AFRICA

SUSTAINABILITY MAGAZINE

JUNE 2026 | ISSUE 07

Micro-Power, Macro-Impact: The New Blueprint for Energy Security

Five Trends Reshaping Africa's Energy Landscape

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LETTER FROM THE EDITOR

It is the difference between a child studying by candlelight and one with a lamp. Between a business that thrives and one that haemorrhages money on diesel. Between a hospital that functions and one that cannot. For Africa, energy is more than an infrastructure question, it is a human one.

That is why this edition matters to us.

Issue VII joins critical conversations on energy security and Africa's energy story, because the continent's choices will shape the global transition. Africa holds 60% of the world's best solar resources, over 620 trillion cubic feet of natural gas, and a young, growing population whose energy demands will double by 2040. What gets built here, and how, will echo for generations.

The Energy Issue does not offer easy answers. It sits with the tension between urgency and pragmatism, between climate ambition and the lived reality of 600 million people without electricity today. It asks hard questions about who finances the transition, who benefits from it, and who gets left behind when the conversation stays theoretical.

We are grateful to the leaders, thinkers, and builders who opened up in these pages. Their candour is what makes this edition worth reading.

As always, the conversation continues.

Labake Ajiboye-Richard
Editor-in-Chief, Africa Sustainability Magazine

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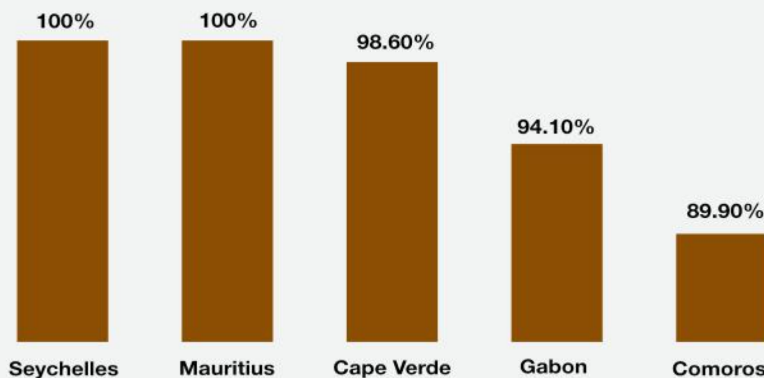
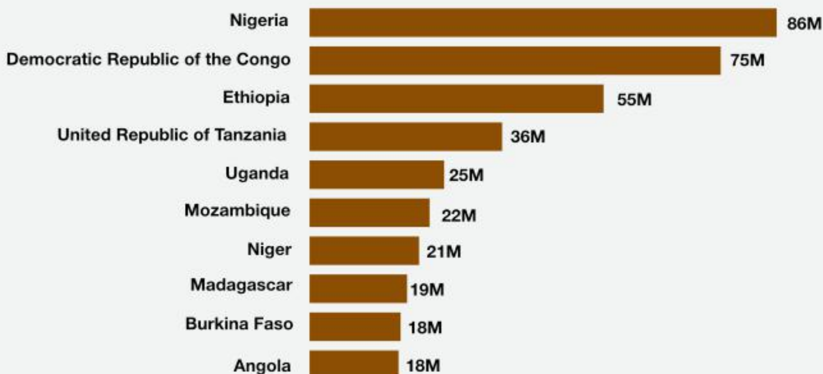
GCF Bolsters Energy Access in Africa Through $960M Climate Financing

The Green Climate Fund (GCF) is accelerating energy access across Africa through a $960 million funding approval, with $441 million allocated to projects on the continent. This comes at a critical time, as more than 600 million people across Africa still lack access to electricity, including major deficits in countries such as Nigeria, the Democratic Republic of the Congo, and Ethiopia.

Beyond the funding figures, the initiative reflects a shift in framing energy access as both an infrastructure challenge and a driver of economic inclusion and resilience. While Sub-Saharan Africa's average energy access remains around 53.3%, countries like Seychelles and Mauritius have achieved near-universal access, demonstrating that closing the gap is achievable with the right investments and systems in place.

A key feature of this funding round is its catalytic structure. Rather than acting as a standalone financier, GCF resources are designed to mobilise additional capital, with African projects expected to unlock over $1.1 billion in co-financing. This approach aligns with a broader move away from single-instrument financing, such as standalone concessional loans or grants used in projects like Morocco's Noor Ouarzazate Solar Complex or





donor-supported mini-grid programmes in Nigeria and Kenya, which often address projects individually and face limitations in scaling and managing early-stage risk.

In contrast, the GCF combines concessional finance with guarantees and co-investment structures to de-risk projects and attract private sector participation. This blended finance approach helps expand access to long-term, affordable capital, one of the key constraints in Africa's energy sector.

The funding also supports integrated initiatives such as ASCENT-GREEN, which combine electrification with clean cooking, agricultural value chain support, and small business enablement. These approaches recognise that energy access has broader economic impacts, improving productivity and supporting income generation, particularly in underserved and rural areas.

GCF's approach reflects a shift toward system-wide, coordinated energy investments in Africa, moving beyond fragmented projects to scalable models that align climate finance with development outcomes.

Egypt Turns to Libya for Oil as Gulf Supply Disruptions Intensify

Egypt is set secure alternative crude supplies from Libya as disruptions in Gulf energy flows strain its import-dependent energy system. This shift is partly driven by Libya's position as Africa's largest holder of proven oil reserves (about 48 billion barrels barrels), compared to Egypt's relatively modest reserves of around 3.3 billion. country is negotiating to import at least one million barrels of Libyan crude per month to offset reduced shipments from traditional suppliers such as Kuwait.

This shows Egypt's vulnerability to external supply shocks, as domestic production only partially meets national demand. Its reliance on suppliers like Kuwait has been shaped not just by geography, but by long-standing bilateral agreements, favourable financing terms, and refinery-linked supply arrangements, which have limited its ability to rapidly diversify sources.

Disruptions in recent times have been linked to geopolitical tensions affecting the Strait of Hormuz, a critical corridor that handles roughly one-fifth of global oil trade. Instability along this route has constrained tanker movements and contributed to Kuwait suspending some export obligations, tightening global supply.

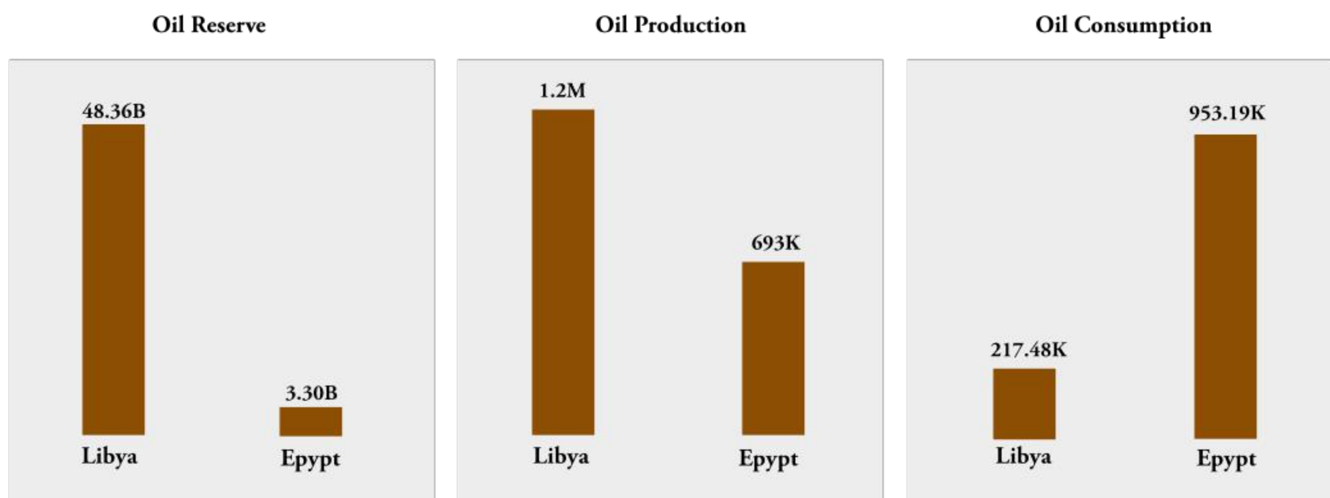
Egypt, which previously imported between one and two million barrels of Kuwaiti crude each month, alongside additional two million barrels of Kuwaiti crude each month, alongside additional agreements, favourable financing terms, and refinery-linked supply arrangements, which have limited its ability to rapidly diversify sources.

Volumes from Saudi Arabia, has experienced an immediate and significant impact on its supply balance following the disruption.

In response, Libya is emerging as a strategic and geographically closer alternative.

Ongoing negotiations between Libya's National Oil Corporation and Egypt's General Petroleum Corporation reflect efforts to stabilise refinery operations and ensure continuity of supply. The broader trend highlights Egypt's shift toward diversifying its import sources, with plans to source up to 4 million barrels per month from a mix of regional and international partners.

The pivot toward Libya signifies a wider structural adjustment in Egypt's energy strategy, moving toward more flexible, diversified procurement to reduce exposure to geopolitical risks and strengthen long-term energy security.



Rockefeller Foundation and **GEAPP Commit $100M** to Scale Mission 300 in Africa

The Rockefeller Foundation and the Global Energy Alliance for People and Planet (GEAPP) are scaling efforts to expand electricity access in Africa through a $100 million commitment to Mission 300. Led by the World Bank Group and the African Development Bank, the initiative aims to connect 300 million people to electricity by 2030, at a time when roughly 600 million people across Africa still lack access.

The commitment signals a transition from financing infrastructure in isolation to strengthening delivery systems. Resources are being used to improve government implementation capacity, accelerate project pipelines, and enhance coordination across countries, addressing long-standing bottlenecks that have slowed electrification efforts. Increasing collaboration among partners has also supported the rapid scaling of Mission 300, which is backed by over $50 billion in pledged support, highlighting the scale of investment required.

A notable element of the initiative is its blended financing model, which brings together philanthropic capital, technical assistance, and policy support to attract private-sector participation and unlock additional financing. The programme also adopts a dual strategy, expanding both grid-based infrastructure and decentralised renewable energy solutions such as off-grid solar systems to reach underserved and rural populations. Approximately 42% of Africans rely primarily on grid-based electricity access, while about 27% use solar home systems or other decentralised renewable energy solutions, underscoring the complementary roles of both approaches in expanding coverage.

ELECTRICITY ACCESS BY TECHNOLOGY IN AFRICA (2022 - 2030)

This aligns with a broader trend in Africa's energy landscape toward hybrid electrification models that combine centralised grid expansion with decentralised solutions. Grid-based systems remain the dominant mode of access in many areas, while decentralised renewable options are increasingly critical in regions where grid extension is slow or economically unfeasible. Together, these approaches help expand access while addressing affordability, reliability, and last-mile connectivity challenges.

The Energy Issue: Africa in Numbers

GENERATION CAPACITY

<300GW

Total installed capacity across the continent

Despite accounting for 19% of the world's population, Africa consumes less than 6% of global energy; a significant imbalance in global energy distribution. According to the International Energy Agency, Africa's total installed electricity generation capacity remains under 300 gigawatts, which is less than that of countries like the United States - a continent of 1.4 billion people running on the output of a single European nation.

THE ACCESS CRISIS

600M+

People without electricity

More than half of the global population living without power is in sub-Saharan Africa alone — a crisis that is as much economic as it is humanitarian.

RENEWABLE MOMENTUM GAP

90%+

Growth in renewable capacity over the last decade

More than half of the global population living without power is in sub-Saharan Africa alone — a crisis that is as much economic as it is humanitarian.

