hydro, which involves moving water between two reservoirs at different levels: The water is released downhill to drive turbines to generate electricity when it is most needed and then pumped back uphill during lower-cost periods when other technologies are productive. Pumped hydro storage helps to balance grids but is a net consumer of electricity and is technically feasible in only specific geographical areas.

A comprehensive rollout of BESS and LDES should make 100 percent clean energy in Africa possible one day, but most African countries will need a greater baseload power capacity to balance out intermittent sources of power production for a long time to come. Consequently, in the interim, they must be allowed to develop gas-fired generation capacity.

More gas can complement the rollout of low emissions technologies. Developing new gas-to-power projects alongside renewables could help drive access to electricity in many African countries over the next decade. The renewables sector has taken off in a small number of African countries, led by South Africa, Egypt, and Morocco, with large projects currently in development elsewhere on the continent. Yet gas and

Box 1 | Key power sector terms

Baseload technologies operate 24/7 except when they are undergoing maintenance. These include oil, coal, and gas-fired projects, geothermal power plants, and hydroelectric schemes, although output falls during periods of prolonged drought.

Intermittent technologies produce variable amounts of power: Solar power plants produce electricity only during the day and wind farms when the wind blows.

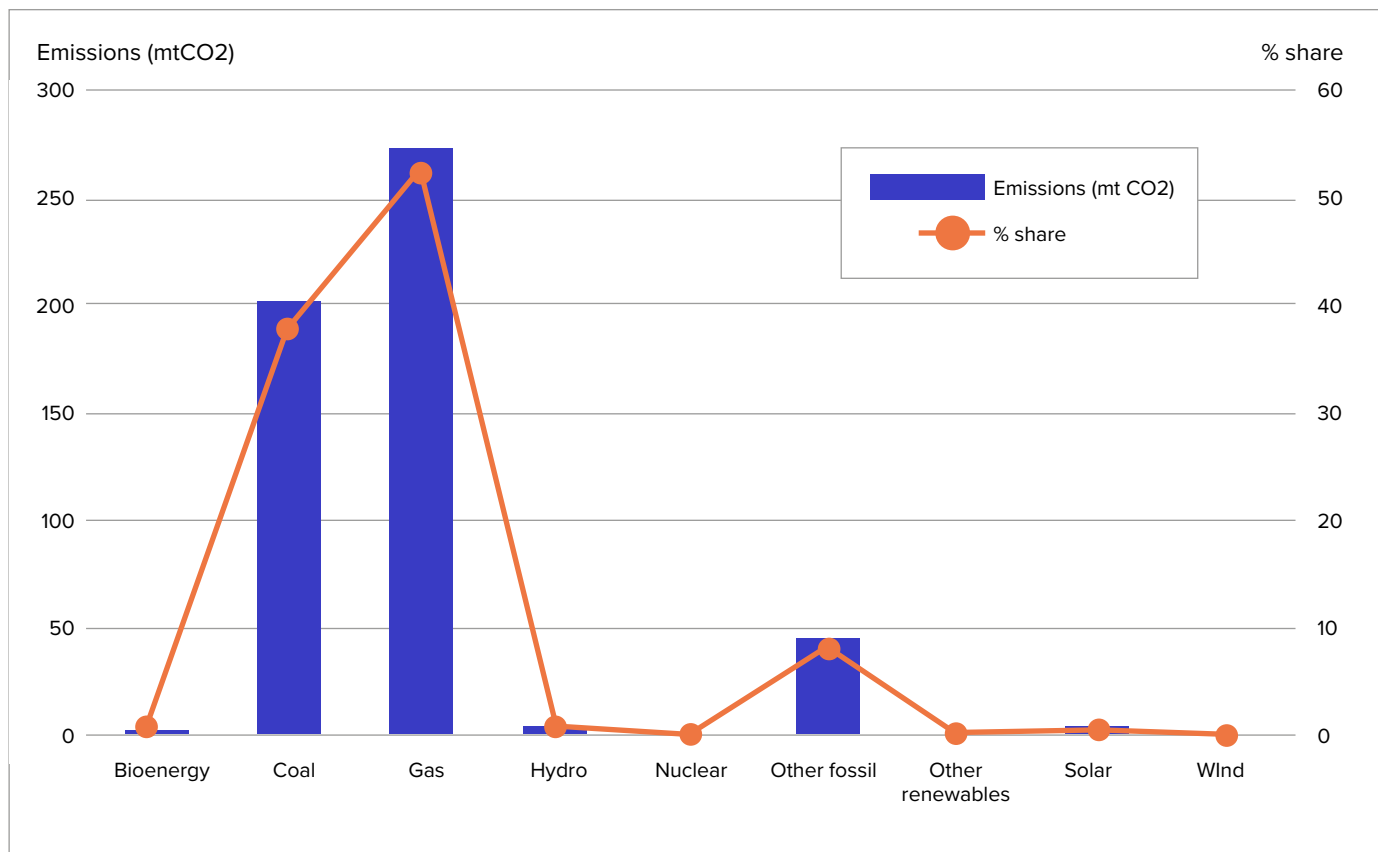
Battery energy storage systems (BESS) store surplus power, usually from solar projects during the daytime, to release it into the grid when needed, often in the evening.

Back-up power projects help maintain supplies when other forms of generation are lacking. These can include BESS, small-scale diesel generators, and even some gas-fired technologies that can be used only when required. However, building an expensive gas-fired plant for occasional use only is not commercially attractive without additional system payments. These payments are allocated to generators to reward them for being available to support the grid, in addition to each kilowatthour of actual electricity they produce, particularly during periods of peak demand.

30 International Energy Agency, “A New Energy Pact for Africa,” July 13, 2023, <https://www.iea.org/commentaries/a-new-energy-pact-for-africa>.

31 “Africa: Electricity Access Remains an Urgent Problem.”

32 “Rapid Rollout of Clean Technologies Makes Energy Cheaper.”

Figure 2: Gas is still responsible for much of Africa's power sector emissions – Ember

renewables should not be viewed as an either-or choice: gas-fired projects can be paired with renewable energy and large hydro to provide grids with reliable power where renewable energy penetration is increasing.

Gas-fired plants could be used as back-up for solar and wind power, but this secondary role risks making construction commercially unviable in most markets. Financing is only likely to be secured for gas projects that provide baseload capacity;³³ still, these plants could be downgraded to back-up in the longer term.

Replacing back-up diesel generators with gas-fired capacity offers the added benefit of reducing GHG emissions. At present, millions of African homes and businesses rely on diesel

generators to provide electricity when their national grids fail to meet demand. These generators produce 74.14 kilograms of CO₂ per million British thermal units (Btu) compared to 52.91 kilograms for gas-fired capacity.³⁴

Fossil fuel power plants, whether gas, coal, or oil-fired, currently provide 75 percent of all electricity in Africa, with 25 percent coming from clean energy (7 percent from solar and wind and most of the remainder from hydro). And yet, 54 percent of new capacity added between 2020 and 2025 was clean energy.³⁵ Coal-fired power plants are the second biggest power-generation technology in Africa (after gas), but the picture is skewed because of its dominant role in South Africa, which hosts 84 percent of African coal-fired capacity.³⁶ Africa's coal consumption has remained flat over the past two decades, and little

33 Mostefa Ouki, senior research fellow, Oxford Institute for Energy Studies, email message to author, June 30, 2025.

34 U.S. Energy Information Administration, "Carbon Dioxide Emissions Coefficients by Fuel," September 18, 2024, https://www.eia.gov/environment/emissions/co2_vol_mass.php.

35 "Africa: Electricity Access Remains an Urgent Problem."

36 Ibid.

new coal-fired capacity is planned, as highly polluting coal is increasingly overlooked.³⁷

Hydro schemes provide round-the-clock electricity but are devastated by droughts and generally not classified as renewable energy projects because of the impact on local communities, flora, and fauna during construction and flooding.

Building a diverse generation mix is a strategic method of balancing out variations in power production. As a result, new gas sector investment should not be made at the expense of renewable energy investment and must be seen as one element of a generally low emissions generation mix.

