



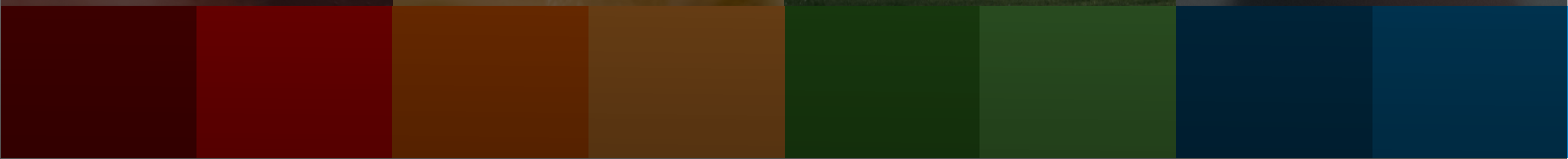
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Fiscal Policy and Energy Consumption in Africa



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Abstract

This chapter examines how fiscal policy influences energy consumption across Africa. While countries like the DR. Congo lead in renewable energy use, others, such as Algeria, remain reliant on fossil fuels, and alternative sources and nuclear energy are still minimal. Fiscal policy tools including subsidies, public investment, and procurement boost energy consumption. Development partners also support these efforts through financial aid, policy dialogue, and technical assistance. However, several challenges hinder progress, including poorly targeted subsidies, limited fiscal space, insufficient investment capital, fragmented regional policies, low public trust, inadequate data systems, and weak institutional capacity. To overcome these obstacles, governments are encouraged to implement targeted tax incentives and investment allowances to promote private sector involvement in off-grid and mini-grid renewable energy initiatives, especially in underserved areas.

Keywords: Fiscal Policy, Sustainability, Energy Consumption, Africa

1 Introduction

Energy consumption is a critical component in the development and success of every economy. It powers industries, supports transportation, enables technological advancement, and drives productivity across various sectors. Energy consumption is the amount of energy used by individuals, organizations, systems, or entire economies over a period of time. Reliable and affordable energy supplies are essential for economic growth, improved living standards, and poverty reduction (Jinapor et al., 2025a). As economies expand, their energy needs also increase, making energy management and sustainability vital. Countries with efficient energy infrastructure tend to attract more investment, foster innovation, and sustain long-term development. For example, investments in advanced solar technology, including the massive Mohammed bin Rashid Al Maktoum Solar Park, have positioned the United Arab Emirate (UAE) as a leader in renewable energy, fostering new business opportunities (Dubai Electricity & Water Authority, 2023). Also, China has attracted increased foreign direct investment (FDI) as a result of its robust energy consumption, well-developed energy infrastructure, and commitment to energy efficiency (Zhang & Zhang, 2022; Zhang et al., 2023). Therefore, ensuring access to clean, sufficient, and affordable energy is not only a prerequisite for economic progress but also a key factor in achieving sustainable development goals (SDGs).

Given the practical and empirical evidence that energy consumption drives economic development and fosters inclusivity (Amin & Alam, 2018; Gyimah et al., 2022; Jinapor et al., 2025a; Stern, 2019), Africa is increasingly prioritizing energy utilization as a key pillar for its growth and development agenda. For instance, in 2022, the Chairman of the African Union (AU) at the time, emphasised the strategic use of Africa's vast energy resources to foster development and tackle the continent's energy access deficits. He underscored the importance of enhancing energy efficiency and advancing the exploration of clean energy alternatives, such as hydropower and green hydrogen, to support sustainable growth across the region (African Union, 2022a, 2022b). Africa is undertaking these efforts because, despite its vast energy potential, the continent still experiences low levels of energy consumption and limited access to reliable energy sources (IEA, 2023). While regions such as Asia, America, and Europe consume an average of approximately 230, 250, and 200 exajoules of energy respectively from 2010 to 2023, Africa's energy consumption remains significantly lower at just around 18 exajoules (Statista, 2025).

Existing literature highlights several factors, such as financial inclusion, foreign direct investment (FDI), financial development, and information and communication technology (ICT), as key drivers of energy consumption (Azam et al., 2021; Furuoka, 2015; Mukhtarov et al., 2022; Ozcan et al., 2022; Wu & Broadstock, 2015; Yan et al., 2018). However, limited research has specifically explored the role of fiscal policy in promoting energy consumption, particularly within the African context. Although a few studies have explored fiscal policy in relation to energy consumption in other continents, it is important to recognize that Africa's unique economic, institutional, and structural characteristics may limit the relevance and applicability of those findings to the African context (Akbar et al., 2022; Bildirici et al., 2023). Moreover, whereas previous research often relied on empirical data alone, this chapter adopts a more contextualized approach by incorporating practical examples and case studies from African countries to provide deeper, locally relevant insights. Fiscal policy is the use of government spending and taxation to influence the economy (Iddrisu et al., 2025). Hence, this chapter discusses the role fiscal policy plays in enhancing energy consumption in Africa.

This chapter is significant as it contributes to the existing literature on the role of fiscal policy in promoting energy consumption, with a particular focus on the African context. It also reinforces

the policy objectives of the African Union's Agenda 2063, specifically Aspiration 1.4, which emphasizes efforts to improve energy access and utilization. Furthermore, the chapter aligns with the United Nations Agenda 2030, particularly SDG 7, by highlighting strategies to enhance access to reliable, efficient, and clean energy across the continent.

The rest of the paper is structured as follows: Section 8.2 present the overview of the fiscal policy whereas Section 8.3 discusses energy consumption in Africa. Section 8.4 discusses the fiscal policy role in enhancing energy consumption in Africa. Section 8.5 of this chapter explores how development partners support fiscal policy initiatives aimed at enhancing energy consumption. Section 8.6 discuss the challenges government faces when using fiscal policy to enhance energy consumption in Africa. The last section concludes and provides practical implications.

2 Overview of Fiscal Policy

Fiscal policy is the use of government revenue collection (mainly taxes) and expenditure (spending) to influence a country's economic activity (Danylyshyn et al., 2021; Prempeh, 2025). It is a key tool for managing economic growth, controlling inflation, and promoting employment and income distribution (Faria-e-Castro, 2021).

Table 1: Summary of the Evolution of Fiscal Policy

Period	Nature of Fiscal Policy	Aim
18 th to 19 th Century	Classical Era	Belief in a self-regulating economy with minimal government interference; fiscal policy focused on balanced budget, law, order, and defence.
1930	Keynesian Revolution	Governments should use fiscal policy i.e., spending increases or tax cuts, to boost demand; the Great Depression spurred counter-cyclical policy adoption.
1945-1970	Post-WWII	Focus on full employment, social welfare expansion, and public infrastructure. Strong belief in government's role in stabilizing the economy.
1970-1980	Monetarist and Neoliberal Critique	Argued that excessive fiscal intervention led to inflation and inefficiency. Emphasis shifted toward monetary policy and reducing the size of government. Fiscal discipline, austerity, and balanced budgets gained prominence.
From 2008 to date	Modern Approaches	Post-2008 crisis and COVID-19 renewed support for active fiscal stimulus, with focus on sustainability, targeted spending, automatic stabilizers, and green fiscal policy to advance environmental objectives through tax and spending.