FUTURE DEMAND

2x

Electricity demand could more than double by 2040

More than half of the global population living without power is in sub-Saharan Africa alone — a crisis that is as much economic as it is humanitarian.

INVESTMENT GAP

$190B+

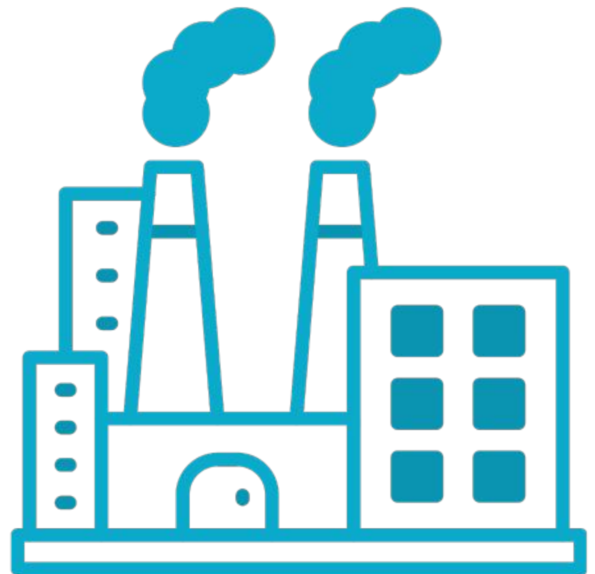
Needed annually to meet Africa's energy demands

Africa requires more than $190 billion in annual energy investment per year by 2030, according to estimates from the International Energy Agency. Current investment flows fall dramatically short of this figure. Closing the gap requires not just capital but also the policy frameworks and risk instruments needed to attract it at scale.

ENERGY MIX

70%+

Of Africa's energy supply still from fossil fuels



Despite abundant renewable potential, the continent remains heavily dependent on oil, gas, and coal, making energy security vulnerable to global price shocks and supply disruptions.

Industry & Innovation

The Fuel Nobody Wants to Talk About, and Why Africa Cannot Afford to Ignore It

Natural gas sits in an uncomfortable position in the global energy conversation. Too polluting for climate purists, too expensive and underdeveloped to fully anchor energy security, and too deeply tied to colonial extraction narratives to be politically simple. And yet, across Africa in 2025, gas has quietly become the continent's single largest source of electricity, accounting for 42% of total power generation.

That number demands an honest conversation. Not a lobby piece for fossil fuels, and not a climate concession, but a clear-eyed look at what gas is, how it is being used, and whether Africa can leverage its own enormous reserves to power a just, if imperfect, path toward energy security.

What Is Actually Meant by "Natural Gas"

Natural gas is not a single product. The term covers several distinct forms, each with different infrastructure requirements, emission profiles, and use cases, and the distinction matters for how Africa approaches deployment.

Conventional natural gas is the form most associated with large-scale power generation. It is extracted directly from underground reservoirs, primarily methane, and delivered via pipeline to gas-fired power stations. Algeria, Nigeria, Egypt, and increasingly Mozambique are Africa's primary producers of this type.

Liquefied Natural Gas (LNG) is conventional gas that has been cooled to -162°C, reducing its volume by 600 times for shipment by sea. It enables countries without pipeline infrastructure to access gas, and is the vehicle through which Africa's offshore reserves — particularly in Mozambique, Senegal, and Mauritania — are reaching both domestic and international markets. In April 2025, BP produced the first LNG export cargo from the Greater Tortue Ahmeyim project on the Mauritania-Senegal maritime border, making both countries LNG exporters for the first time.

Compressed Natural Gas (CNG) is gas stored at high pressure for use in transport and distributed energy applications. It is particularly relevant for urban mobility and small-scale industrial energy. Egypt has deployed CNG aggressively since 2007, now running over 500,000 converted vehicles and 800 fuelling stations, and Tanzania is rolling out its first integrated CNG infrastructure, with similar programmes emerging across East Africa.

Associated Gas is gas that emerges alongside crude oil extraction. In Nigeria, enormous volumes of associated gas have historically been flared (wasted and burned off at the wellhead), rather than captured for power generation. Ending this practice is one of Africa's most immediate and underutilised gas-to-power opportunities.

Biogas and Biomethane, while distinct from fossil natural gas, use the same infrastructure and combustion technology. Produced from organic waste, agricultural residue, and wastewater, biogas is increasingly being explored across sub-Saharan Africa as a complementary local energy source, particularly for cooking and rural electrification, and as a long-term pathway toward a genuinely low-carbon gas supply.

Africa's Gas Endowment Is Substantial and Mostly Untapped

The continent holds over 620 trillion cubic feet (TCF) of proven natural gas reserves, approximately 8.5% of the global total. Nigeria alone holds around 206 TCF, the largest reserves on the continent and among the largest in the world. Mozambique's Rovuma Basin contains approximately 180 TCF. Tanzania holds around 57 TCF of proven offshore reserves.

North Africa currently produces two-thirds of the continent's gas, but the African Energy Chamber's 2026 Outlook projects that share falling to 40% by 2035 as sub-Saharan output accelerates. Total African gross natural gas production was set to reach 331 billion cubic metres in 2025.

The gap between what Africa holds and what it uses domestically remains stark. In 2023, Africa exported over 109 billion standard cubic metres of gas, much of it to Europe, while hundreds of millions of Africans remained without reliable power. The continent is, in effect, exporting an energy security resource it has not yet fully deployed at home.

Gas as a Power Source: How It Is Being Used Now

Gas-fired power generation has grown steadily across Africa, and several countries are now running significant gas-to-power programmes.

Nigeria leads with 12.6 GW of installed gas-fired capacity, the largest on the continent. Ghana has 2.9 GW and Mozambique 1.1 GW. Tanzania, Senegal, Angola, Côte d'Ivoire, and South Africa all operate smaller gas power plants. In Senegal and Ghana, floating power ships operating on natural gas are bridging capacity gaps in coastal demand centres, a model that bypasses the need for onshore grid and pipeline infrastructure entirely.

Angola's 750 MW Soyo combined-cycle gas turbine plant has been balancing the country's hydropower fluctuations since 2018; a practical illustration of how gas can serve as a stabilising complement to intermittent clean energy sources rather than a replacement for them.

South Africa, despite its coal dominance, is moving toward gas. State utility Eskom is planning a 3,000 MW gas-fired plant near Richards Bay backed by an LNG import terminal, expected by 2030.The country's total installed generating capacity stands at around 55 GW, with coal still generating 58% of its electricity in 2025, making the transition to gas, even as a bridge, a meaningful emissions improvement.

Nigeria alone holds around 206 TCF, the largest reserves on the continent and among the largest in the world.

The Emissions Case: Cleaner, But Not Clean

Natural gas is the least emissions-intensive of the fossil fuels, and the data on this is unambiguous. When burned for electricity generation, natural gas emits approximately 50% less CO_2 than coal per unit of energy. The IPCC notes that shifting from the current world-average coal plant to a modern natural gas combined-cycle (NGCC) plant cuts lifecycle greenhouse gas emissions by roughly half on a per-kilowatt-hour basis.

Unlike coal and oil, gas combustion produces no significant sulphur dioxide — the primary driver of acid rain — and substantially lower nitrogen oxide emissions. This has real consequences for air quality and public health in cities where coal-fired generation or diesel gensets are currently the dominant energy source.

The honest caveat is methane leakage. Natural gas is primarily methane, which has approximately 80 times the warming potential of CO_2 over a 20-year period. Scientists estimate that 2–3% of produced natural gas leaks before reaching consumers, and in some production basins, the rate is higher. When full lifecycle emissions are accounted for using a 20-year warming potential, the climate advantage of gas over coal narrows significantly, to around 24% in some estimates.

This means the climate case for gas depends heavily on infrastructure quality. A well-maintained, low-leakage gas system genuinely is a cleaner transitional option. A poorly built or maintained one may not be. For Africa, where much of the gas infrastructure remains to be built, the design choices made now will determine whether the climate arithmetic works.

The Strategic Opportunity

The most compelling case for gas in Africa is not primarily a climate argument; it is an energy security and industrialisation argument.

Africa's electricity demand grew 3.7% in 2024 and 3.2% in 2025. Renewables, while growing fast, cannot yet supply dispatchable, on-demand power at the scale that industrial growth requires. Solar and wind are intermittent. Hydropower is increasingly vulnerable to the climate-driven droughts that have already forced several African countries to substitute clean hydro with fossil-fuel generation. Gas, deployed alongside renewables, can provide the firm, dispatchable baseload that makes a grid reliable, and that makes an economy investable.

Three infrastructure projects currently underway illustrate the continental ambition. The $25 billion Nigeria-Morocco Gas Pipeline will traverse 13 West African states, connecting Nigeria's enormous reserves to North Africa and eventually Europe. The Trans-Saharan Gas Pipeline will link Nigeria's gas to Algeria. And the $1.5 billion Mozambique-Zambia pipeline, announced in 2025, will move gas inland from the Rovuma Basin into landlocked Southern Africa. The African Energy Chamber projects that natural gas will supply 45% of Africa's power by 2050 under the current trajectory.

None of this is without tension. Western development finance institutions continue to retreat from fossil fuel project financing, making it harder to secure concessional capital for gas infrastructure. And the structural risk is real: gas infrastructure built today will still be operating in 2050 and beyond, and locking in fossil fuel dependency carries long-term climate costs that will be borne disproportionately by African communities.

The answer, then, is not to choose between gas and renewables. It is to deploy gas strategically; prioritising domestically produced and consumed gas over export, accelerating the shift from coal and diesel, eliminating gas flaring, and investing in biogas and biomethane pathways that can convert the same infrastructure to zero-carbon fuel over time. Gas, used thoughtfully and built well, is not Africa's long-term energy future. But for the millions of people for whom reliable electricity remains a daily uncertainty, it may be a necessary part of getting there.

Trends

Five Trends Reshaping Africa's Energy Landscape

Africa's energy story has never moved faster, or mattered more. From citizen-led solar revolutions to record investment flows, the past three years have redrawn the map of how the continent powers itself. Here are five trends defining the shift.

1. The Access Crisis Is Grinding Forward; But Population Growth Keeps Resetting the Clock

Progress is being made. Fewer than 19 million people gained electricity access in both 2023 and 2024; below the 23 million connected annually before the pandemic, and far below what universal access by 2030 demands.

The arithmetic is unforgiving. Around 600 million Africans, nearly two in every five people on the continent, still live without electricity, and electrification has barely kept pace with population growth. Sub-Saharan Africa now accounts for 85% of the world's unelectrified population, up from 50% in 2010.

The World Bank and African Development Bank have responded with Mission 300 — a joint initiative targeting electricity access for 300 million people by 2030, backed by over $90 billion in funding. It is the most ambitious electrification programme ever launched on the continent. Whether it can move fast enough remains the defining question.

2. Off-Grid Solar Has Become the Default Electricity Carrier

The most consequential shift in African energy is not happening at the utility scale. Off-grid solar provided 55% of all new electricity connections in sub-Saharan Africa between 2020 and 2022, and the momentum has not slowed.

More than 50 million off-grid solar products were sold in both 2022 and 2023, figures that held firm despite currency crises, inflation, and supply chain disruption across the continent. For 41% of those currently without electricity, off-grid solar is now the most cost-effective path to access.

Policy shifts have accelerated the trend dramatically. In South Africa, the removal of generator licensing thresholds in January 2023 and new business tax incentives triggered a fivefold growth in small-scale solar that year alone. Nigeria's removal of petrol subsidies in mid-2023 made diesel-powered generators sharply more expensive overnight, strengthening the economic case for solar almost immediately. The result: investment in small-scale solar across Africa more than tripled to $6.3 billion in 2023.