The benefits of technological diversity, including natural gas, can be amplified by greater cross-border power integration. For example, building high-capacity transmission lines to connect neighboring national grids allows electricity to be moved from areas of surplus capacity to areas of shortage. This helps each area focus on its strengths and even out variations in production. Similarly, a prolonged drought in one country may not affect hydro reservoirs in other countries, while gas-fired plants can stabilize power supplies over a wider area. There is already evidence of cross-border efforts, with power pools (where neighboring states share power production to some extent) at various stages of development in Southern, East, and West Africa.

c) Increased gas use in Africa has many potential benefits

Improving access to electricity, including via gas-fired power plants, will help boost living standards and drive economic growth in Africa, especially for the poorest half of the population that currently lacks any access at all. Consider the enormous benefits of having electricity: Even very small amounts enable children to do their homework in countries where it is dark by 7:00 p.m., medicines to be safely stored at the necessary temperatures, and electronic devices to be charged.

Restricted access to electricity and natural gas hampers efforts to attract manufacturing and industrial investment. Rising labor costs are driving manufacturing offshoring from China to Southeast and South Asia but not yet to Africa, partly because the continent lacks adequate infrastructure. Even if the electrification of industrial processes using renewables is likely in the long term, relying on gas produces lower emissions than coal in industrial processes such as steel and aluminium smelting.

Natural gas is important in the production of nitrogen-based fertilizers, both as a source of energy and as a direct input. At present, African fertilizer production is inadequate to satisfy national and continental market demand at prices farmers can afford, with average use in the sub-Saharan region less than 20 kg/hectare, compared to the global average of 135 kg/hectare.³⁸

Gas use can also yield important environmental benefits. In South Africa, unlike most other countries, synthetic fuels provide the bulk of its liquid fuel needs, with most synthetic fuel produced from coal but some from natural gas.³⁹ Switching more of this production from coal to gas would cut emissions.

Using gas for cooking, often in the form of liquefied petroleum gas (LPG), can substitute for kerosene and biomass (such as wood fuel), which contribute to 3.2 million annual deaths from household air pollution and accidents worldwide.⁴⁰ Biomass use also drives deforestation and reduces an environment's ability to absorb carbon. In 2022, 970 million Africans, or 67 percent of the continent's population, lacked access to clean energy for cooking.⁴¹

Switching to gas from coal improves air quality. Although natural gas produces roughly 50 percent of the GHG emissions of coal plants, it has other environmental benefits, particularly in terms of lower air pollution. Gas produces virtually no sulfur dioxide emissions or fine particulate matter,⁴² whereas particulate matter from coal use results in 42,000 deaths a year in South Africa.⁴³

37 Ibid.

38 Samuel Njoroge et al., "The Impact of the Global Fertilizer Crisis in Africa," *Growing Africa*, August 8, 2023, <https://growingafrica.pub/the-impact-of-the-global-fertilizer-crisis-in-africa/>.

39 Enerdata, "South African Energy Information," <https://www.enerdata.net/estore/energy-market/south-africa/>.

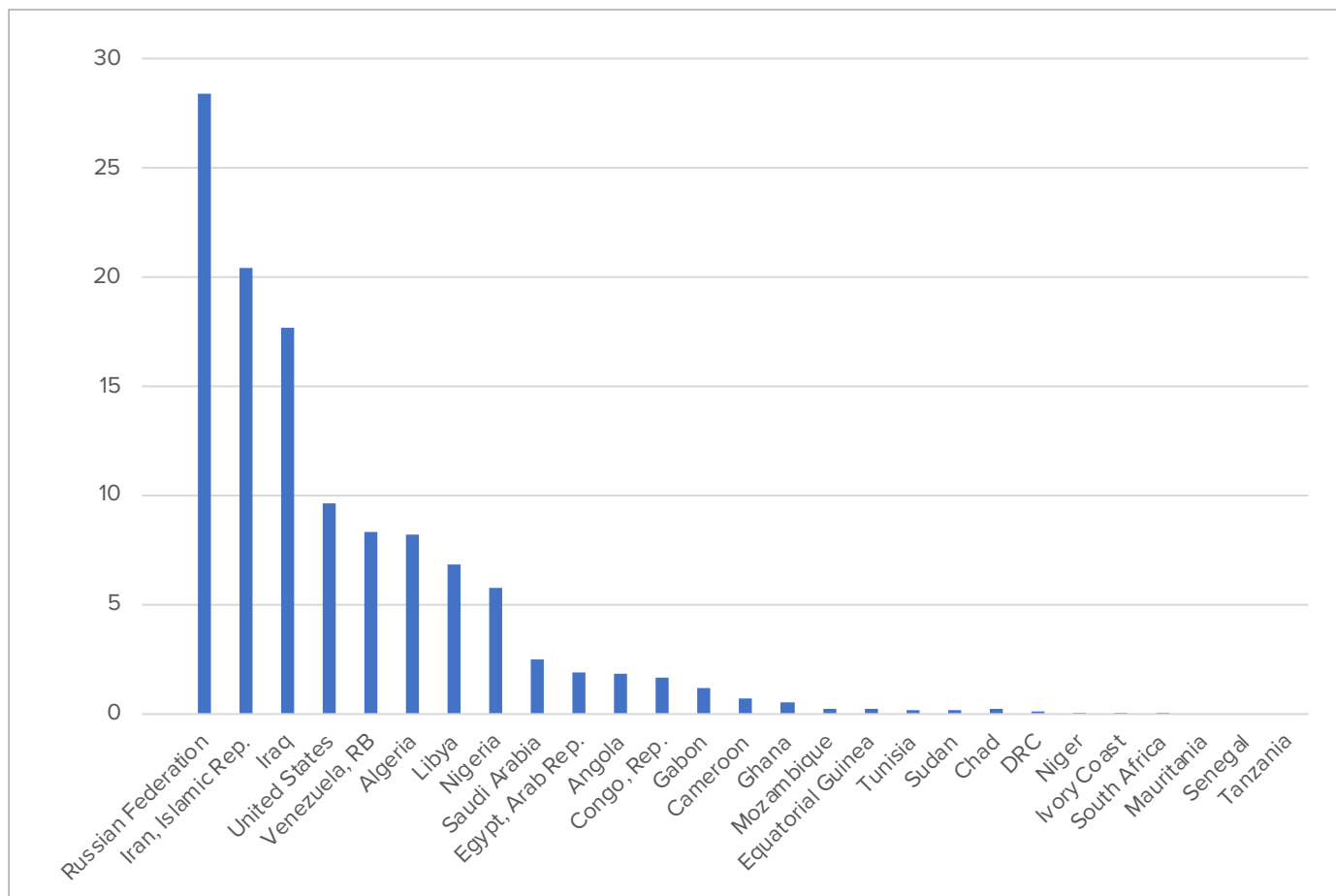
40 World Health Organization, "Household Air Pollution," October 16, 2024, <https://www.who.int/news-room/fact-sheets/detail/household-air-pollution-and-health>.

41 Akinwumi Adesina, keynote speech.

42 International Energy Agency, "The Environmental Case for Natural Gas," October 23, 2017, <https://www.iea.org/commentaries/the-environmental-case-for-natural-gas>.

43 Jamie Kelly et al., "Unmasking the Toll of Fine Particulate Pollution in South Africa," June 3, 2025, Centre for Research on Energy and Clean Air, <https://energyandcleanair.org/publication/unmasking-the-toll-of-fine-particle-pollution-in-south-africa/>.

Figure 3: Africa flares a lot of gas – World Bank



Attribution and data sources: Flare gas volumes—NOAA and the Payne Institute at the Colorado School of Mines, World Bank/GFMR; Oil production— US EIA (Crude oil including lease condensate only)]

Improved access to electricity, including from gas-fired plants, would support some climate change mitigation strategies, including water desalination plants, air conditioning, cold storage, and the concrete and steel used in resilient infrastructure.⁴⁴ Finally, in the longer term, gas sector pipelines could be converted to transport green hydrogen—produced using renewable energy—to offer continued use by tapping a lower-emissions energy resource compared to natural gas .

