## FEATURE ARTICLE

### Strategic role of natural gas in advancing sustainable development in Sub-Saharan Africa

As the international community marked World Sustainability Day on 28 October 2026, attention focused on progress towards achieving the Sustainable Development Goals (SDGs). More than a decade has passed since the UN General Assembly adopted the SDGs in September 2015, leaving only four years until the deadline of 31 December 2030. Despite sustained international efforts, progress remains deeply inadequate and uneven, as highlighted in The Sustainable Development Goals Report 2026, published by the UN in July 2026. This shortfall is particularly evident in Sub-Saharan Africa (SSA), where widespread poverty, food insecurity and limited access to essential public services continue to hinder development. These persistent challenges affect all three interrelated dimensions of sustainable development: economic, social and environmental.

Economic development in SSA remains significantly below that of other world regions, with SSA having the lowest GDP per capita globally. In 2025, GDP per capita in SSA stood at approximately $5,800 in PPP terms (current international dollars), up from $4,200 in 2015. By comparison, the global average rose from $15,300 to $25,700 over the same period, underscoring the persistent income disparity. Many countries in the region continue to face structural constraints, including limited economic diversification, low productivity, inadequate infrastructure and insufficient investment, which impede industrialisation and long-term economic growth.

Social progress in SSA is constrained by persistent poverty and limited access to essential services, including healthcare, education and sanitation. The region accounts for two-thirds of the global population living in extreme poverty. These challenges are compounded by high levels of energy poverty and inadequate energy infrastructure. Around 600 million people, or 45% of SSA's population, lack access to electricity, representing 85% of the 655 million people worldwide without electricity. Similarly, around 1 billion people, or 77% of SSA's population, lack access to clean cooking, accounting for nearly half of the 2 billion people worldwide without access to it.

Environmental sustainability in SSA is undermined by the extensive use of traditional biomass for cooking, as fuelwood and charcoal contribute to forest degradation and expose households to harmful indoor air pollution. Moreover, continued reliance on oil and coal for power generation drives up greenhouse gas emissions and air pollution. These challenges are further compounded by the region's growing vulnerability to climate change, limited adaptive capacity and restricted access to cleaner energy alternatives, particularly among low-income and rural households.

Persistent sustainable development challenges in SSA are closely linked to low levels of energy consumption and reliance on carbon-intensive fuels. Adequate and reliable energy supplies are essential for expanding economic activity, supporting industrialisation, creating employment, improving access to healthcare and education, enhancing agricultural productivity, and ensuring the provision of clean water and sanitation. Although primary energy consumption in the region, excluding biomass, increased from 10.3 EJ in 2015 to 12.3 EJ in 2025 (Figure i), representing a compound annual growth rate of 1.8%, SSA's share of global primary energy consumption excluding biomass remained broadly unchanged at only 2%, highlighting the limited scale of its modern energy supply. Reflecting the severity of energy poverty across the region, per-capita primary energy consumption in SSA, excluding biomass, stood at just 9.3 GJ in 2025, the lowest level globally and well below the global average of 73 GJ. This substantial energy deficit underscores the challenge of meeting the region's growing energy needs while improving living standards.

Addressing this energy deficit requires balancing the often-competing priorities of energy addition and energy transition. Given SSA's substantial unmet energy needs and limited access to modern energy services, priority should be given to energy addition, alongside a gradual energy transition.

Energy addition is essential to SSA's economic and social development. The region accounts for 16% of the global population but only 3.6% of global GDP in PPP terms, highlighting the significant disparity between its demographic weight and economic output. Narrowing this gap requires expanding energy supply, as energy is a cross-cutting enabler of all 17 SDGs, not only SDG 7. Reliable and affordable energy underpins industrialisation, food security, healthcare and education, access to clean water and climate action, among other development priorities.

Energy transition is also important for reducing the environmental and health impacts associated with energy consumption. Although the region accounts for only 3% of global greenhouse gas emissions, equivalent to 1.3 Gt $CO_2e$, SSA relies heavily on biomass, which remains the dominant source of total primary energy consumption, exceeding the combined contribution of all other energy sources (Figure ii). Biomass consumption in SSA nearly doubled between 1990 and 2025, reaching nearly 13 EJ and accounting for 22% of global biomass consumption. The combustion of traditional biomass, particularly fuelwood and charcoal, can generate substantial direct $CO_2$ emissions per unit of energy, while its widespread use contributes to forest degradation and harmful indoor air pollution, increasing health risks and environmental pressures across the region.