Source: Authors' Own Construct

Fiscal policy can be expansionary (increasing spending or decreasing taxes to stimulate growth) or contractionary (reducing spending or increasing taxes to curb inflation or reduce debt) (Danylyshyn et al., 2021; Faria-e-Castro, 2021). The concept of fiscal policy can be traced from the classical school of thought to the modern approaches as shown in Table 8.1

2.1 Components of Fiscal Policy

The main components of as follows:

1. Government Expenditure

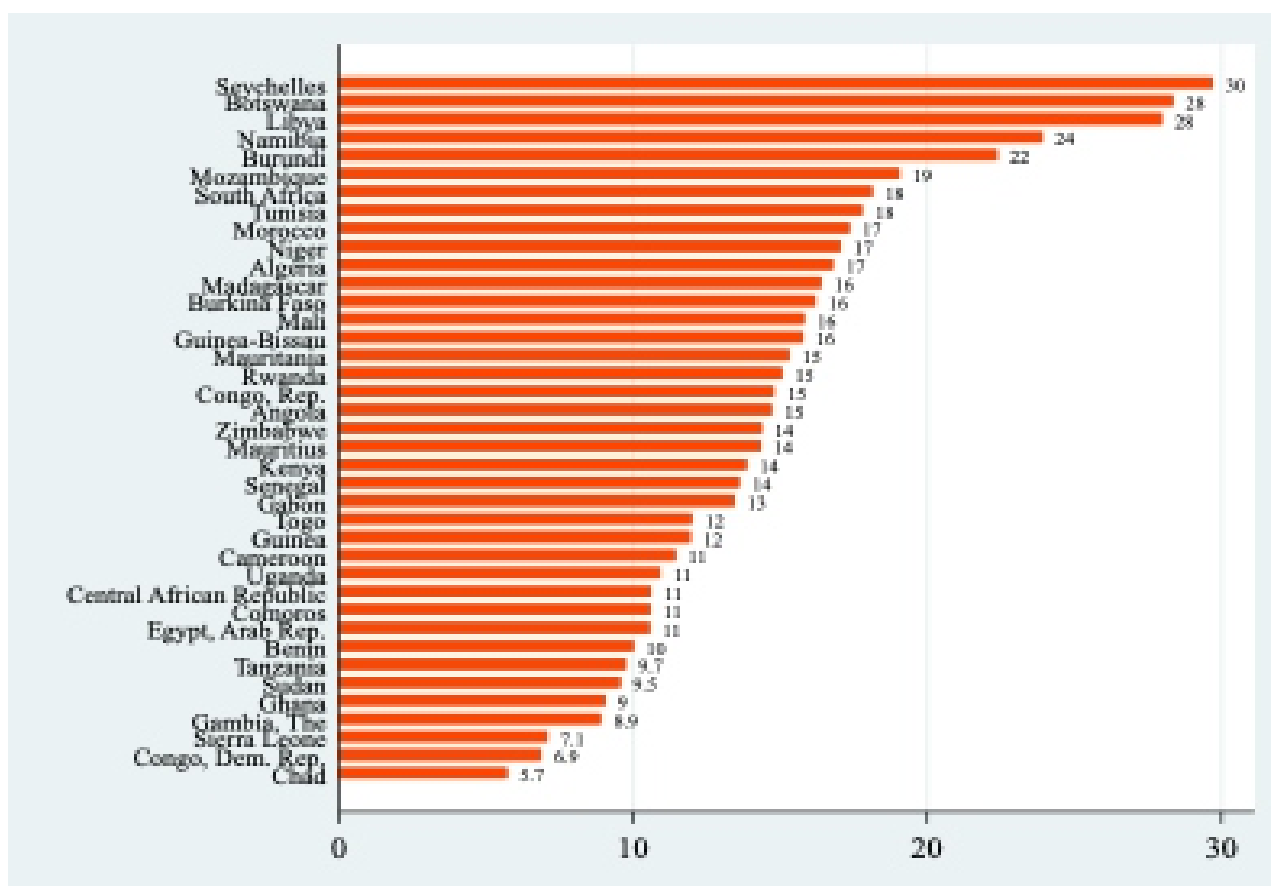
Government spending on infrastructure, education, health, energy, and defence represents a core component of fiscal policy aimed at promoting economic development and social welfare (Haque & Khan, 2019). Investment in infrastructure such as roads, bridges, and power systems, facilitates trade and connectivity. For instance, the Government of Namibia spent about US\$3.5 million to extend fibre connection across the country¹. Education spending enhances human capital and long-term productivity. Ghana is among the African countries that have made significant investments in education. Following the introduction of the Free Senior High School policy in 2017, the government allocated approximately US\$1 billion annually to the initiative, leading to an increase in student enrolment from about 800,000 to 1.3 million within five years (Quartey, 2025). Health expenditure improves public well-being and labour force efficiency. In Rwanda, the government introduced the

¹ Read more here: <https://www.ecofinagency.com/telecom/1911-46150-telecom-namibia-completes-fiber-projects-to-connect-underserved-regions> Accessed November 28 2024

Universal Health Coverage (UHC) program, an insurance scheme that covers approximately 95% of the population, by allocating 15% of its national budget to support it (Nyandekwe et al., 2020). Energy investment supports industrialization and access to power, especially in underserved areas. The Government of Ethiopia invested in the 6,450-megawatt (MW) Grand Ethiopian Renaissance Dam (GERD) project with the goal of expanding energy access, at an estimated cost of US\$5 billion (Abteu & Dessu, 2019).

Defense spending ensures national security and political stability, which are vital for economic confidence. Nigeria allocates more than US\$3 billion annually to defence, with a strategic focus on counter-terrorism efforts and strengthening border security (Olasupo, 2024). Collectively, these expenditures help stimulate demand, reduce inequality, and build the foundation for sustainable economic growth in both the short and long term. While many African countries are making efforts to increase spending to improve the delivery of public goods and services, government expenditure still constitutes a relatively small share of GDP. For instance, between 2000 and 2023, only 5 out of 39 countries recorded an average government expenditure exceeding 20% of GDP (see Figure 8.1). Also, Seychelles has consistently maintained an average government expenditure of around 30% of GDP, while Chad (5%) records the lowest level of government spending among the countries assessed (Figure 8.1).

Figure 1: Government Expenditure (%GDP) in Africa, By Country, 2000 to 2023



Source: Authors' Construct based on Data from World Development Indicators of World Bank

2. Taxation

The collection of government revenue through various forms of taxation is a fundamental aspect of fiscal policy (Kiser & Karceski, 2017). Key sources include income taxes, which are levied on individuals based on their earnings, and corporate taxes, imposed on the profits of businesses. In Africa, these rates range from 0% to 30% of either individual income or business profits (see Box 8.1). Value-added tax (VAT), excise duties, and tariffs are key indirect tax instruments widely used in African countries. VAT is a consumption tax applied throughout the production and distribution chain, while excise duties target specific goods like alcohol, tobacco, and fuel, often for public health reasons. Tariffs are imposed on imported goods to protect local industries and raise revenue. These taxes are vital sources of funding for government operations and public investment. African countries predominantly rely on indirect taxes such as VAT and excise duties rather than direct taxes like income and corporate taxes.

Box 1: Examples of Income and Business Tax Rates in Some African Countries

The following are some examples of income tax rates (individuals)

- South Africa: Progressive tax rates from 18% to 45%.
- Kenya: Progressive tax rates from 10% to 30%.
- Nigeria: Progressive tax rates from 7% to 24%.
- Ghana: Progressive tax rates from 0% to 30%.
- Egypt: Progressive tax rates from 0% to 25%.