On both climate and economic grounds, commercial outlets for gas that is currently flared are needed. Non-associated gas on hydrocarbon fields is only produced in order to be used, but gas is also associated with oil and other hydrocarbons, such as natural gas liquids, where it can be commercially marketed, reinjected to aid oil production, or flared to dispose of it. Flaring creates emissions without any commercial benefit

and releases more than 350 million tons of CO₂ worldwide, more than Egypt's total emissions in 2023.⁴⁵

In addition to ending gas flaring, the global warming impact of gas projects can be minimized by reducing methane leakage during LNG transport and through carbon capture, utilization, and storage (CCUS). CCUS involves storing carbon from gas-fired power plants and industrial facilities underground, or using it in commercial projects, including in synthetic fuel production.

The commercial rollout of CCUS is only starting to take off worldwide, and it will likely be many years, if ever, before its use is prevalent in Africa. All CCUS options require increased energy use, additional equipment, and state support on early-stage projects.

⁴⁴ Thurber and Moss, "12 Reasons Why Gas Should Be Part of Africa's Clean Energy Future."

⁴⁵ World Bank, "Gas Flaring Explained," <https://www.worldbank.org/en/programs/gasflaringreduction/gas-flaring-explained>.

3: The ideal generation mix varies greatly among African countries

Decisions relating to the role of natural gas should be made on a country-by-country basis. Because conditions are not uniform across the continent, there is no single approach that should be implemented in all markets.

Some African countries have already launched universal electrification programs. Kenya's push to hit the 2030 SDG 7 target is discussed, while twelve countries, including Democratic Republic of Congo (DR Congo) and Nigeria, published detailed plans in January 2025 to connect more people to their respective grids.⁴⁶ Yet the best route to achieving full connectivity varies from country to country.

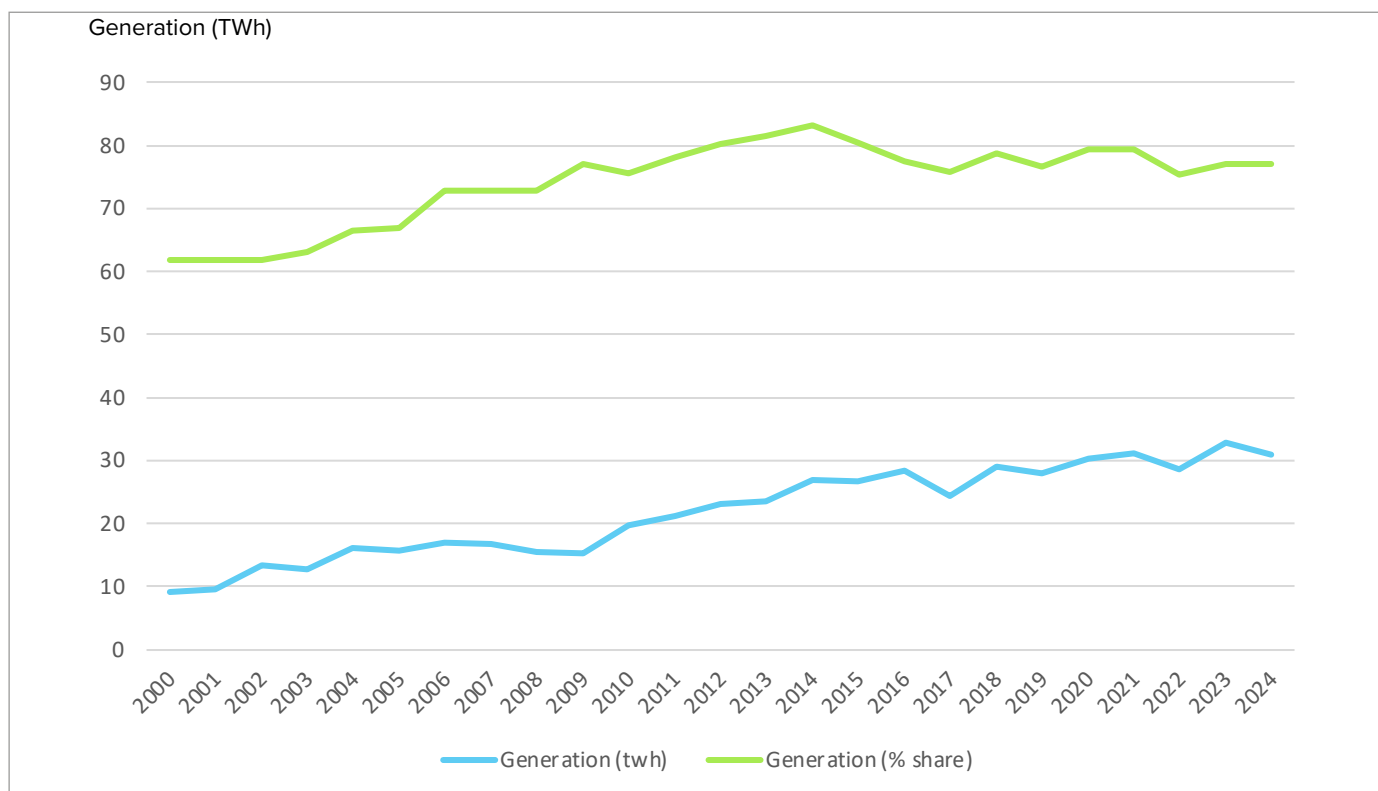
Each country's energy transition must be feasible within the context of its economy, geography, and natural resources. Rather than offer "unhelpful generalisations," the international community must "embrace and support nuance and country-

specific analysis," as Youba Sokona, author and vice chair of the Intergovernmental Panel on Climate Change, said in 2022.⁴⁷

If universal, reliable electrification can be achieved in the medium term without recourse to natural gas, then new gas-fired plants should be avoided given their relatively high life-cycle emissions. However, countries with relatively low electrification rates and significant gas reserves should be encouraged and supported in building gas-to-power projects.

Angola, Cameroon, Congo-Brazzaville, Mauritania, Mozambique, Nigeria, and Tanzania would all fall into this category. Gas-fired plants would be particularly useful in Nigeria, Angola, Gabon, and Congo-Brazzaville because they flare large amounts of gas. It would also apply to West African countries that can reap the benefits of the coastal gas pipeline between Nigeria and Morocco,

Figure 4: Nigerian gas generation has plateaued in recent years – Ember.



46 World Bank, "Heads of State Commit to Concrete Plans to Transform Africa's Energy Sector, with Strong Backing from Global Partners," press release, January 28, 2025, <https://www.worldbank.org/en/news/press-release/2025/01/28/heads-of-state-commit-to-concrete-plans-to-transform-africa-s-energy-sector-with-strong-backing-from-global-partners>.

47 Yacob Mulugetta et al., "Africa Needs Context-Relevant Evidence to Shape Its Clean Energy Future," *Nature Energy* 7 (October 2022): 1015-22, <https://www.nature.com/articles/s41560-022-01152-0>.

Figure 6: Solar power prices, electrification and gas use by country – Nature Energy]


which has been proposed in part to remedy the generally low electrification rates across the region.

Nigeria has enough gas to reach 100 percent electrification—hopefully in conjunction with more rapid renewables development—but gas industry growth has been hampered by attacks on gas infrastructure and low regulated domestic prices.

Algeria has achieved 100 percent electrification but could divert gas that is currently flared to provide additional generation capacity.

Flaring is a problem in Libya and Egypt as well, but financing new power plants in conflict-torn Libya would be difficult, while Egypt is struggling to balance gas exports with domestic re-

quirements. Countries with existing upstream gas operations already have the infrastructure and expertise in place to support new gas-to-power projects. Investment there should focus on transmission connections between gas fields, power plants, and other industrial offtakers or buyers.