**Figure i: Primary energy consumption in SSA, excluding biomass, 1990-2025**

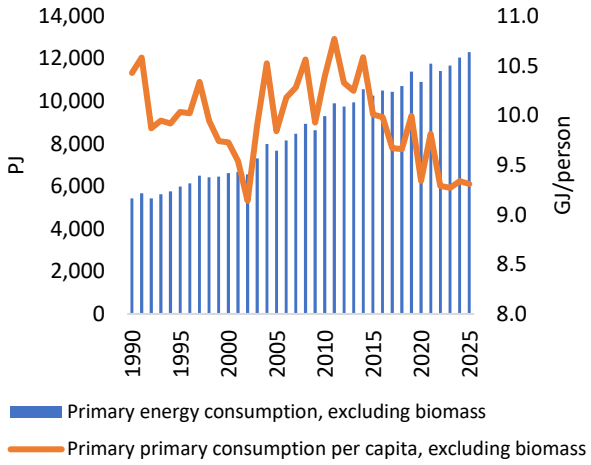
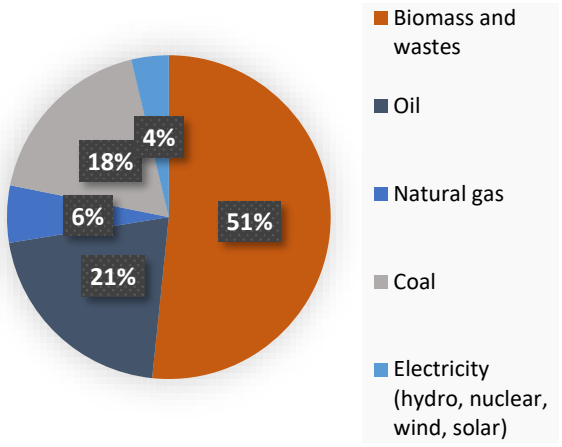



**Figure ii: Total primary energy consumption in SSA by energy source, 2025**




*Source: GECF Secretariat based on data from Enerdata and Energy Institute*

However, expanding energy supply in SSA faces significant constraints across available energy sources. Despite abundant solar and wind resources, SSA accounts for only 0.7% of global installed solar capacity and 0.3% of global installed wind capacity. Scaling up these sources would require substantial investment in generating capacity, transmission networks, energy storage and backup generation. Other energy sources also face constraints. Nuclear power currently operates only in South Africa within SSA, while wider deployment would require substantial investment and long development periods. Hydropower projects face high capital requirements and long construction periods, while generation can be vulnerable to drought in some countries. Although coal and oil can contribute to energy supply, their higher carbon emissions and other environmental and health impacts make them less suitable for supporting a lower-emissions development pathway.

Against this backdrop, natural gas offers SSA a critical opportunity to accelerate energy addition by providing reliable and affordable energy from its abundant resources. At the same time, natural gas can facilitate a pragmatic, just and balanced low-carbon energy transition, as it emits less $CO_2$ per unit of energy produced than coal, oil and traditional biomass, which together account for 90% of SSA's primary energy mix. Furthermore, natural gas-fired power generation can provide flexible backup for intermittent renewable energy sources, facilitating their integration into the region's energy systems and contributing to SDGs related to environmental sustainability and climate action.

Major upstream discoveries over the past two decades, particularly offshore, highlight SSA's gas resource potential, including both non-associated and associated gas. According to Rystad Energy, the region holds 7.6 tcm of proven gas reserves (4% of the global total), of which Nigeria accounts for 6 tcm. It also has 33 tcm of technically recoverable resources (TRR; 5% of the global total), concentrated largely in Nigeria, Mozambique, Tanzania, Senegal, Mauritania and Angola. With gas production reaching 90 bcm in 2025 (Figure iii) and major gas projects advancing, SSA is poised to become an increasingly important driver of global gas supply growth over the medium to long term.

At the same time, gas consumption in SSA is increasing but remains insufficient to address the region's energy deficit, with demand concentrated in power generation and industry (Figure iv).

In power generation, natural gas can play a key role in accelerating economic development and addressing low electricity access while improving living standards. Total electricity generation in the region reached 560 TWh in 2025, accounting for 1.7% of global output. This equates to just 440 kWh per capita, around nine times lower than the global average. Coal dominates the region's power mix, accounting for 38% of generation, largely driven by South Africa, while oil contributes 7% (Figure v). Despite SSA's substantial gas resources, natural gas accounts for 14%, or 80 TWh, which is lower than the gas-fired power generation in Germany, Türkiye and Thailand individually. Expanding gas-fired generation can also facilitate coal- and oil-to-gas switching, reducing emissions.

In the industrial sector, natural gas can play a key role in industrialisation by providing process heat across a wide range of industries and serving as a feedstock for fertilizer and petrochemical production. Expanding domestic industries could reduce import dependence, with fertilizer manufacturing improving fertilizer availability, boosting agricultural productivity and strengthening food security, and the petrochemical industry diversifying the industrial base.