Corporate tax rates (businesses) of some countries include the following

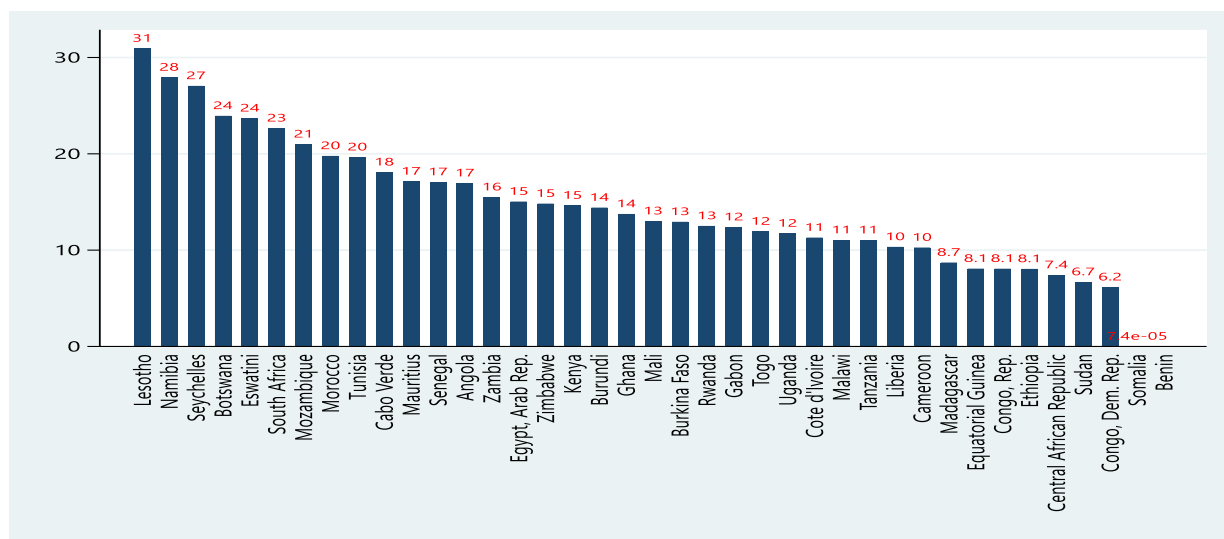
- Nigeria: 30% corporate tax rate.
- South Africa: 27% corporate tax rate.
- Kenya: 30% corporate tax rate.
- Egypt: 22.5% corporate tax rate.
- Ghana: 25% corporate tax rate.

Source: <https://tradingeconomics.com/country-list/corporate-tax-rate?continent=africa>

Between 2010 and 2018, Africa's average tax-to-GDP ratio increased from 15.1% to 16.5%, driven mainly by higher VAT collections (1 percentage point) and individual income tax (0.7 percentage points), despite a decline in corporate income tax revenue (-0.5 percentage points). Since 2014, the ratio has remained relatively stable, fluctuating between 16.4% and 16.5%, with country-level increases and decreases balancing out. In 2018, taxes on goods and services accounted for 51.9% of total tax revenue across the continent, with VAT alone contributing 29.7%. Corporate taxes comprised 19.2%, individual income taxes 17.5%, while social insurance and property taxes made up smaller shares such as 7.2% and 1.6%, respectively.

Tax-to-GDP ratios in most African countries remain relatively low when compared to global benchmarks. According to data from the World Bank, between 1990 and 2022, tax revenue as a percentage of GDP in the majority of African nations has generally remained at or below 20%. Notable exceptions include Lesotho (31%), Namibia (28%), Seychelles (27%), Botswana (24%), Eswatini (24%), South Africa (23%), and Mozambique (21%), as illustrated in Figure 8.2.

Figure 2: Average within Countries Tax Revenue (% GDP), 1990 to 2022



Source: Authors' Construct based on Data from World Development Indicators of World Bank

3. Public Borrowing

When government revenues from taxes and other sources are insufficient to cover public expenditures, fiscal authorities resort to borrowing by issuing debt instruments to finance the resulting budget deficit (Kiser & Karceski, 2017). These instruments may include treasury bills, government bonds, and external loans from international institutions or financial markets. For example, the South African government's gross borrowing requirement is projected to reach R415.7 billion, with financing sourced through instruments such as treasury bills, domestic market loans, and foreign market loans (Box 8.2). Government borrowing can be categorized as domestic (sourced from the local financial system) or external, involving loans from the international community. For instance, Tanzania borrowed 41.83% domestically and 58.17% from external source (Box 8.2).

Borrowing allows governments to maintain critical spending on infrastructure, health, education, and social programs without immediate revenue increases. Africa continues to grapple with a substantial debt burden, relying more heavily on external debt than domestic sources. Over the past decade, the region's external debt has increased markedly, reaching a record US\$656 billion in 2022, equivalent to roughly 28% of its GDP (United Nations (UN), 2024). As of 2023, African countries owed approximately US\$685.5 billion to external creditors, with total external debt reaching US\$1.152 trillion by year-end. This debt represented 24.5% of the continent's combined GDP. Projections indicate that Africa's external debt could rise to US\$1.2 trillion by 2025. In the same year, African nations are expected to allocate US\$88.7 billion towards servicing their external debt obligations, raising concerns about fiscal sustainability and the growing burden of debt repayments on national budgets.

Box 2: Borrowing Strategies of South Africa and Tanzania

1. South Africa

In the 2025/2026 fiscal year, South Africa's gross borrowing requirement is projected to reach R415.7 billion, driven largely by declining revenue collection, rising debt-servicing costs, and significant debt redemptions. To finance this requirement, the government has outlined a diversified borrowing strategy, which includes raising R38.1 billion through treasury bills to address short-term financing needs. Additionally, R343.2 billion will be sourced from domestic market loans, primarily through the issuance of government bonds, with institutional investors such as banks and pension funds as major buyers. A further R99.3 billion will be secured through foreign market loans, including concessional financing from international partners.

2. Tanzania

Tanzania's government borrowing strategy for the 2023/24 fiscal year is outlined in its Annual Borrowing Plan (ABP), which details both domestic and external financing approaches. The government aims to mobilize TZS 5,440.38 billion—representing 41.83% of total financing—through domestic sources, primarily via treasury bonds and securities, with commercial banks and pension funds serving as principal creditors. Additionally, the plan targets TZS 6,455.36 billion (58.17% of total financing) from external sources, including multilateral institutions such as the World Bank and IMF, as well as bilateral development partners

Source: Ministry of Finance, (2023), National Treasury, (2025) and Tanzania Investment and Consultant Group Limited (2024)

While debt financing can stimulate economic activity in the short term, excessive or poorly managed debt can lead to fiscal imbalances, higher interest payments, reduced investor confidence, and long-term sustainability challenges if not accompanied by sound fiscal discipline (Kim et al., 2017; Mensah et al., 2018; Rommerskirchen & van der Heide, 2023). Africa has long faced challenges in debt management, with many countries struggling to maintain sustainable debt levels. In 2003, 27 African nations were among the 36 low-income countries identified as heavily indebted, grappling with severe repayment difficulties (Megersa, 2015). These challenges were driven by systemic weaknesses in financial governance, deteriorating socio-economic conditions, and institutional instability. By 2023, the situation remains concerning, with 20 low-income African countries, representing 57% of those assessed either in or at high risk of debt distress (ONE, 2025).