Ahead of the 27th Conference of the Parties to the United Nations Framework Convention on Climate Change (COP27), hosted by Egypt in 2022, academics from fifty institutions, including many in Africa, produced a paper calling on the Global North to stop thinking of the continent as a “homogenous collective” with similar energy needs and a common route to net zero.⁴⁸ The research, published in *Nature Energy*, compared the situation in four African countries: Burkina Faso, Ethiopia, Mozambique, and South Africa.⁴⁹ The researchers offered the following recommendations for balancing electrification with climate concerns in those countries:

- **Burkina Faso** should opt for a combination of solar and diesel projects. The country has a limited power grid, high power costs, and restricted access to finance, so smaller-scale, local solar and diesel projects are favored in addition to improved cross-border transmission connections, rather than building expensive gas import infrastructure. With an electrification rate of just 20 percent, the country needs to focus on cheap and quick solutions.
- **Ethiopia** can continue to rely on large hydro, having built 5,250 MW of dam projects over the past decade, with another 12,000 MW in the development pipeline.⁵⁰ The hydro sector now provides 90 percent of its electricity and can be complemented by growing solar and wind power investment. Ethiopia can also use hydro schemes as batteries to compensate for variation in intermittent power production, so gas is unlikely to play a role here.
- **Mozambique** should develop gas reserves for domestic supply alongside LNG projects to provide the baseload capacity needed to balance intermittent re-

newables production and increase the electrification rate from the current 44 percent.⁵¹ Providing that security challenges in the far northeast of the country are overcome, Mozambique is set to become one of the world’s biggest emerging LNG exporters, so dedicating a small proportion of gas for power and fertilizer production could significantly boost living standards. The government is backing new gas-fired capacity while banking on off-grid solar for rural electrification.

- **South Africa** should combine solar and wind projects with BESS because it would be cheaper and faster than building gas-to-power plants to move away from king coal. The country already has one of the most developed renewables sectors on the continent and is currently developing its first utility-scale BESS projects.

It might be expected that South Africa would be an ideal candidate for gas sector investment. Coal provides 81.6 percent of its generation mix, so switching coal for gas would substantially cut emissions. South Africa produced 394 million metric tons of carbon from all fuel combustion in 2022, the most on the continent, 1.2 percent of the global total and a 40 percent increase over 2000.⁵² Fuel combustion emissions come from thermal power generation and internal combustion engine vehicles, with coal plants accounting for 83 percent.⁵³

Previously developed South African gas-fired power plants have suffered from lack of gas feedstock, and domestic gas reserves are limited, so efforts to reduce emissions have focused on renewables. Power utility Eskom plans to build a 3,000 MW gas-fired power plant near Richards Bay backed by an LNG import terminal by 2030, with a smaller terminal planned for Ngqura. Yet, import projects have fallen through in the past, and gas is unlikely to play a big role in South Africa.

Research by the International Institute for Sustainable Development (IISD) in 2022 concluded that gas will not be needed for South African power sector within the next decade—in part because solar and wind power was 57 percent cheaper than

48 Ibid.

49 Ibid.

50 International Trade Administration, “Ethiopia Energy Sector Opportunities,” July 5, 2024, <https://www.trade.gov/market-intelligence/ethiopia-energy-sector-opportunities-0>.

51 GET.transform, “Mozambique Country Window: Energy System Transformation Outlook,” August 14, 2025, <https://www.get-transform.eu/wp-content/uploads/2024/08/GET.transform-Mozambique-ESTO-Aug-2024.pdf>.

52 International Energy Agency, “Energy System of South Africa,” IEA, last accessed June 30, 2025, <https://www.iea.org/countries/south-africa>.

53 International Energy Agency, “How Much CO2 Does South Africa Emit?,” last accessed June 30, 2025, <https://www.iea.org/countries/south-africa/emissions>.

gas-fired plants⁵⁴ and short lead times for developing solar projects make them an attractive response to the country's ongoing power supply crisis. South Africa also has 2,832 MW of pumped storage capacity out of national capacity of 63.4 GW to act as LDES.⁵⁵ The IISD also found that coal-fired plants can provide back-up capacity in the medium term, while three-hour BESS facilities are 30 percent cheaper than simple cycle gas plants—the most suitable gas plants in this instance—for covering peak demand.⁵⁶

Still, gas imports could play a growing role in South Africa's synthetic fuels industry. Sasol, a South African producer of synthetic fuels, currently uses 185 petajoules (PJ) of gas a year, of which 160 PJ/yr is imported by pipeline from southern Mozambique. As

these fields become exhausted, alternative sources of gas are needed, including recent discoveries of domestic gas.⁵⁷

Kenya, like South Africa, is a country where gas-fired plants are unnecessary, and it is on track to achieve universal electrification by 2030, with the electrification rate rising from 37 percent in 2013 to 79 percent in 2023. Geothermal, hydro, wind, and solar power accounts for 90 percent of power production, with geothermal and hydro plants providing baseload capacity.⁵⁸ Kenya's 985 MW geothermal capacity is the fifth highest in the world.⁵⁹ Plans to build coastal Kenyan gas-fired plants are intermittently proposed and shelved but such projects are optional rather than essential.

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- 54 International Institute for Sustainable Development, "Investing in Gas-Fired Power Would Likely Be a 'Costly Mistake' for South Africa," press release, March 31, 2021, <https://www.iisd.org/articles/press-release/investing-gas-fired-power-would-likely-be-costly-mistake-south-africa>.
- 55 Wilhelm Karanitsch, "South Africa: Enlight the Rainbow Nation," Andritz, <https://www.andritz.com/hydro-en/hydronews/hydro-power-africa/southafrica>.
- 56 "Investing in Gas-Fired Power Would Likely Be a 'Costly Mistake' for South Africa."
- 57 Wendell Roelf, "Africa Energy Sees First Output from South Africa's Largest Gas Field by 2033," Reuters, June 10, 2025, <https://www.reuters.com/business/energy/africa-energy-sees-first-output-south-africas-largest-gas-field-by-2033-2025-06-10/>.
- 58 International Energy Agency, "Kenya's Energy Sector Is Making Strides toward Universal Electricity Access, Clean Cooking Solutions and Renewable Energy Development," April 14, 2025, <https://www.iea.org/news/kenya-s-energy-sector-is-making-strides-toward-universal-electricity-access-clean-cooking-solutions-and-renewable-energy-development>.
- 59 Carlo Cariaga, "ThinkGeoEnergy's Top 10 Geothermal countries 2023," ThinkGeoEnergy, January 8, 2024, <https://www.thinkgeoenergy.com/thinkgeoenergys-top-10-geothermal-countries-2023-power-generation-capacity/>.

4: Should Africa focus on gas exports or intra-African demand?

a) More new gas reserves have recently been found in Africa than anywhere else in the world

Africa accounts for just 6.46 percent of global gas output, producing 265 billion cubic meters (bcm) in 2023, of which 115 bcm were exported out of the continent.⁶⁰ This compares with global production of 4,100 bcm.⁶¹ Four countries—Algeria, Egypt, Libya, and Nigeria—account for 80 percent of Africa's output. The International Energy Agency (IEA) estimates that African demand will grow by an average of 3 percent per year, reaching 187 to 246 bcm by 2030 and up to 437 bcm by 2050.⁶²

Roughly 40 percent of natural gas discovered worldwide between 2015 and 2024 was in Africa, mainly in Mauritania, Mozambique, Namibia, Senegal, and Tanzania.⁶³ Namibia is the latest country in Africa to join the list, with Shell and TotalEnergies making big offshore oil and gas finds. Routine gas flaring is banned under Namibian law, so the gas will either have to be reinjected or commercially marketed. With 246 bcm identified to date, the government of Namibia aims to implement a common gas plan across all fields, including for local power generation and petrochemical production.⁶⁴

African gas is used on the continent for cooking and synthetic fuel production and in various industrial processes but mostly for power generation. The share of gas-fired capacity in the African generation mix has steadily increased from 20.82 percent in 2000 to 43.13 percent in 2024 (see Figure 4). In many cases, gas-fired power plants are connected to gas fields by dedicated pipelines, but Algeria, Egypt, South Africa, and Nigeria all have more comprehensive distribution networks that are capable of supplying gas to a high number of different customers, large and small. Oil and gas companies need long-term offtake supply contracts with local utilities to in-

vest in downstream gas operations, but signing ten- or twenty-year contracts is a huge commitment for those utilities. Energy subsidies and regulated prices help reduce prices for consumers but deter investment. According to the International Gas Union, about 55 percent of Africa's natural gas consumption is sold at prices below the cost of supply as governments try to make gas and power more affordable for consumers.

b) Financing for electrification is currently far from sufficient

Developing gas-to-power projects and associated gas transmission and power grid capacity is expensive. According to the IEA, Africa must double its annual power investment to \$200 billion by 2030 to achieve universal electrification while meeting climate change pledges.⁶⁵

African governments and utilities have limited access to financing for new gas and power projects, while capital costs for African projects are often up to three times those in other countries,⁶⁶ so the sector urgently needs access to external sources of low-cost finance. Foreign investment is therefore key, whether from commercial investors, the multilaterals, development finance institutions (DFIs), or donors.