3. Renewables Are Gaining Ground, but the Pace Must Quadruple

In 2025, African countries added 11.3 gigawatts of new renewable capacity, up from just 4.2 gigawatts in 2024, according to the International Renewable Energy Agency. Renewables overtook coal for the first time, reaching 26% of Africa's total power generation mix in 2025.

Between 2020 and 2025, the continent invested around $34 billion in clean energy technologies, with solar receiving 52% and wind 25% of the total. Private sector clean energy investment tripled from approximately $17 billion in 2019 to nearly $40 billion in 2024.

The milestones are real. But the African Union's target of 300GW of installed renewables by 2030 requires annual deployments of 32.6GW — roughly three times the 11.3GW added in 2025. Since 2022, yearly renewable capacity growth has averaged just 6.2% annually against the 23% required. The ambition exists. The execution gap remains wide.

4. Gas Has Quietly Become Africa's Largest Single Power Source, and a Climate Dilemma

While headlines focus on solar and wind, gas has cemented itself as the dominant fuel in Africa's electricity mix. Gas accounted for 42% of Africa's total electricity generation in 2025, and gas generation rose 44% between 2015 and 2025, driven heavily by North African countries deepening their dependence on the fuel.

This creates a genuine tension. For much of sub-Saharan Africa, where

power sector emissions are minimal, and energy poverty is the primary challenge, gas offers a route to reliable electricity that intermittent renewables cannot yet fully replace. For North Africa, where gas already dominates, the transition away from it will be structurally harder and more disruptive.

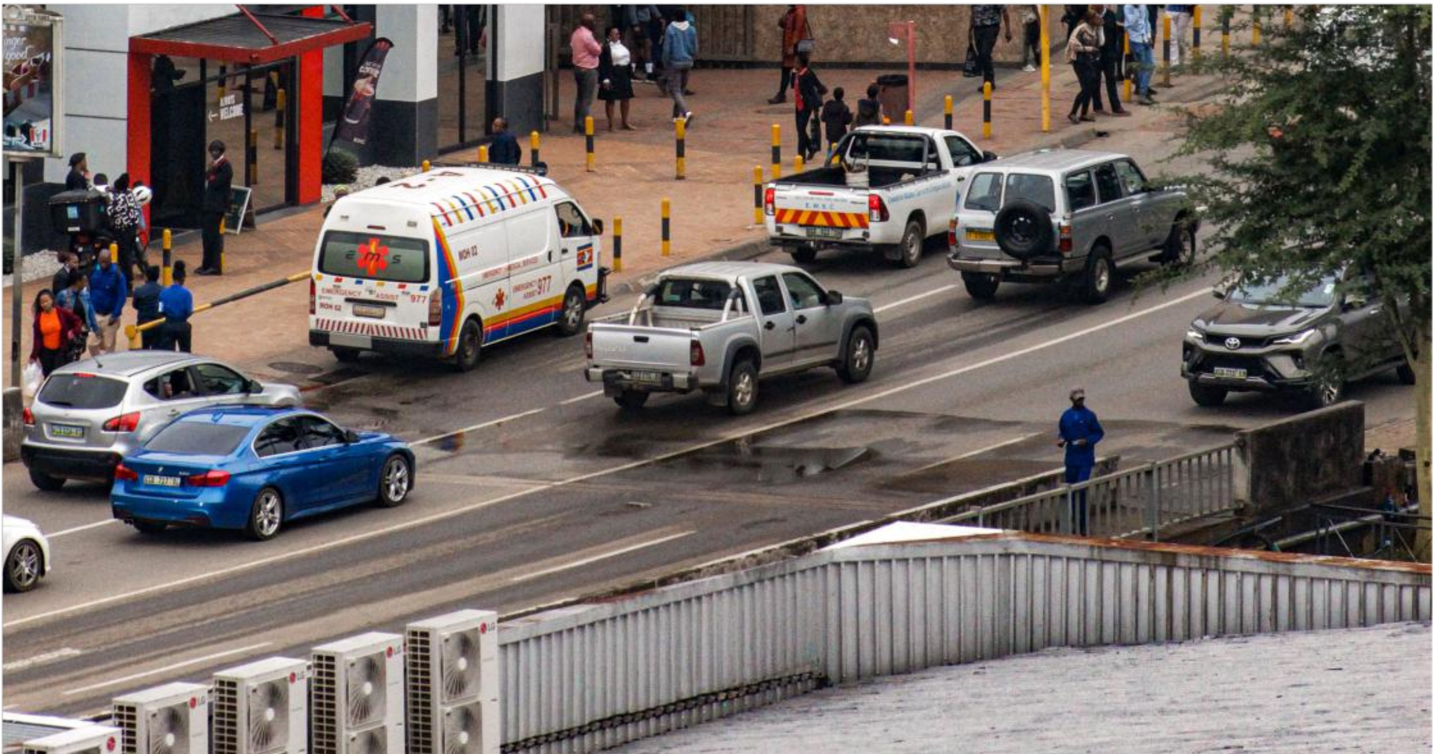
Africa's total energy-related CO_2 emissions reached 1.5 gigatonnes in 2024; still less than 3% of the global total, despite the continent holding nearly 20% of the world's population. Africa remains the world's least responsible major region for historical emissions. It is also among the most exposed to their consequences, through droughts, floods, reduced agricultural output, and the destabilisation of the very hydropower systems that have long anchored clean electricity supply across East and Central Africa.

5. The Investment Gap Remains the Defining Structural Failure

Every positive trend above runs into the same wall. Africa accounts for just 2% of global clean energy investment in 2025, despite holding 20% of the world's population and 60% of its best solar resources. For every $1 invested in fossil fuels in Africa, only around 92 cents goes to clean energy, the inverse of the near 2:1 ratio in favour of clean energy that now prevails globally.

The institutional financing picture is worsening, not improving. Public and development finance institution funding for energy in Africa fell by approximately one-third over the past decade, reaching $20 billion in 2024 — driven largely by an 85% reduction in Chinese development finance spending. Africa needs over $200 billion annually by 2030 to achieve its energy access and climate goals. The 2024 clean energy figure of $40 billion covers roughly one-fifth of what is actually needed.

The barriers are not technical. Africa has the solar irradiation, the wind corridors, the geothermal reserves, and, increasingly, the policy frameworks. What it lacks is the risk capital to build at speed. The continent that stands to be most transformed by the energy transition continues to receive the smallest share of the investment driving it. That is not an energy problem. It is a governance and justice problem that will not be solved by technology alone.



By Aaron Kent,
Commercial Lead
- BPOWERD

Op-Ed

Micro-Power, Macro-Impact: The New Blueprint for Energy Security

A second global energy crisis in four years has once again brought energy security to the top of national agendas. But for 600 million Africans, the more immediate question is not geopolitical resilience but whether they can turn the lights on and, increasingly, can they afford to? This reflects energy security on two distinct scales. The first is national. National energy security is typically framed around large, centralised systems: state-owned or regulated private utilities and infrastructure megaprojects, increasingly in renewable generation and grid upgrades. Indeed, these matter and help insulate a country from exogenous energy price shocks.The second is lived: households and businesses that have endured rolling blackouts or expensive generators for years – household energy insecurity. Large centralised systems have not guaranteed consistent, affordable power at the household level. National energy security does not necessarily deliver household energy security. Yet household energy security can provide the foundation for national-level resilience. New decentralised technologies mean power no longer needs to follow the top-down models of the past. Just as mobile telecoms allowed fixed-line to be leapfrogged, so can decentralised power emerge not as an alternative, but as a necessity.

A tale of two cities: Johannesburg and Lagos

South Africa's energy crisis illustrates the limits of a centralised power system under strain. Load reduction - planned rolling blackouts implemented by state utility Eskom - has become a permanent feature of economic life. In 2024, power cuts cost the economy an estimated R481 billion ($29bn) in lost output. Even in periods of relative stability, daily losses hover around R500 million, or approximately 30 million USD.Large corporations can absorb the costs of backup diesel, solar, and batteries. For micro-SMEs, the arithmetic is unforgiving. A township retailer loses trading hours; a household loses perishable food. In Thembisa, Johannesburg, residents have been without power since April 2025. Across sectors, studies estimate that 75% of small businesses fail within three years, with energy unreliability cited as a primary factor. Johannesburg residents now spend 21% of their income on energy alternatives.What households and small businesses need is not just more megawatts on the grid, but power they can access on their terms, when they need it, at prices that don't crowd out food, education or healthcare. Nigeria's challenge is different – a centralised power system that never fully formed. Over 80 million people lack grid access, and reliability is below 10% even for those connected.

Consequently, the country has become the world's largest market for small diesel and petrol generators. Lagos alone has an estimated 4.5 million units. In 2023, Nigerians spent an estimated ₦16.5 trillion ($36bn) on fuel and generators for self-generated electricity. In both countries, energy is technically available. But at such high costs that it functions as a tax on economic growth.

Decentralisation Imperative

A significant shift is already underway. Decentralised energy solutions—mini-grids, pay-as-you-go solar, and battery-sharing models—are moving from pilots to core infrastructure. These bypass the weakest links in centralised power: transmission bottlenecks, decades-long upgrade timelines and weak institutional governance. Concurrently, centralised power faces compounding headwinds: grid investment lags population growth by decades, per-capita energy consumption remains a fraction of the global average, high utility debt burdens and customer bases are shrinking as decentralised solutions expand. The dynamic risks are becoming self-reinforcing. Poor reliability pushes customers towards off-grid solutions. Fewer customers lower revenues, constrain maintenance and investment, and further deteriorate reliability.

In South Africa, decentralised rooftop solar now exceeds utility-scale solar, having grown by over 400% since 2021. In Nigeria, data remains incomplete, but estimates suggest off-grid solar could be as

much as 1.2 GW.Development finance institutions and private investors have financed this growth, but it still represents only 2% of global renewable energy investment since 2005. Previous focus on residential energy access has pivoted to commercial and industrial solar and EV charging due to concerns about revenue predictability. This shift is rational but opens a critical gap—the poorest residential and micro-enterprises who remain under and unserved.