4. Fiscal Incentives and Subsidies

Fiscal policy includes various tools designed to promote investment, innovation, and social welfare. Tax incentives such as credits, deductions, and exemptions encourage businesses to invest in new projects, research and development, and technology adoption (Van Parys & James, 2010). These incentives reduce the cost of capital and foster innovation. Government spending on infrastructure and education enhances productivity and supports entrepreneurship. Social welfare programs, such as unemployment benefits, healthcare, and social security, aim to reduce poverty and inequality, providing safety nets for vulnerable populations. Collectively, these fiscal tools stimulate economic growth, foster technological advancement, and ensure a more equitable distribution of resources across society.

Across Africa, a range of policy frameworks including Special Economic Zones (SEZs), the New Partnership for Africa's Development (NEPAD), and the African Continental Free Trade Area

(AfCFTA), alongside national strategies, have fostered the use of tax incentives and subsidies. Countries such as Nigeria, Kenya, and South Africa have established SEZs offering preferential tax regimes and streamlined customs procedures to attract investment and boost industrial development (Adeoti et al., 2025; World Bank, 2008). Many African countries use tax incentives and exemptions to attract foreign investment, but this often leads to significant revenue losses (Appiah-Kubi et al., 2021). In Zambia, multinational corporations like Vedanta and Associated British Foods have allegedly engaged in tax avoidance through transfer mispricing and the use of tax havens, costing the country up to US\$3 billion annually—about 12.5% of its GDP (The Conversation Africa, 2022). Similarly, in Nigeria, Shell's financial dealings through affiliates such as Shell Petroleum International Mattschappij BV have contributed to major tax revenue losses. These cases highlight the broader challenge of corporate tax avoidance in developing countries (The Conversation Africa, 2022). Several national policies across Africa have enabled governments to provide targeted subsidies to the agricultural sector to boost food production and ensure food security. For example, twelve countries have implemented input subsidy policies that provide farmers with subsidized fertilizers and hybrid seeds, with the goal of boosting agricultural productivity and supporting smallholder farmers (Box 8.3).

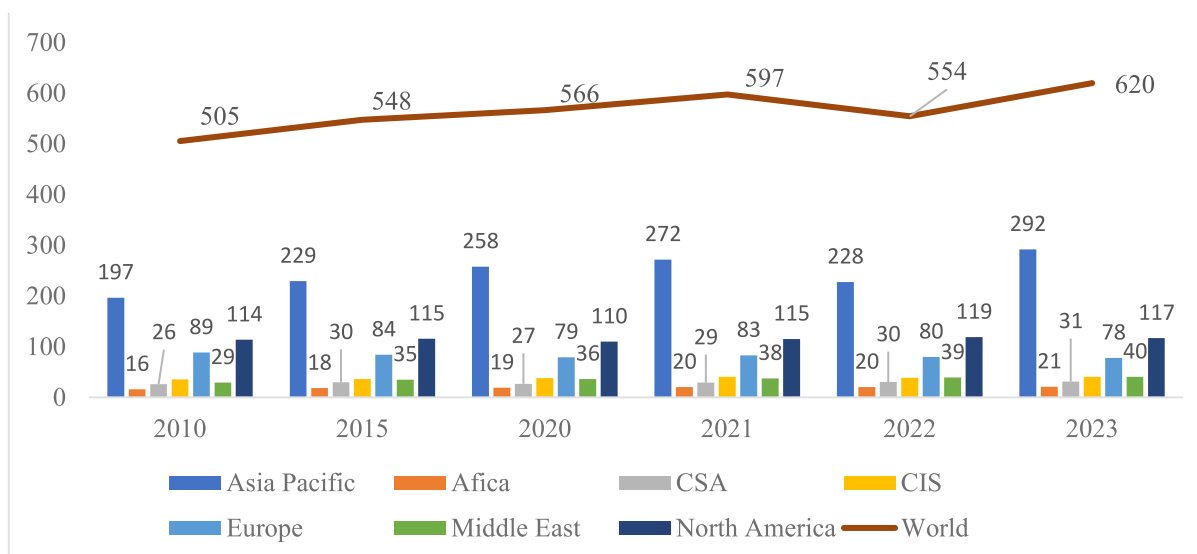
Box 3: Input Subsidies in Some African Countries

Twelve African countries have implemented smart subsidy programmes aimed at enhancing agricultural productivity and food security. Nigeria pioneered the initiative in 1992, followed by Zambia in 2002 and Malawi in 2005. Malawi's programme spurred wider adoption, prompting Kenya and Rwanda to launch theirs in 2007, with Tanzania, Senegal, Mali, Ghana, and Burkina Faso joining in 2008. Burundi initiated its programme in 2012. Mozambique conducted a pilot from 2009 to 2011, and although Ethiopia subsidizes fertilizer below cost, it does not formally classify this as a subsidy programme. These initiatives vary in design—some provide universal price subsidies, while others use targeted approaches such as vouchers for specific crops and farmers. Delivery mechanisms also differ, with some relying on private sector participation and others on state-run agencies. Common goals include improving food security, encouraging the use of inputs like seeds and fertilizers, and enhancing farmer welfare. Several programmes also aim to strengthen access to inputs and supply systems. However, only three programmes explicitly consider potential benefits to poor consumers, and only Tanzania's programme directly targets input use efficiency and soil fertility. Overall, smart subsidy programmes have evolved and adapted to national contexts and policy objectives.

3. Energy Consumption in Africa

Energy consumption is the total amount of energy required to perform a specific process, usually measured in kilowatt-hours (kWh). This energy can originate from both primary and secondary sources. Primary energy consists of natural energy sources that have not undergone any human-made transformation. These include raw fuels such as coal, oil, and natural gas, as well as energy inputs like solar or wind power. Primary energy is often used directly in activities like cooking or for generating electricity. Secondary energy on the other hand, is produced by converting primary energy into a more usable form. It is processed to enhance efficiency and accessibility for end users. Some examples include electricity, gasoline, and diesel, forms of energy that are easier to distribute and consume than their raw counterparts. Energy consumption can be broadly categorised into renewable and non-renewable sources (Jinapor et al., 2023, 2025b). Renewable energy consumption involves using naturally replenishing sources like solar, wind, hydro, geothermal, and biomass. These sources are sustainable and environmentally friendly, contributing significantly to reducing greenhouse gas emissions and promoting long-term energy security. In contrast, non-renewable energy consumption relies on finite resources such as coal, oil, natural gas, and nuclear energy, which take millions of years to form and cannot be quickly replaced. Overreliance on non-renewable sources leads to resource depletion, environmental pollution, and increased carbon emissions, highlighting the importance of transitioning to cleaner energy alternatives.