Gas-to-power projects in less wealthy countries may not generate enough income to justify construction. Moreover, long-term gas contracts can lock African power utilities into relatively high-cost thermal power at a time when solar energy costs are falling in the region with the best solar resources on the planet.

Environmental, social, and economic risk assessments need to be thorough because of the risk of asset stranding in what are mostly small markets. Although Mozambique and Senegal

60 Vincent Rouget, "Africa Risks Missing Out on the Global Scramble for Gas," Control Risks, August 20, 2024, <https://www.controlrisks.com/our-thinking/insights/africa-risks-missing-out-on-the-global-scramble-for-gas>.

61 International Gas Union, "Global Gas Report 2024 Edition," August 27, 2024, <https://www.igu.org/igu-reports/global-gas-report-2024-edition>.

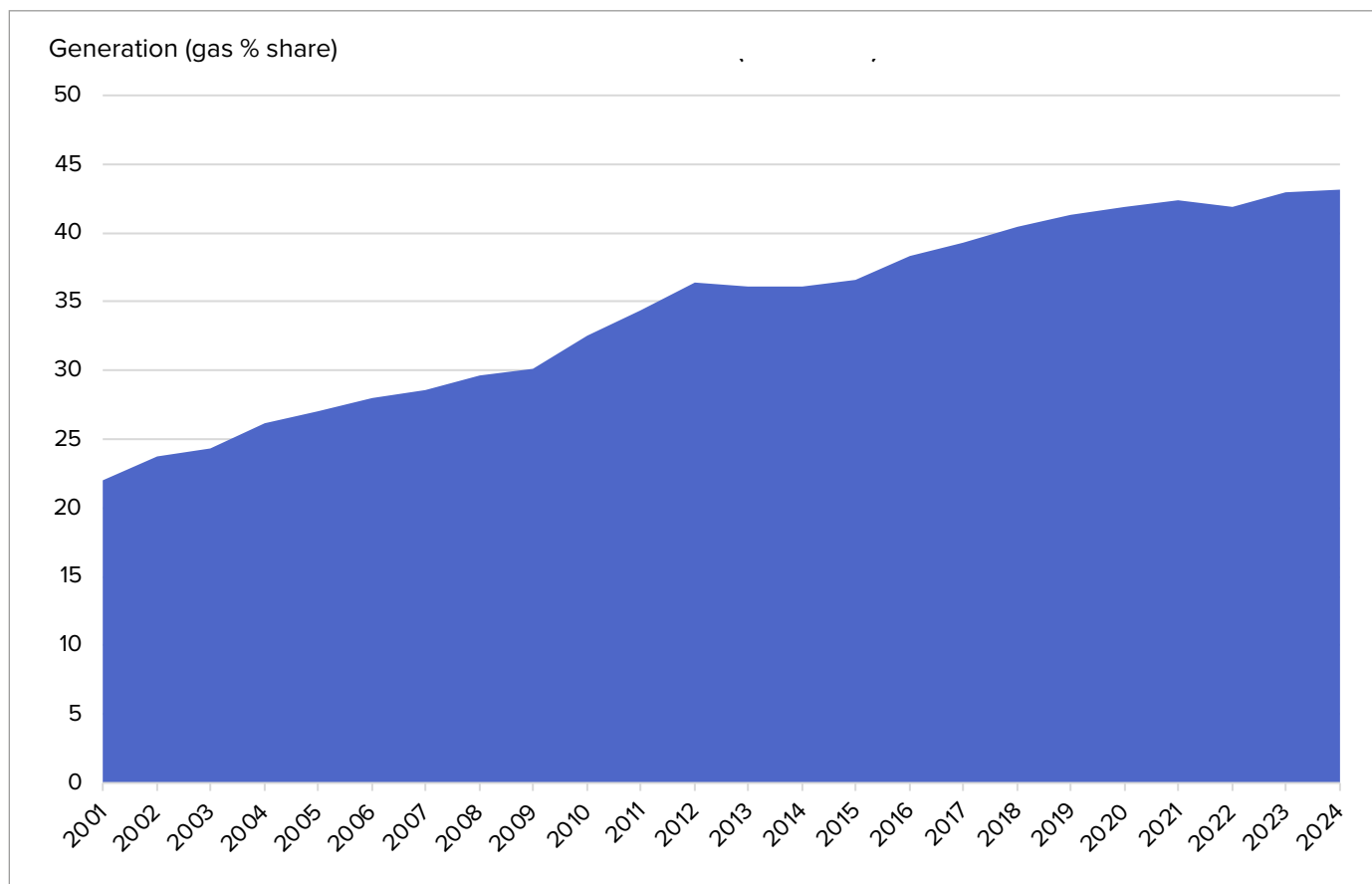
62 Argus, "Africa Pushes Domestic Gas Role in Transition," October 25, 2024, <https://www.argusmedia.com/en/news-and-insights/latest-market-news/2622205-africa-pushes-domestic-gas-role-in-transition>.

63 Ibid.

64 Ron Bousso, America Hernandez, and Wendell Roelf, "Gas May Dash Big Oil's Namibian Dreams," Reuters, November 7, 2024, <https://www.reuters.com/business/energy/gas-may-dash-big-oils-namibian-dreams-2024-11-07/>.

65 International Energy Agency, "Financing Clean Energy in Africa," September 2023, <https://www.iea.org/reports/financing-clean-energy-in-africa>.