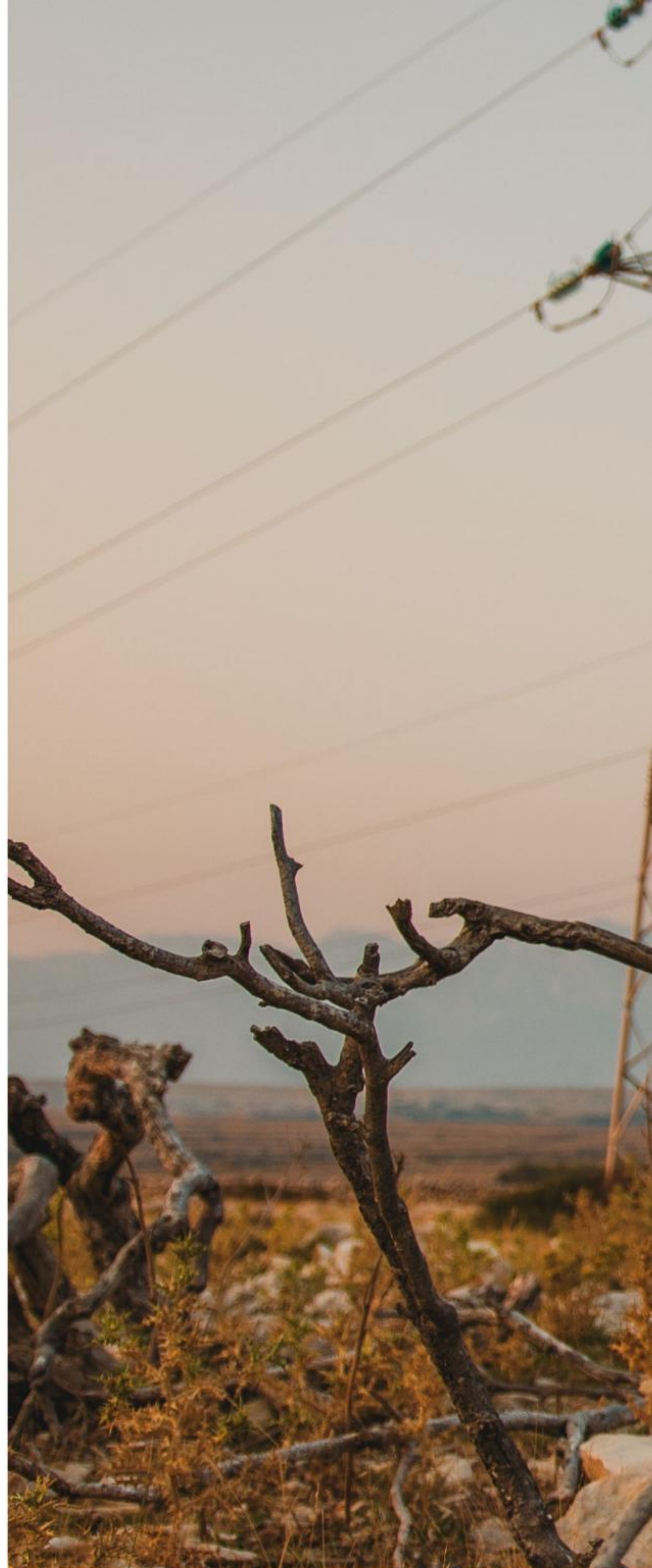
This segment is not too small to matter; it is too large to ignore. These households and businesses power informal economies, employ communities, and define the lived experience of energy access for hundreds of millions.

Building from the Bottom Up

Africa's energy future will depend on whether policymakers embrace this paradigm shift. The implication is clear: energy security strategies focused solely on national-level infrastructure will struggle to deliver the anticipated impact. A Lagos hairdresser or a Johannesburg spaza shop owner already calculates whether to run a generator during outages or close early.

Solutions suited to this context will not be scaled-down versions of traditional grid models. They will be modular, flexible, and designed for daily incomes. They will prioritise flexibility over capacity, incremental affordability over long-term contracts, and treat users as customers, making rational economic choices.

The question is not whether Africa can power itself. The continent holds 30% of the world's critical minerals for renewable technologies and 60% of its best solar resources. It is whether it will do so in ways that broaden the economic base by including, rather than excluding, the majority who need it most.



GRASSROOTS INNOVATION IN AFRICA'S ENERGY TRANSITION: A COMMUNITY-LED PERSPECTIVE

By Ezinne Enyinnaya,
Sustainable Development Advocate and Director, the Institute for Global Negotiation (IGN)

What does it mean for Africa's future when research in 2025 reveals nearly 600 million people in Sub-Saharan Africa remain without electricity and over 1 billion still cook with traditional fuels? The International Energy Agency's World Energy Investment Report 2025 underscores that this is not simply a technical challenge; it is both a developmental necessity and a geopolitical priority. The continent's ability to secure prosperity, stability, and global relevance depends on how it addresses the twin challenges of energy poverty and climate change. While international forums often emphasise large-scale infrastructure and policy frameworks, the most compelling story is unfolding at the grassroots—in communities, among women and through local entrepreneurs who are reshaping energy access from the ground up.

Community Ownership: The Heart of Africa's Energy Innovation

Energy poverty remains one of Africa's most urgent developmental barriers. The aforementioned statistic reveals nearly 600 million people across Sub-Saharan Africa still lack access to electricity, while over 1 billion rely on traditional fuels for cooking. This dependence on traditional fuels has severe consequences: respiratory illnesses, environmental degradation and entrenched inequality.

Grassroots innovation provides a powerful counterpoint. Charlot Magayi's clean cooking initiative in Kenya illustrates how community-led solutions can simultaneously improve health outcomes, reduce emissions and empower women. These innovations are not peripheral; they are central to tackling energy poverty because they respond directly to lived realities, infusing practical solutions rather than abstract policy models. Paraphrasing Charlot's insights, "…if a solution is clean but not affordable, it won't scale, and if a solution is clean but communities don't have ownership through jobs, local manufacturing and entrepreneurship, it won't last".

Community ownership means that local people are not just passive recipients of clean energy solutions but active participants in building and sustaining them. It ensures that communities have a stake through jobs, local manufacturing, and entrepreneurship, so that energy projects generate livelihoods alongside electricity. Ownership also extends to decision-making—when communities influence design, governance and pricing, solutions are more affordable, trusted and resilient. A practical example is the Solar Sister Initiative that operates in Africa. By empowering women entrepreneurs, especially in West Africa and East Africa, to start, grow, and sustain successful clean energy businesses, Solar Sister shows how grassroots innovation can combine income generation with energy access. This kind of locally rooted ownership transforms clean energy from an external intervention into a lasting movement, woven into the social and economic fabric of everyday life.

Turning Infrastructure Deficits into Grassroots Opportunities

Africa's infrastructure gaps—from unreliable grids to inadequate transmission networks—are well known. Yet these deficits also create opportunities to leapfrog traditional models. Just as mobile telephony bypassed landline infrastructure, decentralised renewable energy systems can bypass centralised grids. Mini-grids, solar home systems and pay-as-you-go models are already transforming access in rural areas.A practical illustration of this is M-KOPA in Kenya, which pioneered pay-as-you-go solar home systems. By enabling households to purchase solar kits through mobile money in small instalments, M-KOPA has reached millions of low-income families who would otherwise wait years for grid expansion. This approach shows how infrastructure deficits can be turned into opportunities, combining technology with inclusive financing to reshape energy access and improve quality of life.Africa's energy transition is not only a domestic issue but a global one. Inclusive infrastructure is vital for climate mitigation and

geopolitical stability. A continent that fails to secure energy access risks exacerbating migration pressures, economic fragility and security challenges that reverberate far beyond its borders. Conversely, a continent that harnesses inclusive infrastructure can position itself as a proactive actor in global climate security.

Entrepreneurship, Women-led Innovation & Africa's Energy Transition

What does it mean for Africa's energy future when women represent just 13% of the continent's energy sector workforce (World Bank, 2024)? This underrepresentation underscores why entrepreneurship and women-led innovation are not only necessary but transformative. Small and medium-sized enterprises (SMEs) bridge the gap between community needs and scalable solutions, embedding energy innovation into local economies while creating jobs and promoting resilience. Through my work at the Institute for Global Negotiation, the Negotiating for Climate Action Project, which supports young climate leaders in multiple African countries such as Malawi, Zambia, DR Congo and five others, I have come to see firsthand the impact of community-led initiatives. By fostering entrepreneurship in local communities, Africa is cultivating a generation of problem-solvers who are not only addressing energy access but also creating jobs, strengthening resilience and embedding climate consciousness into everyday life. Notably, women are at the forefront of this shift. In East Africa, Charlot Magayi's Mukuru Clean Stoves provides affordable, locally manufactured cookstoves that reduce household air pollution, cut fuel costs and create jobs for women distributors. Since 2017, the enterprise has sold over 850,000 stoves, reaching 4.25 million people and avoiding 3.4 million tonnes of CO_2 emissions. This is emblematic of how women-led enterprises can simultaneously improve health outcomes, reduce emissions and empower communities. By embedding gender equity into energy transition strategies, Africa signals to the world that its development model is inclusive, resilient, and future-oriented. Women-led innovation is not peripheral; it is central to tackling energy poverty and shaping a just energy future.

Conclusion

Africa's energy transition is often framed in terms of megawatts, investment flows and policy frameworks. Yet its most compelling narrative lies in grassroots innovation. Communities, women and entrepreneurs are not waiting for top-down solutions; they are crafting bottom-up pathways, redefining energy access in practice. Through these insights and practical case studies, the continent's energy transition story is reimagined from one of deficit to one of possibility—a testament to resilience, creativity and the power of community-led solutions.

CLIMATE FINANCE, CARBON MARKETS, AND AFRICA'S ENERGY FUTURE: OPPORTUNITY OR NEW DEPENDENCY?

Faizat Salawu (Consultant [Regulatory, Sustainability & Projects], Avant-Garde Innovation and Technology Services Limited)

Africa contributes roughly 4% of global greenhouse gas emissions, yet bears a disproportionately high share of the impacts of climate change. At the same time, it holds some of the world's most significant untapped renewable energy potential. These twin realities have elevated Africa's

prominence in global climate discourse, while also sharpening an uncomfortable question: whether emerging climate finance and carbon market architectures are enabling structural transformation or producing new forms of dependency under a green label.

The numbers suggest both progress and constraint. Between 2019/20 and 2021/22, climate finance flows to Africa increased by approximately 48%, reaching around $43.7 billion annually. Renewable energy investment reached a record $15 billion in 2023, up from roughly $7 billion the year prior. However, some of this increase reflects project timing effects rather than a sustained structural shift in capital allocation. Even so, current flows account for only 11% of the estimated $277 billion in annual investment Africa needs to meet its 2030 climate and energy transition goals.

The composition of these flows raises a further concern about scalability. Private capital accounts for roughly 18% of total climate finance to Africa, reflecting persistent perceptions of risk, high capital costs, and limited depth in domestic financial markets. Without a meaningful increase in that share, the public and concessional flows currently driving the headline figures cannot sustain the transition at the required scale.

The structure of what does arrive compounds the problem. Approximately 75% of climate finance is delivered through debt instruments, in a region where 21 countries are already in debt distress or at high risk of it. Financing climate resilience by deepening sovereign debt loads is a contradiction at best and a trap at worst: climate shocks reduce government revenue, raise insurance premiums, and impair creditworthiness, making the next round of borrowing more expensive. This is not simply a paradox of aid architecture; it is an unresolved design problem in the global climate finance system that no volume of new pledges will resolve on its own.

Geography reinforces this imbalance. Data consistently show that more resilient, less vulnerable African nations attract higher per-capita climate finance, whilst the most exposed countries, particularly across the Sahel and the Horn of Africa, receive the smallest shares.

Just Energy Transition Partnerships (JETPs) were designed to address some of these structural shortcomings by combining concessional finance, policy reform, and private capital mobilisation. South Africa's expanded $11.6 billion JETP has produced tangible milestones: market liberalisation, an end to sustained rolling blackouts, and a dedicated funding platform launched in November 2024. Senegal's $2.7 billion agreement — the first designed for a non-coal-dependent economy — demonstrates the model's adaptability beyond the coal-exit paradigm.

Yet early experience highlights a persistent gap between headline pledges and project readiness. Converting large-scale commitments into bankable pipelines requires institutional capacity — regulatory, technical, and financial — that remains uneven across recipient countries. Indonesia's experience is instructive: JETPs in Southeast Asia have stalled due to permission bottlenecks and coordination failures between ministries, demonstrating that headline figures without upstream technical assistance do not automatically translate into delivered projects. The JETP model is necessary but not sufficient. Its performance depends entirely on the institutional groundwork that follows the announcement — work that is less visible, less celebrated, and consistently underfunded.

Carbon markets have attracted both the most ambitious projections and the most contentious debate. The UN Economic Commission for Africa projects that well-functioning markets could generate $82 billion annually for the continent, and the Africa Carbon Markets Initiative targets a 19-fold increase in credit production by 2030 compared to 2020. The underlying opportunity is real: Africa holds vast stocks of standing forests and intact ecosystems whose preservation generates verifiable emission reductions.