**Figure iii: SSA's gas production by country, 2000-2025**

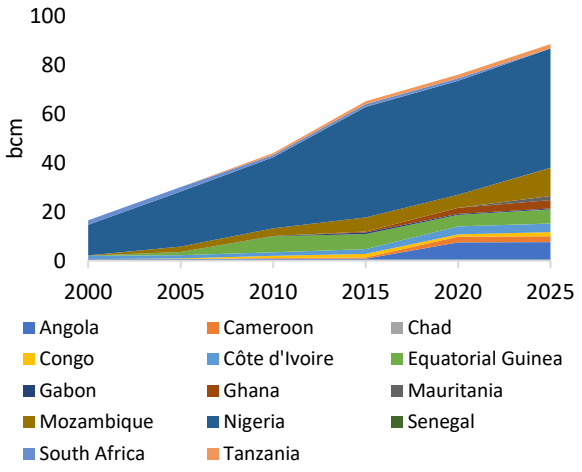
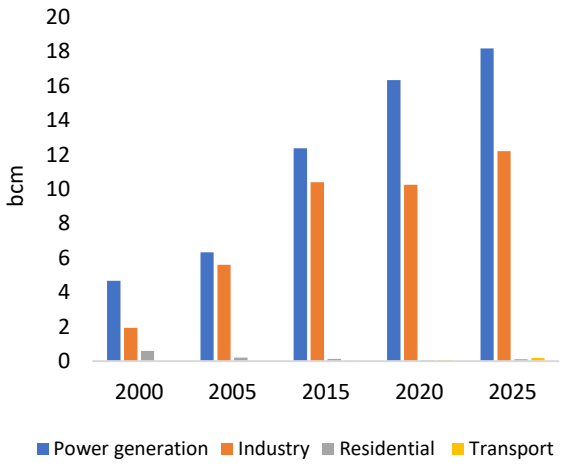



**Figure iv: SSA's gas consumption by sector, 2000-2025**




*Source: GECF Secretariat based on data from Cedigaz, Enerdata and Energy Institute*

One major challenge facing SSA is striking a better balance between domestic gas consumption and exports (Figure vi). In some LNG-exporting countries, domestic gas use remains negligible, limiting the contribution of natural gas to local energy needs and economic and social development.

**Figure v: Power mix in SSA by energy source, 2025**

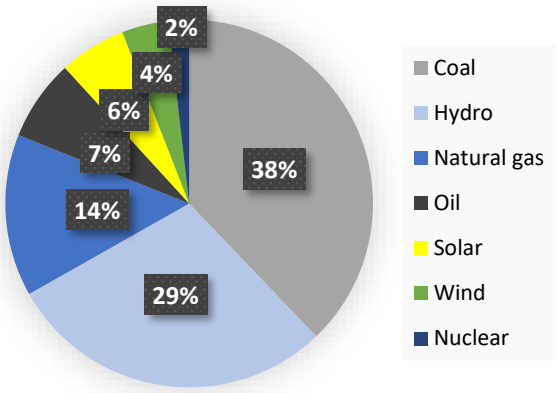
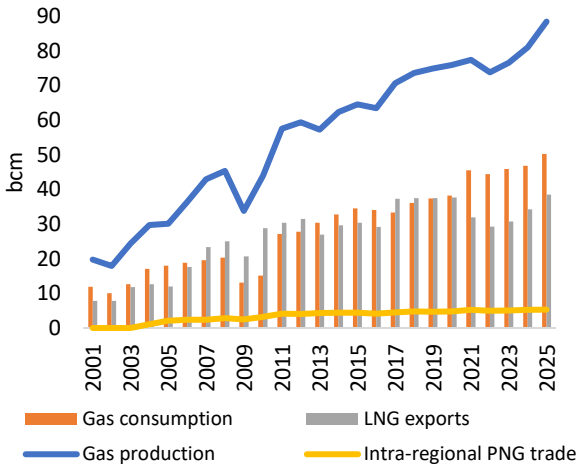



**Figure vi: Trends in the SSA gas market, 2000-2025**




*Source: GECF Secretariat based on data from Ember and Cedigaz*

Greater priority should therefore be given to domestic gas use, supported by expanding midstream and downstream infrastructure to translate the region's abundant gas resources into broader economic benefits. This requires policies that encourage investment in domestic gas markets, promote industrial development, generate employment and strengthen local supply chains.

At the same time, gas exports offer important opportunities to monetise SSA's gas resources, attract much-needed international investment and generate stable government revenues. The region's geographic location provides access to major LNG markets, with West African suppliers relatively close to Europe and East African suppliers well positioned to serve Asia. Unlike LNG exports from some Middle Eastern countries, which were severely disrupted by the 2026 crisis, SSA's LNG exports benefit from shipping routes that avoid certain major maritime chokepoints, reducing exposure to geopolitical risks. In addition, pipeline infrastructure can complement LNG exports by connecting SSA's gas-producing countries with European markets through North Africa. To translate these export opportunities into broad-based benefits, effective fiscal and governance frameworks must ensure that producing countries retain a fair share of export revenues and invest them in economic diversification and social progress.

Alongside exports to overseas markets, regional gas market integration can enable the expansion of intra-regional gas trade, offering important opportunities to strengthen energy security and improve access to affordable energy across SSA. Cross-border pipelines can link resource-rich countries with neighbouring markets lacking sufficient domestic supplies, enabling gas trade at competitive prices agreed by the parties under bilateral agreements. Joint development of transboundary resources, exemplified by the Greater Tortue Ahmeyim gas field shared by Senegal and Mauritania, can enhance regional cooperation and resource utilisation. Potential gas pipeline routes under discussion, particularly along the West African coast and through the Trans-Saharan corridor, could further expand regional gas trade and strengthen market connectivity. By diversifying supplies and improving access to natural gas, regional gas market integration could advance the three dimensions of the energy trilemma: energy security, affordability and environmental sustainability.