66 Wood Mackenzie, email message to author, June 24, 2025.

Figure 7: African gas-fired capacity is growing, but no longer quickly – Ember

Box 2 | Egypt has focused on gas

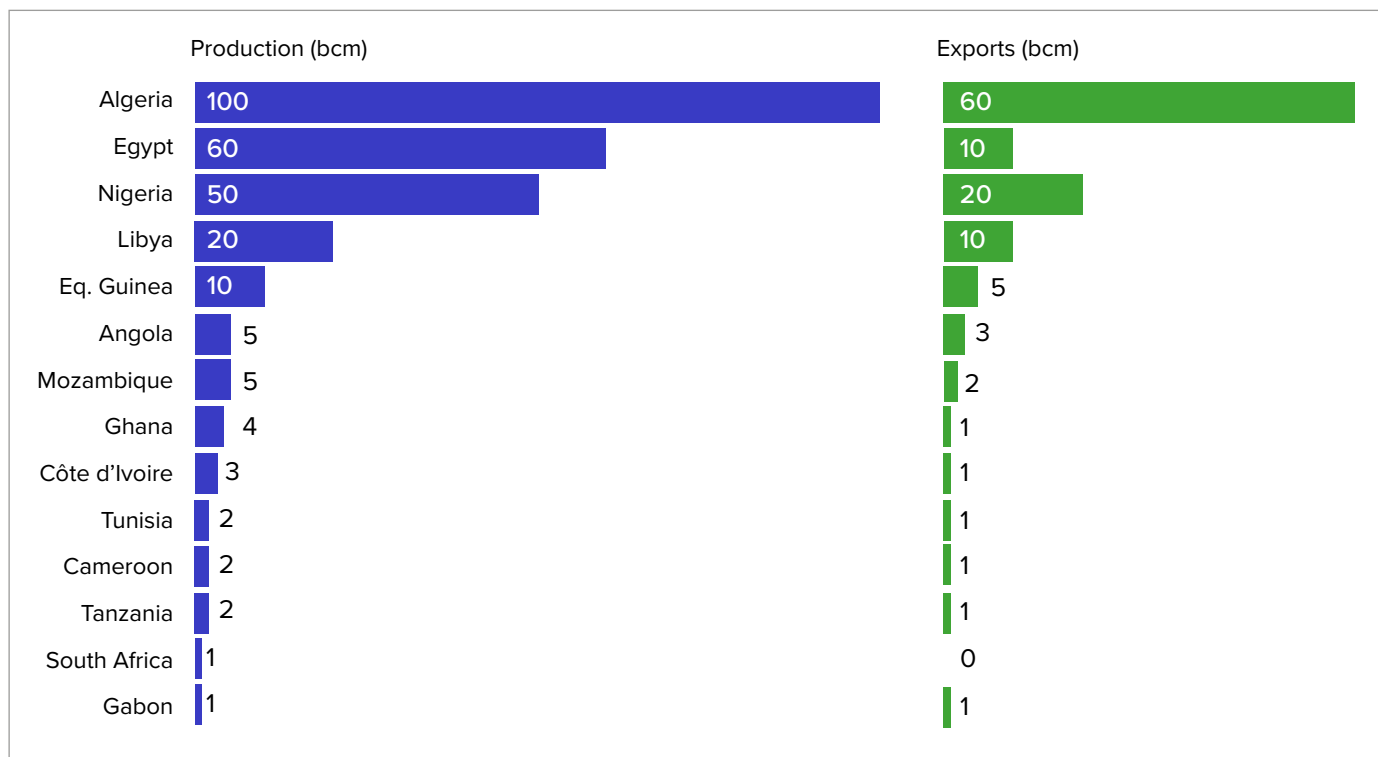
International engineering companies are prepared to develop large gas-fired plants in Africa under sufficiently attractive terms of investment. In 2018, Siemens and Egyptian partners Orascom Construction and Elsewedy Electric completed the world's three biggest combined cycle gas-fired plants: Beni Suef, Burullus, and New Capital, which provided a total of 14.4 GW out of national capacity of 59 GW in 2022.¹

Alongside a contract to build six power substations and other transmission infrastructure, they were built for the Egyptian Electricity Holding Company, which estimates that they save the country more than \$1 billion a year.² Siemens's involvement was crucial to financing as it was able to secure loan agreements from two export credit agencies, Germany's Euler Hermes and Italy's SACE, to underpin loans from more than thirty international banks.³

1 U.S. Energy Information Administration, "Egypt," August 13, 2024, <https://www.eia.gov/international/analysis/country/egy>.

2 Siemens, "Completion of World's Largest Combined Cycle Power Plants in Record Time," press release, July 24, 2018, <https://press.siemens.com/global/en/pressrelease/completion-worlds-largest-combined-cycle-power-plants-record-time>.

3 "The Egypt Megaproject."

Figure 9: Africa gas production and exports 2023 – Control Risks Group/IGU]

have large gas reserves to develop for exports, both countries are burdened by a high cost of capital and national debt—and low levels of experience in the sector—so they could be out-competed by lower-cost exporters.⁶⁷

Financing from the multilaterals and international banks for African oil and gas projects has become scarcer because of climate concerns, but a new source of funding was launched in June 2025. African Export-Import Bank (Afreximbank) and the Africa Petroleum Producers' Organization set up the African Energy Bank with initial capital of \$5 billion, although it was established to support the entire hydrocarbons sector rather than specifically gas-to-power projects.

c) African gas exporters favor LNG

The majority of Africa's gas markets are small and fragmented and have relatively low regulated prices, so it is no surprise that exports drive most investment. Gas can be exported from Africa by pipeline or as LNG, which involves cooling gas to a concentrated, liquid state for sea transport. Such projects require the construction of expensive liquefaction plants in

producing countries and regasification facilities in destination markets, but they are generally considered cheaper than piping gas over very long distances. They are also the most flexible form of export, as producers are not tied to specific export markets.

Algeria and Libya both export gas to Europe via subsea pipelines, while both—along with countries further south—also ship LNG. Nigeria, Equatorial Guinea, and Angola have traditional onshore LNG plants, but Africa has become a global center of floating LNG (FLNG) development, which entails placing LNG production vessels on offshore gas reserves.

FLNG projects are smaller than their onshore counterparts, but they avoid onshore security difficulties, can be moved to other locations if required, and enable the development of gas reserves that might be flared. Projects are already operating in Congo-Brazzaville, Mozambique, Senegal/Mauritania, and Cameroon. Eni is developing a second FLNG project offshore Congo-Brazzaville and planning a second project in Mozambique, while the UTM Offshore FLNG project is being planned for Nigeria's deepwater Yoho field, where it would use gas that is currently flared.

67 Philipp Trotter, email message to author, July 7, 2025.

A huge onshore project designed to host production for two different consortia has been partially built in northern Mozambique. Work was suspended in 2021 following militant attacks, but TotalEnergies and the other developers plan to restart work this year.⁶⁸ Equinor and Shell hope to finalize arrangements on a huge project in southeastern Tanzania. Africa already contributes almost 10 percent of the global LNG supply,⁶⁹ but if both of these projects are completed, it will make the southern Tanzania/northern Mozambique region a global engine of LNG production.⁷⁰

With global gas demand rising, US and Qatari LNG production is accelerating, with 350 bcm expected to be added to the world's 2024 output of 670 bcm by 2030.⁷¹ The scope for African LNG projects beyond those already underway, therefore, may be limited.⁷² As with gas-to-power projects, export schemes—whether piped or LNG plants—could stall because of lack of market capacity.

Piping Nigerian gas to Europe could benefit most of West Africa

In addition to their cost, long-distance, cross-border pipelines are difficult to develop due to the number of stakeholders involved—from the supplying to transit and receiving countries. At present, the most high-profile proposed projects in Africa are two rival schemes to pipe gas from the Niger Delta to Algeria and Morocco for onward transportation to Europe. These projects, however, are taking very different routes.

The Trans-Saharan Gas Pipeline (TSGP), under discussion since 2022, would run 4,000 km through Niger to Algeria. Backed by two state-owned oil companies, the Nigerian National Petroleum Company and Algeria's Sonatrach, it would have capacity of up to 30 bcm per year. Although the project would

connect big reserves with huge markets, the core challenge will be security in the face of a range of armed groups operating across the Sahel. Similar security concerns have deterred construction of the proposed Turkmenistan-India pipeline through Afghanistan and Pakistan since the 1990s.⁷³

Nevertheless, efforts are ongoing, with Penspen energy consultants agreeing to update a feasibility study into the TSGP in 2025, nineteen years after completing its initial study.⁷⁴ The desire of European nations to end their long-term reliance on Russian gas may make development more likely this time around.

The rival Africa-Atlantic Gas Pipeline (AAGP) would run around the West African coast and enable onshore connections to eleven countries between Nigeria and Morocco: Benin, Togo, Ghana, Cote d'Ivoire, Liberia, Sierra Leone, Guinea, Guinea-Bissau, Senegal, Gambia, and Mauritania. Gas could be supplied to all of the transit countries as well as European customers.

The challenge with AAGP will be reaching sales and transit agreements with so many countries—not to mention security issues, including on the final stretch through contested Western Sahara. Like the TSGP, this 6,000-km project would have a 30 bcm/year capacity.⁷⁵ The governments of Morocco and Nigeria plan to form a special company to drive project development.

Abuja and the project developers must guarantee that supplies to the Nigerian market are not curtailed and ensure that gas is ring-fenced for domestic use at commercially viable prices. If the AAGP succeeds in providing gas feedstock to the eleven transit countries, this could make it the most important piece of infrastructure on the entire continent.