Yet African countries account for only 3% of certified emission reductions issued globally through the Clean Development Mechanism. Voluntary credit prices have historically traded at significant discounts — often below $10 per tonne — far short of the $50–100 range that analysts argue is necessary for a credible 1.5°C pathway. Intense global scrutiny of crediting methodologies, particularly in cookstove and avoided deforestation segments, has triggered sharp market corrections, and the risk of sustained price collapse threatens fiscal projections that some African governments have already incorporated into their planning assumptions.

The deeper concern is sovereignty. Carbon markets price Africa's natural capital, its forests, savannahs, and blue-carbon ecosystems, through methodologies set by certification bodies headquartered in the Global North, in currencies that African communities do not control. Without robust domestic carbon registries, transparent corresponding-adjustment accounting under Article 6 of the Paris Agreement, and upstream financing mechanisms that allow African developers to access revenue before certification, carbon markets risk replicating extractive dynamics over ecological assets that African communities have maintained for generations.

Nigeria has begun to address these concerns through a nationally anchored governance framework. Launched at the Abu Dhabi Sustainability Week, the national Carbon Market Framework establishes a regulatory and institutional trading structure under the National Council on Climate Change, with ambitions to attract over $3.8 billion in annual investment on domestic terms. Its provisions for domestic credit registration and disclosure standards signal a deliberate effort to bring the terms of carbon valuation under national jurisdiction, rather than cede them by default to external bodies with limited accountability to African communities. Implementation remains uneven, and the framework's credibility will depend on enforcement capacity and the ability to attract credible buyers without underpricing national carbon assets. Kenya has taken a complementary step by launching a national carbon registry that centralises transaction records under government oversight, targeting the double-counting and predatory intermediary arrangements that have suppressed host-community returns in previous market cycles.

The broader lesson is that climate finance cannot be understood purely as a question of volume. It is equally a question of architecture — how capital is structured, who intermediates it, and what institutional capacities exist to absorb and deploy it effectively. No combination of green bonds, blended finance vehicles, or carbon revenues substitutes for strong regulatory institutions, reliable grid infrastructure, and coherent long-term energy planning.

Kenya's renewable electricity transition illustrates the point. The country now generates between 85% and 90% of its electricity from renewable sources, not through a single transformative investment, but through three decades of consistent policy: feed-in tariffs that created investor certainty, independent regulation that separated the utility function from the regulatory function, long-term power purchase agreements that reduced off-take risk, and a deliberate geothermal development programme that accumulated domestic technical expertise over time. The result is an energy system that is both cleaner and, at the margin, more affordable than many of its regional peers. That outcome was not delivered by climate finance alone; it was enabled by the institutional architecture that no volume of external capital can substitute for.

The instruments exist. The capital, while insufficient, is growing. What remains the binding constraint is governance: who sets the rules, who prices the risk, and who bears the cost when projects fail. Africa's energy future can be abundant, clean, and self-determined. Whether it will be depends less on the scale of the next headline pledge than on the seriousness with which every party commits to building institutions that place that determination in African hands.

Africa Doesn't Need a Bigger Grid. It Needs a Different One.

By OluMayowa Ogunnusi,
Founder and CEO, Terrahex

For most of the last century, energy security meant being plugged in. Plugged into a grid. Plugged into a pipeline. Plugged into a regional pool. The richer the economy, the more interconnections it could afford, and the safer it appeared to be.That model has cracked.

It cracked in 2022, when Europe relearned its dependence on Russian energy. It is cracking as critical industries are pulled home, to friendly shores, to anywhere but the original supplier. It will crack further as artificial intelligence draws more power from grids that were never provisioned for it.

Inside that fragmentation, Africa's energy position changes shape. What looked like a liability for fifty years is becoming a strategic asset. But only if we stop describing it the way we always have.The old prescription is finished

For decades, the dominant prescription for African energy was integration. Build the lines. Connect the grids. Wait for the cross-border interconnector. Wait for development finance. Wait, and the rest of the world will meet you halfway.

It was never a bad prescription. It

is simply an unfinished one. Transmission projects take a decade if they finish at all. Sovereign offtake guarantees are harder to write than they used to be. None of this is reversing in the next five years.Meanwhile, demand is changing under our feet.The continent's hidden asset

Across Africa, enormous volumes of energy never reach a paying customer. Power capacity sits idle at the edges of upstream operations. Run-of-river hydro spills through the rainy season. Solar production overshoots local demand by midday and finds no buyer for the surplus. The scale of the waste is not theoretical; the World Bank estimates that global gas flaring reached 151 billion cubic metres in 2024, the highest level since 2007 – almost equivalent to Africa's total annual gas consumption. In the orthodox framing, this is curtailment. A problem to be engineered out by, you guessed it, more transmission. There is another way to read it. The energy is real. The shortfall is in how we move it. Moving electrons across a continent is slow and capital-intensive. What if you did not have to move them?

Demand can now travel

For a century, the geography of industry followed the geography of energy access. Cities formed near coal seams. Steel mills sited themselves next to coking coal and ore. Where the grid arrived, the economy followed.

The computer era has snapped that chain. A megawatt of high-performance computing capacity is, by design, mobile. It does not need a city around it or a workforce next to it. It needs power, cooling, and a fibre link. Put it where the inputs are cheapest and most reliable, and route the value out as data. This is the first time in industrial history that demand can credibly travel to supply. For Africa, that single inversion changes everything.

Africa's strategic role

The continent's strategic offer is not crude oil. It is not raw critical minerals. It is not even gigawatts of installed solar. It is the ability to host energy-intensive industries at a cost structure no developed market can match, using power that would otherwise have no economic life at all.

Africa's competitive advantage in the next two decades will not be the absolute price of energy. It will be the price of the energy that nobody else has figured out how to use.That is a strategic position. It is also a sustainability position. Every megawatt of unproductive power monetised in place is a megawatt that does not need to be replicated in a higher carbon market somewhere else.

Nigeria as a case in point

Nigeria is the cleanest illustration of the argument, and the country I know best. On paper, installed generation capacity sits in the low double digits of gigawatts. In practice, only a fraction consistently reaches paying customers. The country has roughly 13,000MW of installed capacity, but only about a third is typically generated. The deficit is not a generation problem. It is a delivery problem.

The Electricity Act of 2023 changed the playing field. States can now license, generate, and distribute power inside their own borders. The monopoly assumptions of the previous era are gone. What replaces them is the question every operator is asking. If you no longer have to wait for the national grid, what do you do with the energy already on the ground?

The Niger Delta is one of the most energy-abundant regions on the continent. It is also where that abundance has translated most poorly into local industrial activity. That asymmetry is not a moral failing. It is an architectural failure. The system was built to send energy out. Nothing in it was built to use energy in place.

That architecture is now being rewritten, and the operators rewriting it are not waiting for permission.

What the evidence shows

I should disclose that this is not theoretical for me. The company I lead, Terrahex, is one of a small group of operators building against exactly this thesis in Nigeria today, pairing high-performance computing capacity with energy that has no path to the grid. What the work has confirmed is

mundane and important. The power exists. Host country participants are willing. The economics close at the node level without a single kilometre of new transmission. None of the constraints sits where the orthodoxy says they do.

The reason this model is spreading is not that it is clever. It is that the alternative, waiting for a grid that may never arrive, is no longer a serious answer for anyone trying to industrialise within this decade.

The choice in front of us

Energy security in a fragmented world will not be granted by external arrangements. It will be earned. Node by node. By countries and operators willing to think differently about what energy is for, where it should be used, and who should capture the value when it is.

For Africa, this is not a defensive posture. It is the most credible offensive position the continent has held in a generation.

That is the energy story Africa should be telling. Not the one about catching up. The one about leading.

How Geopolitical Tensions Disrupt Oil and Gas Prices

Faith Osamaye

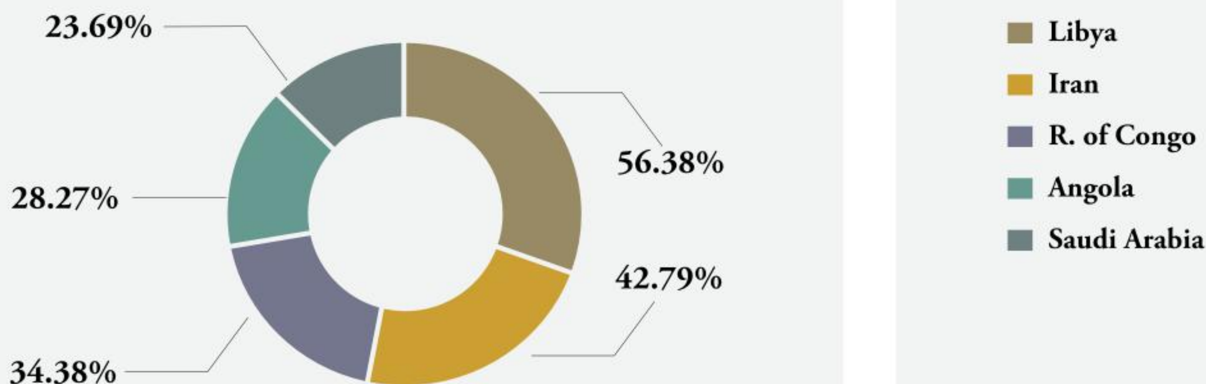
The role of the oil and gas industry in the global economy is often understated. Yet, it has the power to drive growth and trigger instability, effectively making it the lifeblood of the global economic system. Accounting for roughly 60% of the world's energy consumption, the industry powers transportation, heats homes, and fuels a wide range of industrial processes.

Beyond its everyday applications, it exerts significant influence across business operations and geopolitical dynamics. The sector also plays a substantial role in national economies, particularly in oil-exporting countries, where it contributes an estimated 5–10% of total GDP. Globally, it serves as a major source of employment, supporting millions of jobs across the value chain.t

According to market research by IBISWorld, total revenues for the oil and gas drilling sector came to approximately $4.3 trillion in 2023. In many African countries, the sector remains a major contributor to national revenue and economic stability, accounting for about 56.38% of revenue in Libya, 34.38% in the Republic of the Congo, and 28.27% in Angola.contributor to national revenue and economic stability, accounting for about 56.38% of revenue in Libya, 34.38% in the Republic However, the importance of this industry is matched by its vulnerability to instability. Oil and gas markets are not driven solely by supply and demand fundamentals; they are also highly sensitive to political developments. Political instability can significantly disrupt global energy prices, with far-reaching consequences for both businesses and consumers. This impact is especially severe in countries that lack sufficient domestic resources or infrastructure and must rely heavily on imports to meet their energy needs.

Strategic chokepoints further amplify this vulnerability. Approximately 20% of the world's oil and liquefied natural gas passes through the Strait of Hormuz, making it one of the most critical arteries of global energy trade. For African economies, the risks are particularly pronounced. Many countries, including Kenya and South Africa, depend heavily on imported refined fuel from the Middle East and Asia. South Africa, the continent's most industrialised economy, relies extensively on imports from countries such as India, Oman, and the UAE.

The Middle East plays a dominant role in global energy markets, supplying over 30% of crude oil, holding about 75% of the world's spare production capacity, and accounting for roughly 11% of global refining capacity. This means that any tension in the region quickly affects global supply and pricing. As a result, geopolitical instability in the Middle East does not stay local; it spreads through global markets and directly influences oil prices.



How Geo-political Tensions Affect Oil Prices

Wars and geopolitical tensions are bound to exist, as countries are prone to disagreements that can escalate into armed conflict. A typical example is the ongoing tensions between the US and Iran, which began after Iran's most powerful military commander, Gen Qasem Soleimani, was killed by a US airstrike in Iraq. This event triggered immediate market reactions, with Brent crude rising to $69.16 per barrel, its highest level since September 17.