Figure 3: Global Primary Energy Consumption (Exajoules), by region, 2010 to 2023



Note: CSA is Central and South America and CIS is Commonwealth of Independent States (CIS)

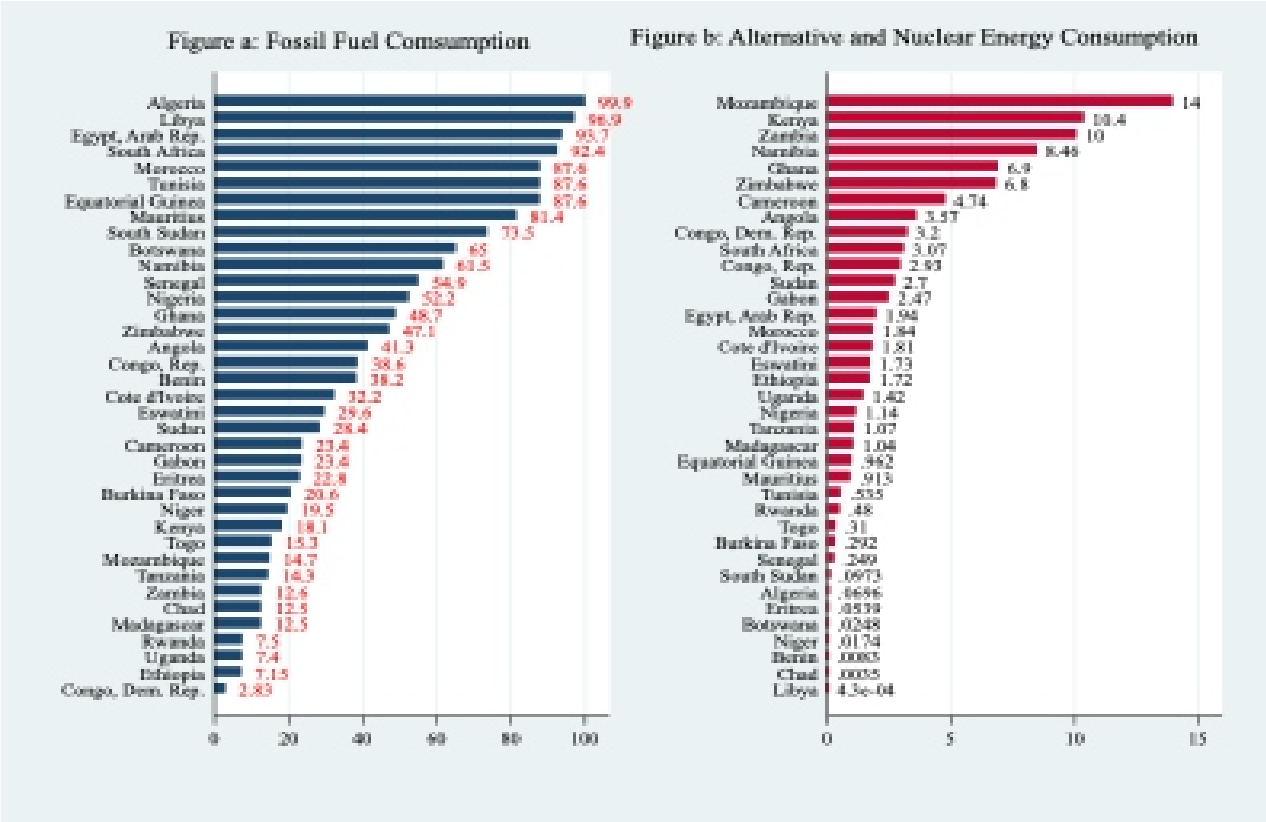
Source: Authors' Construct based on Data from Statista²

Africa has remained the world's lowest energy consumer. This is largely due to infrastructure limitations, economic constraints, and a continued dependence on traditional biomass (Ali, 2021; Appiah et al., 2021; Jinapor et al., 2025b; Olanrele & Awode, 2022). Between 2010 and 2023, Africa's energy consumption ranged from 18 to 21 exajoules, its highest level still far below other regions (see Figure 8.3). In contrast, the Asia Pacific region recorded the highest energy

² Data can be accessed from here: <https://www.statista.com/statistics/263457/primary-energy-consumption-by-region/>

consumption globally, increasing from 200 to over 292 exajoules (see Figure 8.3), driven by rapid industrialization, urbanization, and population growth (Furuoka, 2015; Shah et al., 2021). Central and South America (CSA) and the Commonwealth of Independent States (CIS) maintained moderate and stable consumption, typically between 50 and 100 exajoules (Figure 8.3). Europe experienced a slight decline in energy use, reflecting gains in energy efficiency and a shift toward sustainable sources (Buhari et al., 2020; European Commission, 2024; Fouquet & Johansson, 2008; Sineviciene et al., 2017). North America, the second-highest energy consumer, showed stable consumption trends, while the Middle East demonstrated gradual growth over the same period (Figure 8.3).

Figure 4: Fossil Fuel and Alternative and Nuclear Energy Consumption in Africa, by Country, 2000 to 2022



Notes: The remaining African countries were excluded due to a lack of available data. Fossil fuels—such as coal, oil, petroleum, and natural gas—are traditional energy sources that emit carbon dioxide during use. In contrast, alternative and nuclear energy sources are non-carbon-based and do not release CO₂ when generated.

Source: Authors' Construct based on Data from World Development Indicators of World Bank³

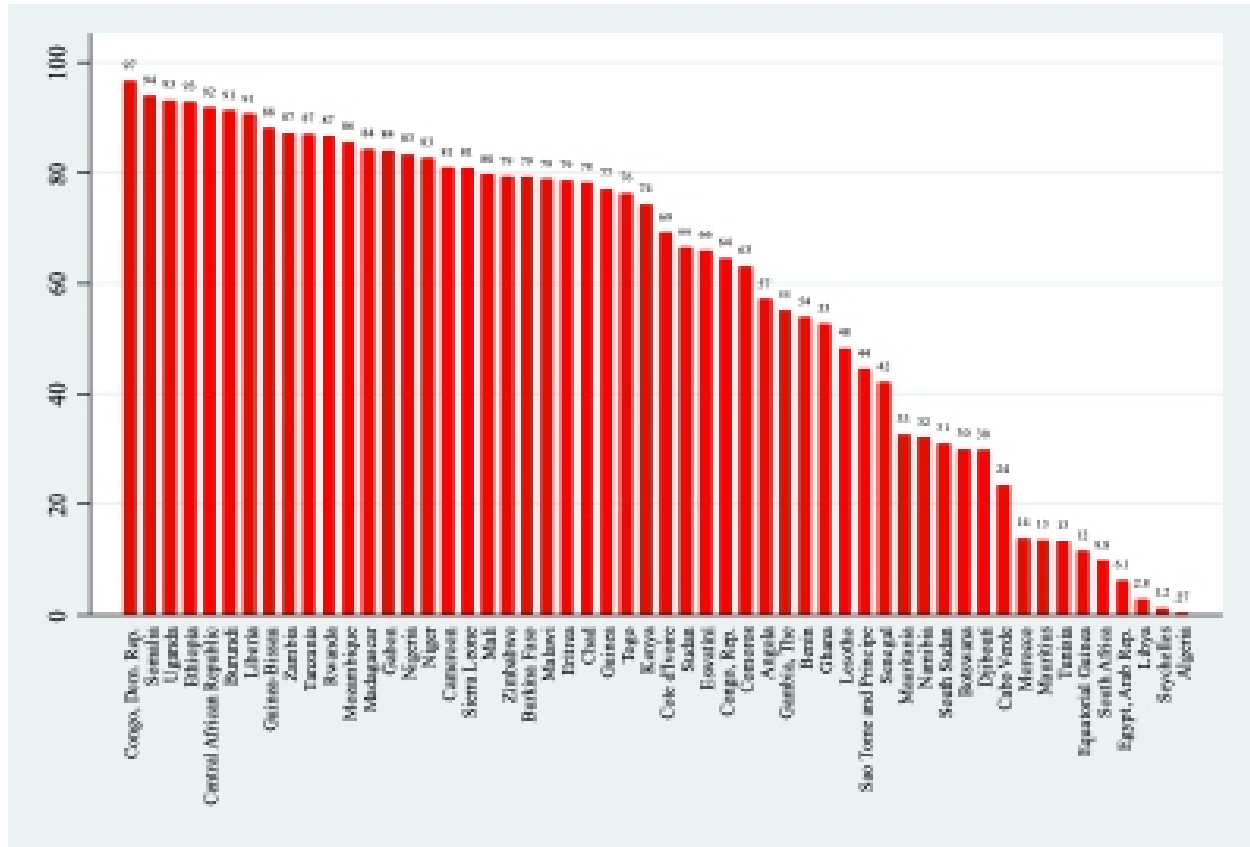
Africa meets its growing energy demand through a combination of renewable and non-renewable sources. Virtually every country on the continent utilizes a blend of energy types. For example, Algeria remains heavily reliant on fossil fuels, which accounted for an average of 99.9% of its total energy consumption during the same period (see Figure 8.5(a)). Meanwhile,