68 Ecofin Agency, "Total Plans to Restart Mozambique LNG Project by August 2025," May 21, 2025, <https://www.ecofinagency.com/news-industry/2105-46925-totalenergies-plans-to-restart-mozambique-lng-project-by-august-2025>.

69 Wood Mackenzie, email message to author, June 24, 2025.

70 Nidhi Verma and Shariq Khan, "Tanzania Hopes to Conclude Talks for LNG Project by June," Reuters, February 11, 2025, <https://www.reuters.com/business/energy/tanzania-hopes-conclude-talks-lng-project-by-june-2025-02-11/>.

71 J.P. Morgan, "What Is Liquefied Natural Gas, and Why Is It So Important?," February 20, 2025, <https://www.jpmorgan.com/insights/global-research/commodities/liquefied-natural-gas>.

72 Mostefa Ouki, email message to author, June 30, 2025.

73 Syed Fazi-e-Haider, "Turkmenistan Resumes Work on TAPI Pipeline Despite Geopolitical Hurdles," Eurasia Daily Monitor, September 19, 2025, <https://jamestown.org/program/turkmenistan-resumes-work-on-tapi-pipeline-despite-geopolitical-hurdles/>.

74 Penspen, "Penspen to Deliver Feasibility Study Revalidation for Trans-Saharan Gas Pipeline Project," March 25, 2025, <https://www.penspen.com/news/penspen-trans-saharan-gas-pipeline-project-feasibility/>.

75 Sara Zouiten, "Nigeria-Morocco Gas Pipeline: Feasibility Study, Route Finalized," *Morocco World News*, May 13, 2025, <https://www.moroccoworldnews.com/2025/05/199893/nigeria-morocco-gas-pipeline-feasibility-study-route-finalized/>.

d) Gas exports can aid rather than block local consumption

Many question whether gas export projects divert production from African markets or help make domestic supply commercially viable. The answer largely comes down to the political will of host governments to demand that developers consider local as well as export needs. The oil and gas companies that develop LNG projects are attracted by export revenues and deterred from domestic markets by their often limited size and low regulated prices.

African governments, of course, are keen to see LNG projects developed. The planned Tanzanian⁷⁶ and Mozambican⁷⁷ schemes promise the biggest ever single investments into each country, delivering benefits in terms of taxes and royalties to job creation, but it is critical to ring-fence a portion of production for local distribution.

Choosing to export gas or use it for local supply is not a binary decision. The domestic requirements will be small in relation to export volumes and can help drive domestic

power generation. Ensuring that gas production benefits local communities can also foster a sense of social and resource justice. For instance, developing LNG projects in northern Mozambique while leaving most locals without access to electricity would be neither just nor sensible given the region's militant insurgency.

Several governments, including Nigeria, Tanzania, and Senegal, already require that some gas from export-focused projects be set aside for the domestic market. For instance, the Nigerian Upstream Petroleum Regulatory Commission has the ability to force upstream producers to supply the local market.⁷⁸

Occasionally, there is tension between export obligations and domestic supplies, even when the government is committed to both. Following new gas field discoveries, for example, Egypt's government has been eager to supply the country's LNG industry while satisfying growing domestic demand, including from the power sector. However, in response to rising domestic consumption, it has been forced to periodically block LNG production and rely on Israeli gas imports, dealing a blow to export revenues and triggering political criticism at home.⁷⁹

76 Marc Howard, "Is a Tanzania LNG Breakthrough Near?," *African Energy*, November 14, 2024, <https://www.africa-energy.com/news-centre/article/tanzania-lng-breakthrough-near>.

77 Simon Nicolas, "List of Reasons Not to Finance TotalEnergies' Mozambique LNG Project Grow," Institute for Energy Economics and Financial Analysis, February 12, 2025, <https://ieefa.org/resources/list-reasons-not-finance-totalenergies-mozambique-lng-project-grows>.

78 "Oil & Gas Laws and Regulations Nigeria 2025," International Comparative Legal Guides, February 21, 2025, <https://iclg.com/practice-areas/oil-and-gas-laws-and-regulations/nigeria>.

79 Ellen Wald, "As Middle East Tensions Simmer, the World Fixates on the Wrong Energy Market Risks," *Atlantic Council*, September 17, 2024, <https://www.atlanticcouncil.org/blogs/energysource/as-middle-east-tensions-simmer-the-world-fixates-on-the-wrong-energy-market-risks>.

5: Recommendations

The drive for electrification will continue in at least some African countries with or without increased global support. The whole of North Africa has achieved close to universal electrification, while Kenya and Ghana are among the countries making significant progress toward that goal. For countries making less progress, there is much that can be done to help speed up the process, including by supporting gas sector development where needed. The following principles should guide the development of the continent's natural gas resources to promote electrification at the lowest possible climate cost:

- Climate responsibility should be based on absolute per capita emissions, not on change over time. Apart from South Africa, Africa accounts for a tiny proportion of global GHG emissions.
- The goal of achieving universal electrification should be at the core of energy transition strategies. Leaving hundreds of millions of Africans without access to electricity on climate grounds—when the rest of the world's GHG emissions are so much higher than Africa's—should not be acceptable.
- The primary focus of financing should be on renewable energy development, not least on grounds of cost per kWh. Given its relatively high life-cycle emissions, new gas-fired capacity should be avoided if universal, reliable electrification can be achieved in the medium term without it. However, countries with low electrification rates and access to gas should be backed in building gas-to-power projects—along with projects that rely heavily on gas that is currently flared.
- The views of each country's residents must be taken into account. They understand what it means to use kerosene and biomass fuel and to lack access to electricity.

- In terms of electrification, renewables and gas-fired power plants should be seen as complementary rather than competing. Gas-fired capacity can provide base-load capacity to support increased renewables' penetration, while solar microgrid and standalone residential systems can supply off-grid rural areas.
- Pathways to clean energy systems should be considered on a country-by-country basis.

a) The governments of industrialized countries

Governments in North America, Europe, the Gulf States, and East Asia, among other areas, need to step up support for the African energy transition, mainly in renewables but also in gas-fired capacity where appropriate. This would boost living standards on the continent while minimizing emissions, create stronger African trading partners, and improve political and security stability in the wider world.

The International Partners Group formed at COP26 in 2021 was conceived as the primary mechanism for providing the necessary international financing for the energy transition in developing countries. As part of their efforts, the group would create Just Energy Transition Partnerships (JETPs) between investors and host governments, but only four JETPs have been forged to date: with Indonesia (\$20 billion), Senegal (\$2.6 billion), South Africa (\$11.6 billion), and Vietnam (\$15.5 billion). The United States pulled out of the program, and additional JETPs are now considered unlikely.⁸⁰

Still, the objective of coordinating development finance institutions (DFIs), the private sector, host governments, multilateral development banks, and philanthropists to work together on the issue is a sound one. New "country platforms"—where host communities have greater agency and more of the funding is

80 Vivian Chime, "Why Rich Countries Are 'Reluctant' on Additional JETP Coal-to-Clean Deals," *Climate Home News*, December 6, 2024, <https://www.climatechangenews.com/2024/12/06/why-developed-countries-are-reluctant-on-additional-jetp-coal-to-clean-deals/>.

provided as direct grants—are being attempted instead, but it is vital that gas remains part of the equation where conditions require it. Whatever arrangement or vehicle is used, comprehensive financing mechanisms must be put in place as soon as possible.

The United States has drastically cut its aid budget, but other countries can continue to contribute, either through their development budgets, DFIs (such as British International Investment [BII] and the German Investment Corporation), or sovereign wealth funds (SWFs). BII, for instance, is committed to improving energy access⁸¹ in Africa, and although it curtailed almost all investment in fossil fuels in 2020, it remains open to financing gas-fired projects where they support human development needs. It should be more explicit in specifying progress toward universal electrification among these needs, and other DFIs should follow suit.⁸²

The European Union has various mechanisms for supporting African development, principal among them is NDICI-Global Europe, which aims to improve living conditions and political stability including through investment in the energy transition in coordination with EU member states and institutions.⁸³ While the organization currently does not finance gas-fired projects, it should do so where gas-fired capacity is the best route to electrification.

b) Sovereign wealth funds and export credit agencies

Gulf governments and their SWFs are active investors in African development, with the United Arab Emirates committed to co-financing the \$25 billion Africa-Atlantic Gas Pipeline from Nigeria to Morocco⁸⁴ alongside the European Investment Bank, the Islamic Development Bank, and the OPEC Fund. The

central project will export Nigerian gas to Europe, but the Gulf States and other members of the consortium could also help to finance spur pipeline connections to the West African transit states and gas-fired power plants in those countries.