Iran and Israel have been engaged in a proxy conflict since 1985. In the Israeli–Lebanese conflict, Iran has supported Lebanese Shia militias, most notably Hezbollah. Oil jumped more than 7% on supply risk from the Israel–Iran conflict.

More recently, on 28 February 2026, the United States and Israel launched airstrikes on Iran, targeting military and government sites and escalating tensions in the region. Geopolitical conflicts, such as the Russia–Ukraine War and the ongoing Israel–Hamas conflict, have contributed to sharp spikes in global energy prices during periods of escalation.

The impact of these geopolitical conflicts on oil prices is further intensified by the concentration of major oil producers and critical trade routes within politically unstable regions. Since the formation of OPEC in 1960, comprising countries such as Iraq, Iran, Kuwait, Saudi Arabia, Venezuela, the UAE, and several African members, including Algeria, Angola, Nigeria, and Libya, oil supply and pricing have been closely tied to both coordinated production decisions and geopolitical developments.

Because the Strait of Hormuz is the single most important waterway for global oil trade, disruption is almost inevitable, especially given that the location is prone to conflict and war. Such disruptions, or even the threat of them, can significantly constrain supply and push prices upward. About 20% of global oil flows through the Strait of Hormuz, a critical route responsible for around 25% of seaborne oil trade. Any threat to this chokepoint signals a potential global supply shock, amplifying uncertainty and triggering immediate price spikes in oil markets.

It is estimated that around 600,000 barrels of oil products per day destined for Africa are exposed to potential disruption due to restricted tanker traffic through this corridor. When energy supplies are disrupted, attention often shifts to high oil prices as the primary risk, as transport, utilities, food, and production all become more expensive. However, price instability is driven not only by actual supply disruptions but also by expectations and market sentiment.

Crude oil prices are also highly sensitive to changing geopolitical conditions. For example, easing tensions in the Middle East has led to a 17% decline in prices, highlighting how quickly markets respond when geopolitical risk premiums fade.

Africa's Exposure to Global Oil Price Shocks

When geopolitical tensions arise, they disrupt the global oil market. For instance, conflict in the Middle East continues to create one of the largest supply disruptions globally, as the region holds approximately 48% of the world's oil reserves. Building on this, Iran has, at different points, influenced the flow of Middle Eastern crude through the Strait of Hormuz. This narrow waterway south of Iran is one of the world's most critical trade arteries, through which roughly a fifth of global oil and seaborne gas is transported from production facilities and refineries in the Gulf to buyers worldwide. In total, the strait carries just over 20 million barrels of oil per day, making it the busiest oil transit route globally.

When key oil routes such as the Strait of Hormuz face tension, global oil prices become increasingly unstable. For African oil-dependent economies, this deepens vulnerability, as short-term price increases rarely translate into sustained economic stability.

As a result, the impact of these disruptions is felt across the globe, with African countries being no exception, including even oil-producing nations.

In 2023, Africa produced about 8% of global crude oil but accounted for only 2% of refined oil output. The continent exported 68% of its crude while importing 61% of finished petroleum products, highlighting its structural dependence on foreign refining capacity. This reliance has increased vulnerability, particularly in countries such as South Africa, where refinery closures between 2020 and 2024 reduced refining capacity by about half. By 2023, oil accounted for 43% of South Africa's energy consumption, with nearly 80% of refined products being imported.

The level of dependence, however, varies across the continent. While Angola imports about 80% of its refined petroleum, Libya is able to meet over 60% of its domestic demand, and Algeria has the second-highest refining capacity in Africa after Egypt.

Nigeria presents a different challenge. Although the petroleum sector contributes less than 10% to

GDP, it accounts for approximately 80% of federal government revenue and about 90% of export earnings. In contrast, the petroleum sector contributes around 60% of GDP in Libya, over 30% in Algeria, and more than 50% in countries such as Qatar and Kuwait.

Nigeria, Africa's largest oil producer, continues to produce between 1.38 and 1.46 million barrels per day (bpd) as of early 2026. Despite this production capacity, the country lacks sufficient functional refining infrastructure.

Although Nigeria has a combined installed refining capacity of about 445,000 bpd, enough to meet domestic demand, these refineries have remained largely non-functional since the 1990s due to poor maintenance, low capacity utilisation, outdated technology, fuel scarcity, and weak government investment. This has resulted in a heavy reliance on external markets.

Nearly 69% of Nigeria's crude oil is exported, leaving a limited supply for domestic refining. At the same time, over 80% of domestic fuel demand is met through imports. In 2020, Nigeria imported $7.75 billion worth of refined petroleum products, making it the world's 17th largest importer of refined fuel and one of the highest in Africa. As a result, Nigeria remains highly exposed to global oil market dynamics and continues to experience price volatility during periods of geopolitical tension, despite being a major crude oil producer.

When energy price shocks occur in African countries, they typically generate two related effects: windfall gains for oil-exporting economies and inflationary pressure on domestic markets. In Nigeria's case, the concern is that any revenue windfall is often not sufficient to offset the broader economic burden faced by ordinary citizens.

For African countries that are net oil importers, the consequences are even more severe, as rising fuel import costs not only widen trade deficits and contribute to currency depreciation but also increase exposure to sovereign debt distress.

Effects of Oil Price Shocks on Business Operations

The effects of geopolitical tensions in global oil markets become most visible at the business level, where macroeconomic shocks translate directly into operational challenges. As oil prices fluctuate due to conflict and uncertainty, businesses, particularly in energy-dependent economies, face rising and unpredictable costs that affect pricing, production, and planning.

One of the most immediate transmission channels is inflation. Rising global oil prices feed directly into domestic economies, increasing transportation costs and pushing up the prices of goods, especially food, manufactured products, and agricultural inputs such as fertilisers, all of which rely heavily on logistics and fuel. Electricity costs also rise, further increasing the cost of doing business. The recent surge in fuel prices in Nigeria has created a ripple effect across multiple sectors, affecting both businesses and households.

This inflationary pressure translates directly into higher operational costs. Rising fuel prices push up the cost of moving goods and operating, especially for logistics and manufacturing firms. In Nigeria, petrol prices rose by over 50%, while diesel increased from about ₦950 to as high as ₦1,650 per litre in 2026, significantly raising operating costs for businesses.

This challenge is intensified by an unreliable electricity supply. Businesses rely not only on energy for production but also for transportation, storage, and overall operations, meaning that rising oil prices affect multiple aspects of business activity. In many African countries, unstable grid power forces firms to depend on fuel-powered generators, with nearly 48% of electricity demand being met through private generation. A survey conducted across selected firms in eight African countries found that Nigeria recorded the highest reliance on generators, with about 70.7% of firms owning one. As fuel prices rise, the cost of electricity rises with them, making it more expensive simply to stay operational.

The impact of rising energy costs extends beyond Nigeria and reflects broader structural energy challenges across Africa. Businesses account for a smaller share of total energy consumption, about 28%, compared to just under 50% globally, reflecting differences in industrial activity and energy access. This share varies significantly, ranging from around 20% in West and East Africa to over 60% in Southern Africa. This lower share does not indicate lower vulnerability; rather, it highlights limited and uneven access to reliable energy, which further constrains business productivity.

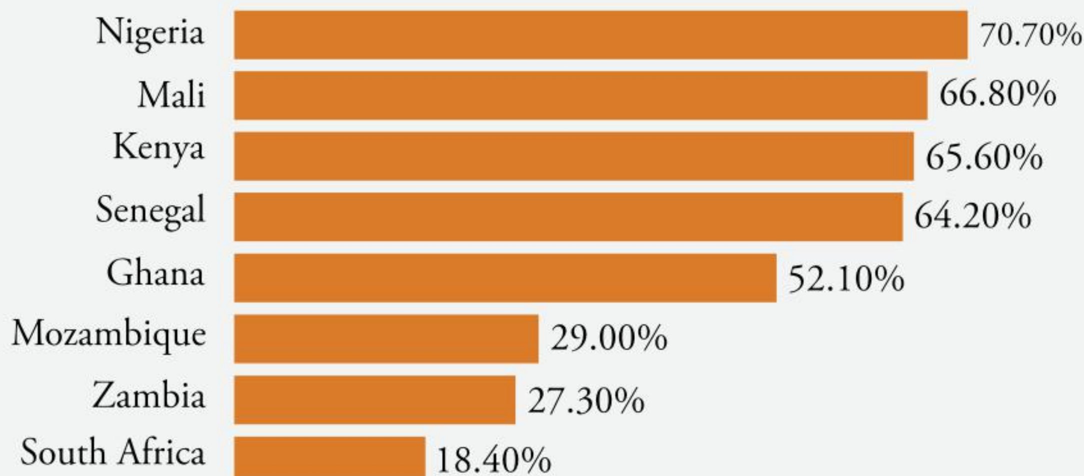
The financial burden is substantial. Nigerian MSMEs spend over $3.5 billion annually on generator power, with energy costs accounting for up to 40% of total business expenses. At the firm level, running a generator for about 8 hours daily can cost between ₦400,000 and ₦570,000 monthly, significantly reducing profit margins.

This impact is even more pronounced given the structure of the economy. In Nigeria, about 96% of all businesses are small and medium-sized enterprises (SMEs), meaning the majority operate with limited financial buffers and are highly sensitive to cost increases. As a result, rising energy costs disproportionately affect these businesses, making it harder for them to absorb shocks or maintain stable operations.

At the same time, businesses face declining consumer demand. Rising fuel costs increase transportation and food prices, contributing to inflation and reducing household purchasing power. During recent oil price shocks linked to Middle East tensions, fuel price increases of up to 65% in Nigeria led to higher living costs and reduced sales for many businesses.

Beyond cost pressures, volatility creates uncertainty, making it difficult for businesses to plan, price goods, or invest. The high cost of energy not only increases the prices of goods and services but also discourages investment, limits expansion, and reduces the competitiveness of Nigerian businesses in regional and global markets. Addressing energy challenges and ensuring access to affordable, reliable power is therefore critical for improving the business environment.

In response to rising energy costs and market volatility, many firms are turning to alternative energy sources such as solar and hybrid systems to reduce dependence on volatile fuel markets. Geopolitical tensions in oil markets translate into higher costs, reduced demand, and operational uncertainty, reinforcing the need for more resilient energy solutions.



Africa's Shift to Renewable and Hybrid Energy Systems

Rising fuel costs and persistent energy instability are increasingly pushing businesses across Africa to rethink how they source and manage power. In Nigeria, soaring fuel prices, high electricity costs, and frequent grid collapses have created a difficult operating environment, particularly for small and medium-sized enterprises (SMEs), which form the backbone of the economy.

In response, businesses are increasingly adjusting their energy strategies by turning to renewable energy solutions. Solar energy, in particular, has emerged as a practical alternative, especially in a context where over 85 million Nigerians lack access to reliable electricity and the national grid remains inefficient and unstable.

One of the most notable developments has been the growing adoption of hybrid energy systems, which combine solar power, battery storage, and backup generators. These systems are transforming how businesses manage energy. Real-world examples show strong results: a 0.6 MW food processing plant and a 4 MW brewery using hybrid systems have reduced energy costs by as much as 44%, while also improving operational efficiency and reliability. In another case, a wood processing factory reduced its energy costs by nearly half.

This trend is also evident in broader continental patterns. According to the Global Solar Council, 2025 marked Africa's fastest year of solar growth, with installations increasing by 54% to reach 4.5 GW of new capacity. Distributed solar, driven by households, businesses, and mini-grids, accounted for at least 44% of this growth, highlighting how unreliable grids and high energy costs are accelerating adoption. Private investment in clean energy has also surged, nearly tripling since 2019 to reach close to $40 billion in 2024.