³ Data can be accessed from here: <https://databank.worldbank.org/source/world-development-indicators#>

Mozambique has incorporated alternative and nuclear energy into its energy mix, with an average alternative and nuclear energy consumption of 14% between 2000 and 2022 (see Figure 8.4(b)).

In contrast, the Democratic Republic of Congo stands out for its substantial use of renewable energy, averaging 97% of total energy consumption from 2000 to 2022 (see Figure 8.5). It is important to note that overall consumption of alternative and nuclear energy sources remains low compared to fossil fuels and renewables.

Figure 5: Renewable Energy Consumption in Africa, by Country, 2000 to 2022



Note: Renewable energy consumption is the proportion of renewable sources in a country's total final energy consumption.

Source: Authors' Construct based on Data from World Development Indicators of World Bank⁴

The rise of global challenges like climate change, the coronavirus pandemic, and growing sustainability concerns has prompted many countries to prioritize clean and renewable energy. Leading this shift are nations such as Ethiopia, Egypt, Kenya, Morocco, and South Africa, which are increasingly relying on sustainable energy sources to drive their development and reduce environmental impact (see Box 8.4).

⁴ Data can be accessed from here: <https://databank.worldbank.org/source/world-development-indicators#>

Box 4: African Countries with High Renewable Energy Projects

Across Africa, countries such as Ghana, Nigeria, and Rwanda exhibit varying levels of renewable energy projects. However, Kenya, Morocco, and Ethiopia have emerged as frontrunners in renewable energy adoption, driven by substantial investments in sustainable energy infrastructure.

Egypt has made significant strides in solar energy, with projects like the 1,650 MW Benban Solar Park, one of the world's largest photovoltaic installations, and the 150 MW Kuraymat Solar Thermal Power Plant. The country also operates numerous wind farms, including the prominent Ras Ghareb Wind Farm.

Ethiopia leads with the largest hydropower plant in Africa, generating 6,450 MW, and is further expanding its renewable portfolio with geothermal, solar, and wind projects like Adama I and II.

Kenya boasts the Lake Turkana Wind Power Project—Africa's largest wind farm at 350 MW—and the Olkaria Geothermal Power Station, which supplies 750 MW from geothermal energy.

Meanwhile, Morocco hosts the largest concentrated solar power (CSP) plant in Africa, which, along with integrated photovoltaic (PV) technology, has a total installed capacity of 580 MW. The country is also developing major wind projects, including the 301 MW Tarfaya Wind Farm, 200 MW Akhfenir Wind Farm, and is actively investing in green hydrogen initiatives.

South Africa, a major coal consumer, is working to make coal energy cleaner and more sustainable. The Medupi Power Project exemplifies this shift, using advanced super-critical boiler technology to boost efficiency and cut CO₂ emissions. With six units and a 4,764 MW capacity, the plant incorporates flue gas desulphurisation to reduce SO₂ emissions by over 90%, pulse jet fabric filters to remove 99% of particulates, and low NO_x burners to cut nitrogen oxide output. It also features lined ash dams and coal stockyards, and follows Zero Liquid Effluent Discharge (ZLED) practices, recycling all treated wastewater to protect the environment.

4 Fiscal Policy Role in Enhancing Energy Consumption in Africa

The following are the ways in which fiscal policy can promote energy consumption in Africa. These include but not limited to subsidies and incentives for the energy sector, public investment in energy infrastructure, government financial supports, price stabilisation and government procurement.

4.1 Energy Sector Subsidies and Incentives

Governments can encourage energy use, especially from cleaner sources, by providing financial support such as subsidies, tax breaks, or rebates. Subsidies reduce the cost of producing or using energy, making it more affordable for consumers and businesses (Dube, 2003). Many African countries, including Ghana, Namibia, Niger, Nigeria, South Africa, Kenya, and Uganda, implement various forms of energy subsidies aimed at promoting increased energy consumption (Clements et al., 2013). In Tanzania, the government provides up to 50% subsidy on 452,445 Liquefied Petroleum Gas (LPG) cylinders and the Rural Energy Agency (REA) is facilitating the distribution of 200,000 improved cookstoves, offering subsidies of up to 75% to promote clean cooking (Maricha, 2025). Somalia records some of the highest electricity tariffs in Africa, with rates ranging between US\$0.50 and US\$1.25 per kWh, significantly higher than Kenya's US\$0.15 and Ethiopia's US\$0.06 per kWh (International Trade Administration, 2024). However, when subsidies are directed toward fossil fuels, the consumption of renewable and clean energy tends to decline, potentially leading to higher carbon emissions. Diallo et al. (2024), conducted an empirical study using non-additive fixed-effects quantile regression, which found that fossil fuel subsidies hinder the transition to renewable energy in Africa.

Tax breaks lower the amount of tax paid on energy investments, like installing solar panels or buying electric vehicles. Rebates offer direct cash returns after purchasing energy-efficient appliances or systems. These incentives help reduce the financial burden, promote the use of renewable energy, and support the transition to a more sustainable energy system while also boosting overall energy consumption and economic activity. The government of Chad offers tax incentives and financial assurances to encourage private sector investment in solar and wind energy projects⁵. Tanzania supports solar power development through direct and indirect subsidies such as grants and tax exemptions, while the Rural Energy Fund further promotes off-grid solar PV installations and mini-grid projects (SmartSolar Tanzania, 2018). The government of Sudan incentivises investment in renewable energy and infrastructure through tax exemptions and deductions, offering capital allowances between 20% and 100%, along with annual depreciation allowances (Riak, 2024).

4.2 Public Investment in Energy Infrastructure

Direct government spending on energy infrastructure plays a crucial role in enhancing energy access and promoting consumption. By investing in the construction of power plants, governments increase electricity generation capacity, ensuring a more reliable energy supply. Expanding grid systems helps deliver electricity to underserved or remote areas, improving overall energy distribution and accessibility. Additionally, funding research and development in renewable energy technologies encourages innovation, reduces costs, and supports the transition to cleaner energy sources. Most African countries have experienced some level of government spending on energy infrastructure. For example, in February 2025, The Gambia launched its first 225kV transmission line between Brikama and Jabang, featuring a National Control Centre and substation, boosting grid stability and efficiency with a US\$23.18 million investment (Daniel, 2025; Tine, 2021). The Angolan government allocated around US\$4.5 billion toward the development of the 2,070 MW Laúca Hydropower Plant⁶. Additional examples

⁵ For more information, follow this link: <https://africa-energy-portal.org/aep/country/chad>. Accessed May 20, 2025

⁶ Read more here: <https://www.ucm.minfin.gov.ao/cs/groups/public/documents/document/zmlu/mdmx/~edisp/minfin031809.pdf>
Accessed May 20, 2025

of government expenditure on the energy sector are presented in Box 8.4. These investments enhance sufficient energy production and access which increase the consumption of energy.