Norway's Government Pension Fund Global, one of the world's biggest SWFs and which derives most of its income from the country's oil and gas industry, is another potential investor. It has halted investment in coal projects but continues to invest heavily in hydrocarbons, as well as African renewable energy, and seeks to promote economic development through its investments.⁸⁵ However, it does not appear at present to invest in African gas-fired power plants. Drawing on Norway's expertise in the gas sector, the fund could further many of its interests by supporting such projects, and its actions and strategies are often followed by other institutional investors.⁸⁶

Despite sizable cuts to the US aid budget, the world's biggest economy can still play a major role. US Export-Import Bank (EXIM) recently approved a \$4.7 billion loan for TotalEnergies' Mozambique LNG project that will help attract pension and institutional funds "to support upstream gas development and associated infrastructure."⁸⁷ Such investment could be combined with support for Mozambican gas-fired power projects. Because EXIM's support for the LNG project was rooted in helping US workers and businesses involved in the scheme, it might be inclined to participate in power projects developed by US firms.

The current US government is in favor of wider oil and gas development, so African gas-to-power projects may be able to benefit from US organizations with federal connections. There could also be a pathway to develop gas-fired power plants and other gas projects in exchange for access to critical minerals in infrastructure-for-resources deals. This could be a valuable negotiating tool with mining-rich DR Congo, for

81 British International Investment, "BII Affirms Support of Mission 300 to Increase Energy Access in Africa," January 31, 2025, <https://www.bii.co.uk/en/news-insight/news/bii-reaffirms-support-of-mission-300-to-increase-energy-access-in-africa/>.

82 British International Investment, "Announcing Our New Fossil Fuel Policy and Guidance on Natural Gas Power Plants," December 12, 2020, <https://www.bii.co.uk/en/news-insight/news/announcing-our-new-fossil-fuel-policy-and-guidance-on-natural-gas-power-plants/>.

83 Eliza Zaleska, "EU Development Programs in Africa, Key to Reducing Irregular Migration?," *The Diplomat in Spain*, March 20, 2025, <https://thediplotainSpain.com/en/2025/03/20/eu-development-programs-in-africa-key-to-reducing-irregular-migration>.

84 Daniel Onyango, "UAE Joins Funding for \$25 Billion Nigeria-Morocco Gas Pipeline," *Pipeline Technology Journal*, May 7, 2025, <https://www.pipeline-journal.net/news/uae-joins-funding-25-billion-nigeria-morocco-gas-pipeline>.

85 Reclaim Finance, "Breaking Bonds: The Norwegian Sovereign Wealth Fund's Stake in Oil and Gas Debt," February 6, 2025, <https://reclaimfinance.org/site/en/2025/02/06/breaking-bonds-the-norwegian-sovereign-wealth-funds-stake-in-oil-and-gas-debt>.

86 Anita Margrethe Halvorsen, "How the Norwegian SWF Balances Ethics, ESG Risks, and Returns," *Oxford Academic*, May 2023, <https://academic.oup.com/book/46709/chapter/410253097>.

87 Export-Import Bank of the United States, "EXIM Board of Directors Votes to Proceed with \$4.7 Billion LNG Equipment and Services Transaction After Four-Year Delay," press release, March 19, 2025, <https://www.exim.gov/news/exim-board-directors-votes-proceed-47-billion-lng-equipment-and-services-transaction-after>.

instance, where Chinese companies have largely failed to develop promised infrastructural projects.⁸⁸ DR Congo has neighboring states with gas reserves both to its north and south, including in Cabinda.

Apart from EXIM, other export credit agencies have played a crucial role in financing African gas-to-power projects. Euler Hermes and SACE were key to developing Siemens' three gas-fired power plants in Egypt, and their counterparts across the world could play a similarly vital role.

c) African governments and regional organizations

African governments, the African Union (AU), and the continent's regional economic communities are key players in driving electrification, including gas-fired power. The AU and regional communities have a particular role in promoting cooperation between different states. Above all, they should support cross-border power transmission integration to help neighboring countries balance out variations in power production, thereby allowing gas-fired plants to supply a larger pool of customers and support more intermittent power production.

The Southern African Power Pool has been operating since 1995, but progress has been slow in other regions, especially with respect to making the West African Power Pool (WAPP) a reality. Nigerian and Ghanaian gas could help supply energy across the region, either piped gas feedstock or electricity via cross-border power interconnectors. Political mistrust and a lack of investment have held back development of the WAPP, while the project clings to its grand vision of many cross-border, high-capacity transmission links. However, transmission integration is more likely to happen by following a step-by-step process than by imposing an overarching plan from above.

The Economic Community of West African States, which oversees the WAPP, also needs to encourage neighboring governments, power utilities, and regulators to cooperate on the technical aspects of integration, such as permitting, regulatory capacity building, and grid operation. It is difficult to trade power across borders when neighboring countries have different electricity standards that make it burdensome to secure project permit approvals.

d) Academic institutions, think tanks, and research organizations

At present there is very little detailed, specific research on the best energy transition strategy for individual African countries. While more than 150 research groups model the German energy system and propose long-term pathways, there are often none taking the same approach to individual African countries, even those with large gas reserves, such as Mozambique and Senegal.⁸⁹ Much more country-specific research is needed, including to assess whether falling renewables and battery storage costs could leave gas-fired assets stranded.

Research is also needed on where gas-fired generation could support renewables and where it would block them. There is a real risk that gas investments could crowd out renewables by locking up infrastructure and capital.⁹⁰ Detailed research on the intersection of technology and economics, along the lines of studies conducted by National Renewable Energy Laboratory (NREL) and the Pacific Northwest National Laboratory (PNNL) in the United States, would be beneficial. These organizations focus on the US energy sector, but it would be helpful if they and their peers were to dedicate a small portion of their research efforts to energy-poor countries, not least because of the learnings they would gain for their own markets.

88 Gracelin Baskaran, "Building Critical Minerals Cooperation Between the United States and Democratic Republic of the Congo," Center for Strategic & International Studies, March 25, 2025, <https://www.csis.org/analysis/building-critical-minerals-cooperation-between-united-states-and-democratic-republic-congo>.

89 Philipp Trotter, email message to author, July 7, 2025.

90 Ibid.

Section 6: Conclusion

Difficult choices are called for when two worthwhile causes come into conflict with each other. With the United Nations estimating that the world is on course for an average temperature rise of 3.1C by the end of this century, it is incumbent on the international community to step up efforts to mitigate climate change.⁹¹ These efforts must include phasing out the vast majority of coal and oil and probably even natural gas projects.

Yet, to more fairly distribute the remaining emissions, developing new gas-fired power plants in Africa should be a top

priority. Requiring African countries to abstain from gas development when more prosperous countries are forging ahead could easily appear to be climate colonialism.

Implementing these recommendations to allow gas to be a minor but significant part of Africa's electrification efforts would yield big improvements in living standards in some of the poorest countries in the world. There would be clear benefits for the people of Africa but also for the wider world through economic development and increased stability.

About the author



Neil Ford is a freelance consultant and journalist specializing in African affairs and the global energy sector. His main areas of interest include African development, regional integration, boundary disputes, the energy transition, and African logistics. He produces reports for a range of organizations, including law firms, energy consultancies, and financial platforms.

With over twenty-five years' experience as a journalist, he has worked for dozens of outlets, including African Business, the BBC, Platts, Jane's,

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91 UNEP Copenhagen Climate Centre, "Emissions Gap Report 2024," <https://unepccc.org/emissions-gap-reports/>.

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