At the same time, solar adoption is being supported by falling technology costs and increasing access. The cost of solar photovoltaic electricity has declined by nearly 90% since 2010, making it far more affordable for businesses and households. Imports of solar panels into Africa have also grown

significantly, increasing by about 60% in a single year.

Despite this progress, Africa's solar potential remains underutilised. The continent holds about 60% of the world's best solar resources, yet solar accounts for only around 3% of electricity generation. In many countries with low grid access, solar energy is already becoming a primary source of power for households and businesses, reinforcing the shift toward decentralised energy systems.

Ultimately, this transition toward renewable energy is a direct response to rising fuel costs, unreliable electricity supply, and the volatility of global oil markets. As geopolitical tensions continue to disrupt oil prices, businesses across Africa are not only adapting but actively shifting toward more stable and cost-effective energy solutions. In this way, geopolitical instability is not only creating economic challenges but is also accelerating Africa's transition toward a more resilient and sustainable energy future.

Geopolitical tensions continue to play a significant role in shaping global oil and gas prices, with conflicts and uncertainty, particularly in key regions such as the Middle East, driving volatility through supply disruptions, risk premiums, and market speculation. As these tensions intensify, oil prices become more unpredictable, creating ripple effects that extend far beyond producing countries and into the broader global economy.

For African economies, this volatility presents a unique and persistent vulnerability. Despite being home to several oil-producing nations. The continent remains heavily dependent on imported refined petroleum products and constrained by limited and inefficient energy infrastructure. As a result, fluctuations in global oil prices translate directly into higher fuel costs, inflation, increased business expenses, and reduced economic stability. These impacts are felt most acutely at the business level, where rising energy costs, unreliable electricity supply, and declining consumer demand continue to strain operations and limit growth.

However, these disruptions are not only exposing structural weaknesses; they are also driving change. Faced with rising costs and uncertainty, businesses and households across Africa are increasingly turning to alternative energy solutions, particularly solar and hybrid systems, to reduce dependence on volatile fossil fuel markets and ensure a more reliable power supply.

In this way, geopolitical tensions are doing more than destabilising oil-dependent economies; they are accelerating a broader shift in how energy is produced and consumed across the continent. While disruptive, geopolitical instability is also quietly reshaping Africa's energy future toward greater resilience.

People & Community

How Decentralised Systems Can Redefine **Africa's Geopolitical Leverage**

Jesse Gudah,
Energy & Agriculture Practitioner,
Founder/CEO at The TransGreenFoundation

The global energy system is once again revealing its fragility. Rising geopolitical tensions in the Middle East, particularly around strategic maritime chokepoints such as the Strait of Hormuz, highlight how quickly localised disruptions can escalate into global economic shocks. With approximately 20–25% of global petroleum liquids transiting through this narrow corridor, even the threat of escalation is enough to trigger price volatility, supply uncertainty, and inflationary pressures across energy-importing economies.

For Africa, these disruptions are not distant events. They translate almost immediately into higher fuel costs, rising transport fares, and increased food prices. What this exposes is a deeper structural reality: Africa's energy vulnerability is not only about limited access but about dependence on external systems it does not control.

This dependence is particularly paradoxical given the continent's resource wealth. Africa holds vast energy resources, including oil and natural gas reserves alongside significant hydropower and solar potential, yet it remains the most energy-insecure region globally. Over 600 million people in Sub-Saharan Africa still lack access to electricity, constraining productivity, industrialisation, and economic participation at scale.

Nigeria illustrates this contradiction clearly. Despite its vast energy resources, the country continues to experience chronic electricity shortages. Businesses and households compensate by self-generation, relying heavily on diesel- and petrol-powered generators operating outside the national grid. In many cases, small and medium enterprises allocate between 40–60% of their operating costs to energy. This reflects a systemic inefficiency that ties local economic activity to volatile global fuel markets.

The consequences are particularly acute in agriculture, where energy access directly shapes productivity and value retention. In 2025 post-harvest losses estimated between 30 and 40 million metric tonnes of food, translating to economic losses of approximately ₦3.5 trillion to ₦5 trillion ($2.56B to $3.67B). These losses occur after production, when value has already been created but cannot be preserved due to inadequate storage, processing, and logistics systems.

At the core of this inefficiency is energy. Cold storage, irrigation, transportation, and processing all depend on reliable power. Without it, food systems become fragile, waste increases, and prices rise. The result is a compounding cycle in which energy poverty drives food insecurity, deepening economic vulnerability.

Global energy dynamics amplify this fragility. The Strait of Hormuz remains one of the most critical chokepoints in the global oil trade. Any disruption, whether through conflict, sanctions, or shipping insecurity, has immediate implications for global oil prices. For African economies, the transmission is direct: higher energy costs feed into transportation and production, and ultimately into consumer prices.

Even oil-producing countries are not insulated. Limited refining capacity and import dependence mean global price shocks are quickly transmitted domestically. In effect, African economies remain exposed to geopolitical decisions made far beyond their borders.

While these shocks originate in global oil markets, their impact reveals a broader structural weakness: Africa's energy vulnerability is not limited to fuel imports but extends to the entire architecture of how energy (including electricity) is produced, distributed, and accessed.

Energy must therefore be understood not simply as infrastructure, but as a system of economic and geopolitical power. Centralised models built on large-scale generation and global supply chains concentrate control and create dependencies. For Africa, this has meant participation in a system where it supplies resources but remains vulnerable to external shocks.

This transition, however, is not without challenges. Decentralised energy systems face constraints related to financing, regulatory fragmentation, and scalability, particularly in markets with weak institutional frameworks. Large-scale grid infrastructure will still be necessary to support industrial expansion and urban demand. These limitations do not diminish the value of decentralised systems; rather, they reinforce the need for hybrid models that combine centralised capacity with distributed resilience.

The economics of renewables are also shifting. In 2024, renewables helped to avoid $467 billion in fossil fuel costs, making decentralised systems increasingly viable. These solutions are critical to achieving universal electricity access in Africa, particularly in underserved regions. Mini-grids, distributed solar, and productive-use technologies are no longer experimental; they are becoming practical tools for delivering reliable power.

The implications are significant. Decentralised systems reduce reliance on imported fuels, long supply chains, and centralised grid infrastructure, enabling more resilient and localised energy ecosystems. They also create opportunities to rethink how energy supports economic activity, particularly in agriculture.

Across Africa, less than 10% of cultivated land is irrigated, largely due to limited access to energy for water systems. At the same time, post-harvest losses remain as high as 30–40% for perishable goods.

These inefficiencies reflect structural constraints tied directly to energy access.

Where decentralised solutions have been deployed, the results are clear. Solar-powered irrigation, cold storage, and processing systems have demonstrated measurable improvements in productivity and value retention. In practical terms, energy access becomes a multiplier, enhancing output, reducing waste, and stabilising incomes.

This shift reframes energy access from a development issue to a strategic one. Decentralised systems reduce exposure to global fuel markets and geopolitical chokepoints while strengthening internal resilience. They enable countries to build localised energy ecosystems aligned with domestic needs and less vulnerable to external shocks.

In this sense, control over energy systems becomes a form of strategic autonomy. Countries that meet a significant share of their energy demand through distributed systems are better positioned to absorb disruptions and negotiate from a position of strength in international energy and climate discussions.

This perspective challenges the dominant narrative that frames Africa primarily as a resource base within centralised systems. Decentralised energy offers an alternative trajectory—one in which resilience is built from the ground up and control over energy is more widely distributed.

This does not eliminate the need for national grids. Rather, it complements them by creating layered systems that are more adaptive and shock-resistant. The result is a more balanced energy architecture where centralised and decentralised systems work in tandem.

Ultimately, the question is not whether Africa has energy resources, but how it organises and deploys them. In a world where disruptions in distant chokepoints trigger immediate economic consequences, energy dependency is a structural vulnerability that can no longer be ignored.

The shift from energy poverty to energy power is not just about expanding access; it is about redefining Africa's position in the global energy order. The question is no longer whether decentralised systems are part of the solution, but how quickly they can be scaled to secure economic resilience, food systems, and geopolitical relevance in an increasingly unstable world.

Burning Ground: Climate Insecurity, Women's Political Exclusion, and the Governance Deficit in the ECOWAS Region

Lidadi Oyakhilome Oriarewo, Community Development Practitioner, NGO Founder, and Researcher

When floodwaters tore through West Africa in 2024, the images that surfaced were devastatingly familiar: women wading through filth with children on their backs, women rebuilding mud walls with bare hands, women queuing for food aid in displacement camps. By the time the rainy season closed, OCHA reported that 7.2 million people had been affected across sixteen countries, over 642,000 homes destroyed or damaged, and more than 1.1 million people displaced. What those images did not show was a single woman seated at the ECOWAS table designing the emergency response.

This is the central contradiction defining West Africa's climate crisis: the people who bear the heaviest burden of climate disaster are the least represented in the architecture built to address it. That suffering is not inevitable. It is, in significant part, a governance failure. And until this contradiction is resolved, no regional climate strategy, however well-funded, however well-intentioned, will deliver lasting resilience.

The Unequal Geography of Climate Suffering

Climate change in West Africa is not an abstract threat. It is a present, daily emergency, and it is deeply gendered. According to the UN Environment, an estimated 80 per cent of people displaced by climate-related disasters are women and girls. In West Africa specifically, the numbers are staggering. A World Bank Groundswell Africa report projects that Niger alone could generate up to 19.1 million internal climate migrants by 2050, while Nigeria is projected to displace a further 9.4 million, and the majority of them will be women and children dependent on agriculture, fishing, and land-based livelihoods.

The mechanism of harm is not simply physical. When floods destroy farmland, women lose their primary source of income and food security simultaneously. When droughts force rural-urban migration, women and girls face heightened risks of trafficking, sexual exploitation, and hazardous labour. When resource scarcity triggers conflict, as it increasingly does across the Sahel, women bear the violence that follows. The UN Women West Africa Gender Snapshot, published in January 2026, warns that by 2030, more than 220 million women and girls in sub-Saharan Africa are expected to face extreme poverty, with climate shocks accelerating every dimension of that projection.

What makes this particularly unconscionable is that the ECOWAS region contributes just 1.8 per cent of global greenhouse gas emissions. The region did not

create this crisis. Yet it is women who pay for it with their safety, their livelihoods, and their futures.

Energy, Geopolitics, and the Women Left Outside the Room

West Africa's climate vulnerability cannot be separated from the region's energy and geopolitical landscape. The ECOWAS Renewable Energy Policy has set an ambitious target of 48 per cent renewable energy in the regional electricity mix by 2030, and cross-border infrastructure projects, including the North Core Interconnection line linking Benin, Burkina Faso, Niger, and Nigeria, represent real progress toward energy integration. But the green transition, like the climate crisis it is meant to address, is not gender-neutral.

Across the region, women remain dramatically underrepresented in energy planning and decision-making, despite being the primary energy users in rural households, often spending hours each day collecting firewood and managing the domestic energy burden. As new investments flow into solar, grid infrastructure, and renewable finance, the risk is acute: that West Africa builds a cleaner energy future while replicating the same exclusions that have defined its fossil fuel era. Energy access without women's political power is not transformation. It is a different version of the same inequality.

The geopolitical dimension further sharpens this risk. The formal withdrawal of Burkina Faso, Mali, and Niger from ECOWAS, which became official in January 2025, following the formation of the Alliance of Sahel States, has fractured the region's energy integration architecture precisely at the moment it is most needed. The North Core project, designed to deliver renewable electricity to communities across those three countries, now operates in a context of uncertain regional cooperation. Women in those communities, already the most energy-poor, already the most climate-exposed, face a compounding of insecurities that no amount of policy language can paper over.