4.3 Financial Support

Fiscal policies often support the adoption of energy-efficient and renewable technologies by providing financial assistance such as grants or low-interest loans to individuals and businesses. These measures lower the upfront costs associated with implementing green technologies, making them more accessible and attractive. For example, a business installing solar panels or upgrading to energy-efficient equipment may receive a grant that reduces capital costs, or a low-interest loan that spreads payments over time. Such support encourages broader participation in the transition to clean energy, fosters innovation, reduces carbon emissions, and helps build a more sustainable and resilient energy system over the long term. The government of Nigeria, in partnership with the World Bank and the African Development Bank (AfDB), has secured US\$200 million in concessional financing to support off-grid solar energy projects, including the development of 400 mini-grids and 50 metro grids, with the goal of significantly enhancing electricity access in rural communities (Willie, 2025).

4.4 Price Stabilization

Fiscal tools play a vital role in stabilizing energy prices during times of market volatility, helping to maintain steady consumption and encourage ongoing investment in the energy sector (Yin et al., 2022). Governments may implement measures such as fuel subsidies, tax adjustments, or strategic reserve releases to cushion price shocks caused by geopolitical tensions, supply disruptions, or global market fluctuations. By mitigating sharp price spikes or drops, these tools help protect consumers from sudden cost increases and provide energy producers with a more predictable market environment. This stability supports economic growth, energy security, and investor confidence, ensuring the continued development of both traditional and renewable energy sources. Angola is taking proactive measures to stabilize oil production and manage supply disruptions through strategic reserves, while implementing fuel tax adjustments to ensure price stability amid global market fluctuations (Coco, 2024).

4.5 The use of Government Procurement

When governments prioritize sustainable energy in public projects, such as constructing energy-efficient buildings, installing solar panels on government facilities, or adopting electric public transportation, it creates a strong demand for renewable technologies and services. South Africa is promoting clean energy by installing solar panels on government buildings and expanding electric bus fleets, with Cape Town's Golden Arrow Bus Services (GABS) deploying 20 buses and solar-powered charging at six depots (Kemp, 2025). Ghana has integrated solar panels on the car park shades of government agencies, inspiring private entities including shops and malls, to adopt rooftop and parking lot solar installations for energy generation (Ayisi, 2025; Oppong, 2024). This not only supports green industries but also sets an example for the private sector and citizens, encouraging them to follow suit. Increased demand drives innovation, reduces costs through economies of scale, and strengthens the overall clean energy market. Additionally, such government-led initiatives signal long-term policy commitment, which can attract investment and stimulate broader energy consumption across the economy, supporting both environmental goals and economic development.

5. Role of Development Partners

This section explores how development partners contribute to strengthening fiscal policy to promote increased and sustainable energy consumption. Some of these roles include

5.1 Financial Assistance

Development partners provide critical financial support through grants, concessional loans, and guarantees, which empower governments to invest in vital energy infrastructure and advance clean energy initiatives. Grants offer direct funding for renewable energy projects and capacity-building programs, while concessional loans, offered at lower interest rates and with favourable terms, help finance large-scale infrastructure such as power plants and transmission networks. Guarantees reduce the financial risk for private investors, encouraging more public-private partnerships in the energy sector. This financial assistance also supports governments in implementing subsidy reforms, shifting resources away from fossil fuels toward sustainable energy, and ensuring a more efficient and equitable energy system. In Kenya, the World Bank supports the government's efforts to enhance the financial viability of electricity distribution and increase access to clean energy through programs like the Kenya Green and Resilient Expansion of Energy Program (GREEN).⁷ Through the Morocco Sustainable Energy Financing Facility (MorSEFF), development partners contribute to strengthening fiscal policy measures aimed at improving energy efficiency and promoting sustainable energy consumption in Morocco (Box 8.5).

Box 8.5: Morocco Sustainable Energy Financing Facility

The Morocco Sustainable Energy Financing Facility (MorSEFF) was launched in 2015, a €110 million credit line facility was developed by the European Bank for Reconstruction and Development (EBRD), with support from the European Union (EU), in partnership with the European Investment Bank (EIB), Agence Française de Développement (AFD), and Kreditanstalt für Wiederaufbau (KfW). The facility provided financing through local partner financial institutions to support 257 sustainable energy projects in Morocco's private sector, targeting small and medium-sized enterprises (SMEs) and corporates. The investments focused on energy efficiency and renewable energy initiatives, including small-scale renewable projects, commercial and building sector efficiency upgrades, and clean energy installations. Two financial institution groups—Bank of Africa-Groupe BMCE (with Maghrebail) and Group Banques Populaires (with Maroc Leasing)—delivered the loans. The facility's impact includes over 284,000 MWh/year of energy saved and a reduction of 87,275 tons of CO₂ annually. Technical assistance, funded by the EU Neighbourhood Investment Facility (EU NIF) and the EBRD SEMED Multi-Donor Account, supported partner banks through training, product design, and marketing. Advisory services for sub-borrowers included energy audits, technical solution selection, and project implementation support. Additionally, incentive payments funded by the EU NIF encouraged effective participation and successful project execution across all stakeholders.

Source: <https://ebrdgeff.com/morocco-geff/francais-morocco-sustainable-energy-efficiency-financing-morseff-programme/> Accessed May 24, 2025

⁷ Read more here:

https://documents1.worldbank.org/curated/en/099052623095525502/pdf/BOSIB008151b580100babb0cdc008ea0775.pdf?utm_source=chatgpt.com Accessed May 24, 2025

5.2 Monitoring and Evaluation

Development partners play a vital role in monitoring and evaluating the effectiveness of fiscal policies related to energy consumption and sustainability (Prempeh, 2025). By supporting data collection, analysis, and reporting systems, they help governments assess whether fiscal measures, such as subsidies, tax incentives, or public investments, are achieving their intended outcomes. This includes tracking progress toward energy access goals, reductions in carbon emissions, and improvements in energy efficiency. Through regular evaluations and impact assessments, development partners promote transparency and ensure that public resources are used effectively. Their involvement also strengthens accountability mechanisms, helping policymakers make informed adjustments to improve the sustainability and reach of fiscal policies. A clear example is the United Nations Economic Commission for Africa (UNECA), which assesses electricity policies and regulatory frameworks, focusing on tariff structures, incentives for renewable energy, and financial sustainability (UNECA, 2023). UNECA collects and analyzes data to inform decisions on fiscal policies such as subsidies and incentives, assessing their impact on energy consumption and providing evidence-based policy recommendations (UNECA, 2023).