The Governance Gap No One Is Talking About

ECOWAS has constructed an impressive architecture of climate commitments: the Regional Climate Strategy, the 2015 Climate Smart Agriculture Framework, Nationally Determined Contributions under the Paris Agreement, and the overarching Vision 2050 agenda, "ECOWAS of the Peoples: Peace and Prosperity for All". On paper, gender inclusion is acknowledged. In practice, women's meaningful participation in climate decision-making across the region remains structurally blocked.

A 2024 study cited by the ECOWAS Gender Development Centre found that women occupy just 18.4 per cent of parliamentary seats across member states, already

far below what genuine representation requires, and catastrophically low for bodies tasked with responding to crises that fall hardest on women. The regional bodies designing climate adaptation policy, the ECOWAS Commission, national environmental ministries, and security councils remain overwhelmingly male. This governance gap is not incidental. It is the product of norms that have long treated women's political authority as a concession rather than a constitutional fact.

This has direct consequences for the quality of climate policy. Research consistently demonstrates that when women participate meaningfully in governance, outcomes improve: resource allocation becomes more community-centred, early warning systems are better designed, and adaptation strategies reflect the actual lived realities of the most vulnerable. Excluding women from climate governance is not only unjust, but it is also strategically self-defeating.

What Gender-Responsive Climate Governance Actually Looks Like

Rhetoric about "including women" is insufficient. Three concrete structural changes are required.

First, ECOWAS must move beyond aspirational targets and establish binding gender quotas within its climate governance bodies, enforceable thresholds, not wishful benchmarks. The institutional foundation already exists. UN Women's regional programme, "Gender and the Green Transition in West and Central Africa," operates in active collaboration with ECOWAS, the African Development Bank, and the Global Green Growth Institute, a ready framework through which gender-responsive climate governance can be operationalised. What has been missing is the political will to activate it at the level of binding policy.

Second, national governments must align their climate adaptation budgets with the Maputo Protocol's commitment to women's full and equal participation in development. Climate finance flowing into the region, including through the Baku-to-Belém Roadmap, adopted at COP30 to mobilise at least $1.3 trillion annually in climate finance by 2035, must carry explicit gender conditionalities. Post-COP30 analysis has been blunt: nowhere in the final Roadmap texts is there a firm commitment that any meaningful share of that finance will reach gender-responsive initiatives or women-led organisations. That omission is a political choice, and it can be reversed.

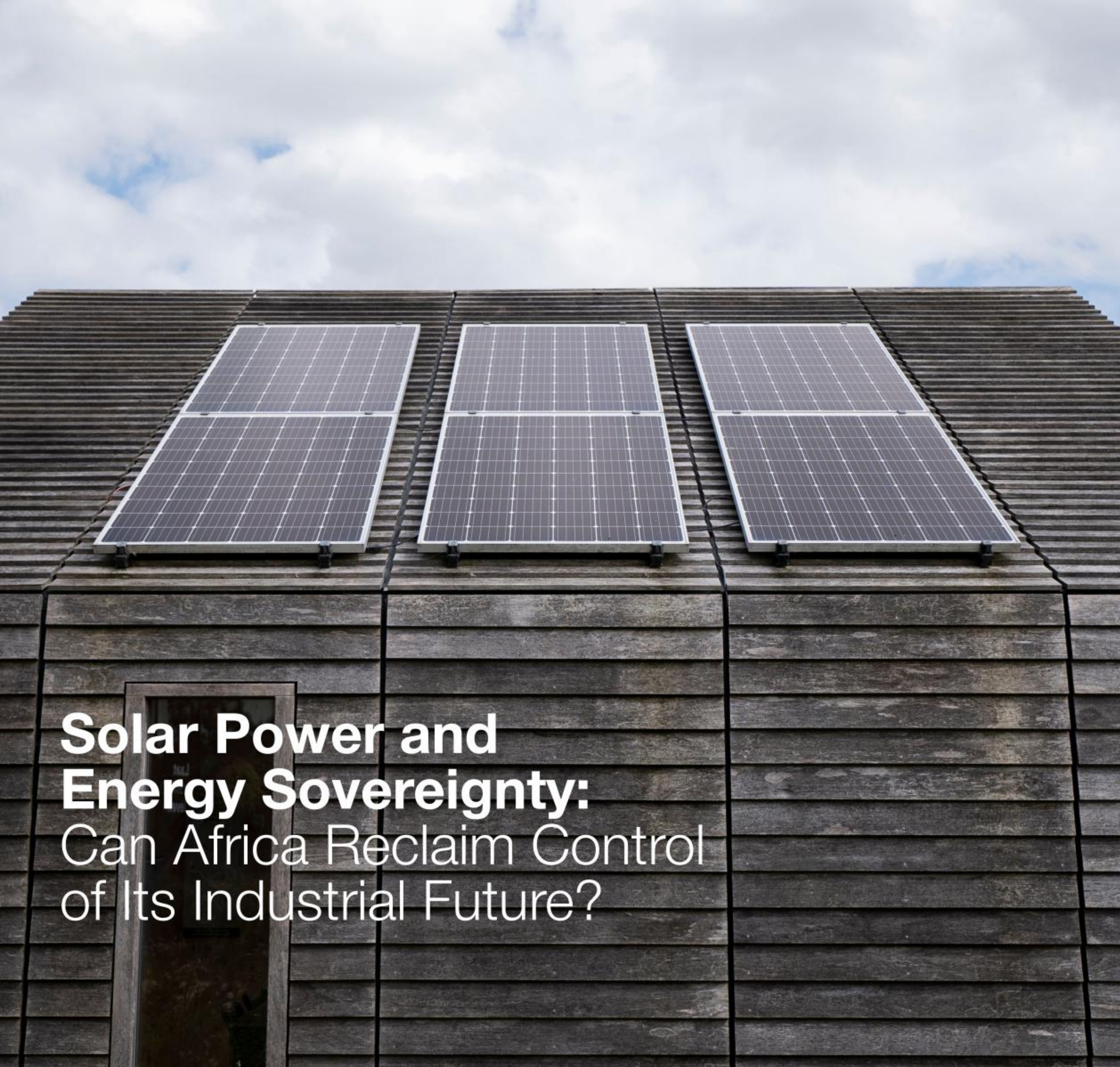
Third, the ECOWAS Regional Climate Strategy must embed community resilience with women's leadership demonstrably strongest as a primary security instrument, not a footnote appended to military response plans. In northern Nigeria, the Lake Chad basin, and the coastal communities of Senegal and Ghana, women are already organising collective adaptation. The region's governance architecture must recognise, resource, and elevate this work.

Resilience Is Not Gender-Neutral

West Africa stands at an inflexion point. The fracturing of ECOWAS, the acceleration of climate displacement, and the ongoing scramble over energy geopolitics are converging into a single urgent question: who gets to shape the region's future? The remaining bloc has both a challenge and an opportunity to demonstrate, credibly and concretely, that security and gender equity are inseparable, and that a just energy transition cannot be built on the same exclusions that have long defined the region's politics.

The ground is burning. Women are already fighting the fire with inadequate tools, from outside the room where decisions are made. Africa cannot afford a climate strategy, or an energy future, that leaves half its population at the door.

The question is not whether West Africa can afford gender-responsive climate governance. It is whether the region can survive without it.



Solar Power and Energy Sovereignty: Can Africa Reclaim Control of Its Industrial Future?

Sunmibola Fatimah Quadri,
Researcher

Industrialisation cannot succeed without stable and affordable electricity. Across Africa, unreliable power supply continues to weaken manufacturing, increase operational costs, and reduce competitiveness. Many factories rely on diesel generators to compensate for weak national grids, driving up production expenses that are eventually transferred to consumers.

The effects ripple across the wider economy. Small and medium-sized enterprises, which form the backbone of many African economies, often lose productive hours to blackouts, damaged equipment, and unstable supply.

Yet within this crisis lies an opportunity. Solar energy offers Africa more than an environmental solution; it presents a pathway towards industrial transformation and energy sovereignty.

Why Solar Matters Beyond Climate Politics

Solar energy is often framed as part of the global fight against climate change. For Africa, however, its importance is more immediate and economic. Solar power offers the possibility of decentralising electricity generation and reducing dependence on costly fossil fuels.

Unlike traditional electricity systems that depend on fragile national grids, solar energy can function through mini-grids and off-grid systems capable of supplying power directly to factories, industrial clusters, and underserved communities. This decentralised structure could allow businesses to bypass unstable electricity networks entirely.

The economic case for solar has also strengthened significantly in recent years. As global solar panel and battery prices continue to fall, renewable energy has become increasingly cost-competitive. Businesses burdened by diesel generator expenses may find solar systems a more stable long-term investment, particularly as currency instability and global oil price fluctuations continue to affect African economies.

Solar energy could also support broader industrial expansion. Renewable-powered agro-processing centres, manufacturing hubs, cold storage facilities, and data centres could strengthen local value chains while reducing operational costs. The telecommunications sector, one of Africa's fastest-growing industries, also stands to benefit. Telecom operators currently spend heavily on diesel-powered generators to keep mobile towers operational, especially in rural communities. Solar-powered infrastructure could lower operating costs, improve network reliability, and expand digital access across underserved regions.

Solar power, therefore, is not simply about lighting homes. It has the potential to become industrial infrastructure.

The Risk of a New Dependency

Despite its vast renewable potential, Africa risks entering the green energy transition from a position of dependence rather than control. While many African countries are rapidly adopting solar technology, the continent still imports most of the systems expected to power its future.

China currently dominates global solar panel manufacturing, while European governments, development banks, and Western financial institutions shape much of the financing behind renewable energy projects in Africa. This imbalance raises a critical question: can Africa achieve energy sovereignty while relying on foreign powers for technology, financing, and infrastructure?

The paradox becomes sharper when viewed against Africa's mineral wealth. The continent possesses large reserves of cobalt, lithium, manganese, and rare earth minerals essential to batteries and renewable technologies. Yet many African countries continue exporting raw materials while higher-value manufacturing occurs elsewhere. Africa supplies the resources powering the global green transition without fully participating in the industrial value chain.

Renewable financing also introduces new vulnerabilities. Large-scale solar projects across the continent often depend heavily on foreign loans and external investment. Without stronger local manufacturing capacity and technology transfer, Africa risks replacing fossil fuel dependency with a new form of green dependency.

Reclaiming Industrial Control

For solar energy to truly transform Africa's industrial future, the continent must move beyond consumption and build ownership across the renewable value chain. This begins with local manufacturing. African countries could invest in solar panel assembly plants, battery production facilities, and local processing industries for critical minerals. Retaining more stages of production within the continent would create jobs, strengthen

industrial capacity, and reduce external dependence.

Regional cooperation will also prove essential. Strengthening African power pools and cross-border renewable infrastructure could improve electricity distribution while supporting industrial development across multiple economies. A more integrated continental energy system would reduce fragmentation and allow countries with abundant renewable resources to support neighbouring states.

Governments must also align industrial policy with renewable energy goals. Incentives for local production, investments in technical skills, and stronger technology-transfer frameworks will determine whether Africa merely consumes renewable technologies or actively produces them. Public-private partnerships could further support African-owned clean energy firms and local innovation ecosystems.

Energy sovereignty is not simply about generating electricity. It is about owning the systems behind it.

Beyond Sunlight: The Fight for Energy Sovereignty

Solar power gives Africa a rare opportunity to redefine its industrial future. The continent possesses the sunlight, the minerals, and the market needed to become a major player in the global green economy. Yet sunlight alone will not guarantee sovereignty.

Without ownership of technology, infrastructure, manufacturing, and financing, Africa risks reproducing the same extractive patterns that shaped the fossil fuel era, this time under a green banner. The real challenge is no longer whether Africa should adopt solar energy, but whether it can harness the transition to build industries, create value locally, and reclaim control over its economic future.

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