5.3 Technical Support and Capacity Building

Development partners play a crucial role in supporting governments to design and implement effective fiscal policies that enhance energy access and efficiency. They bring valuable technical expertise in crafting fiscal instruments such as tax incentives, targeted subsidies, and strategic budgetary allocations that encourage the adoption of renewable energy technologies and improve energy efficiency. These instruments help lower the cost of clean energy solutions, making them more accessible to businesses and households. Beyond policy design, development partners invest in capacity building by training government officials, policymakers, and local institutions. This training equips stakeholders with the necessary skills to manage and evaluate energy-related fiscal policies effectively. It also enables them to conduct thorough impact assessments to ensure policies are achieving desired outcomes and reaching intended beneficiaries. By fostering local expertise and supporting evidence-based policymaking, development partners help create a more enabling environment for sustainable energy growth and long-term economic development. Some development partners such as The African Development Bank (AfDB) implements the Africa Energy Sector Technical Assistance Programme (AESTAP), which aims to provide technical support and capacity building on effective fiscal policies, including strategies to scale up financing that governments can allocate to the energy sector across Africa (Box 8.6).

Box 6: Africa Energy Sector Technical Assistance Programme

The African Development Bank's Africa Energy Sector Technical Assistance Programme (AESTAP) provides vital knowledge and support to help countries strengthen institutional capacities and develop viable, long-term energy solutions. AESTAP operates through four strategic pillars: Knowledge, Data and Policy Dialogue; Power Sector Policy, Regulation and Planning; Sustainable Utility Transformation; and Regional Integration and Power Market Trade. These pillars fund critical upstream activities designed to create an enabling environment that attracts both public and private investments, ultimately aiming to deliver modern, affordable, and reliable energy services to all Africans. AESTAP was established in response to persistent challenges undermining energy sector development in several African countries. While progress has been made in expanding energy access, many nations continue to grapple with critical barriers, including weak policy, regulatory, and fiscal frameworks; limited institutional capacity among key public sector actors; financially fragile power utilities; and underdeveloped regional power markets. These challenges elevate investment risks and constrain the scale and flow of vital financing into the sector. In an effort to address these issues, some governments have initiated reforms such as sector unbundling, utility restructuring, infrastructure expansion, and regulatory improvements. However, these measures are often implemented as isolated interventions, lacking coordination and alignment with national development strategies. This fragmented approach diminishes the effectiveness of technical assistance and hampers efforts to attract long-term, sustainable investment. AESTAP was thus launched to provide a more integrated, strategic response to these systemic energy sector constraints.

5.4 Policy Dialogue and Advocacy

Development partners play a key role in fostering dialogue among governments, stakeholders, and experts to share best practices in fiscal policy for energy consumption. They create platforms for knowledge exchange, helping countries learn from successful experiences and avoid common pitfalls. Additionally, development partners advocate for policy coherence, ensuring that fiscal measures align with broader national development, energy, and environmental strategies. They also encourage countries to harmonise their fiscal policies with international energy and climate commitments, such as the Paris Agreement and SDGs. This alignment supports global efforts to combat climate change while promoting sustainable energy access and economic growth. An example is the 2026 Africa Energy Summit, where development partners will share ideas with various African government as to how to achieve higher energy consumption (Box 8.7).

Box 7: 2026 Africa Energy Summit

The upcoming Africa Energy Summit, hosted by Tanzania alongside the African Union, African Development Bank Group, and World Bank Group, marks a key milestone in advancing energy access across the continent. Bringing together heads of state, energy experts, and private sector leaders, the summit will focus on achieving universal, reliable, affordable, and sustainable energy. African governments will present national energy compacts, outlining reforms and short-term plans to meet their energy goals through innovative strategies and partnerships. The summit will also emphasize the vital role of international partners like the Rockefeller Foundation, SEforALL, and GEAPP in providing resources and technical support. Additionally, new spending commitments and initiatives will be unveiled to encourage African countries to increase domestic resource mobilization for green energy infrastructure. This collaborative platform aims to accelerate progress towards universal energy access while supporting climate resilience and inclusive economic development.

a. Challenges of Using Fiscal Policy to Boost Energy Consumption

While fiscal policy holds potential to enhance energy consumption in Africa, it is not without challenges. These challenges encompass, but are not limited to, inefficient and poorly targeted energy subsidies, constrained fiscal space alongside competing budgetary demands, difficulties in securing sufficient capital for energy investments, fragmented regional energy and fiscal policies, low levels of public awareness and trust, inadequate data collection and monitoring systems for energy consumption, as well as weak institutional capacity and governance frameworks.

i. Inefficient and Poorly Targeted Energy Subsidies

Fuel subsidies in Africa are designed to make energy more affordable, particularly for low-income populations. However, these subsidies are often regressive in nature, disproportionately benefiting wealthier households that consume more energy, while offering limited support to poorer communities (Couharde & Mouhoud, 2020). Moreover, these subsidies place a significant strain on public finances and divert critical resources away from investments in clean and renewable energy infrastructure (Yang et al., 2019). Efforts to reform or phase out such subsidies are politically challenging, as they can lead to public backlash and social unrest (Couharde & Mouhoud, 2020). This political sensitivity often discourages governments from pursuing meaningful reforms, despite long-term sustainability and economic benefits. For example, in Angola, the removal of fossil fuel subsidies in 2023 led to a sharp increase in gasoline prices, nearly doubling to 300 kwanza (US\$0.36) per litre and triggering deadly protests (Reuters, 2023). Similarly, Nigeria's attempt to eliminate subsidies in 2012 was abandoned following widespread strikes that brought the country to a standstill (Reuters, 2023).

ii. Limited Fiscal Space and Competing Budgetary Priorities

Many African governments struggle with limited fiscal capacity, largely due to weak domestic revenue mobilization, mounting public debt, and heavy dependence on external aid (Atingi-Ego et al., 2021). These constraints significantly restrict their ability to finance critical investments in energy infrastructure, including the expansion of electricity grids and support for clean energy technologies. As a result, providing subsidies or tax incentives to promote renewable energy

adoption becomes challenging. Moreover, governments must balance competing budgetary priorities, as essential sectors such as healthcare, education, and food security often take precedence. This fiscal pressure hampers the implementation of robust, long-term strategies needed to transform the continent's energy landscape sustainably. For example, the Democratic Republic of Congo holds immense hydropower potential, over 100,000 MW, including 44,000 MW at the Inga site, yet only about 2% has been utilised, leaving millions without reliable electricity⁸, as financial constraints continue to hinder infrastructure development despite efforts to advance major projects like Grand Inga⁹.

6.3 Inability to Raise Adequate Capital for Energy-related Investments

Limited access to long-term financing instruments significantly hampers the ability of many African governments to raise adequate capital for energy-related investments. The underdevelopment of domestic capital markets restricts opportunities to issue green bonds or infrastructure bonds targeted at financing renewable energy projects. World Economic Forum (2025), revealed that Africa receives just 2% of global green energy investment. Additionally, the lack of financial depth and investor confidence makes it challenging to attract public-private partnerships (PPP), which are crucial for scaling up energy infrastructure. For example, the World Bank initially committed US\$64.5 million grant support for Phase 3 of the Democratic Republic of Congo's Grand Inga Hydropower project but later withdrew its investment, citing concerns over a lack of transparency and governance (World Bank, 2018). These limitations reduce the effectiveness of fiscal policy tools aimed at leveraging private sector participation, resulting in slower progress in expanding energy access and transitioning toward cleaner and more sustainable energy systems across the continent.

6.4 Fragmented Regional Energy and Fiscal Policies

Efforts to promote cross-border energy trade and develop regional energy infrastructure projects in Africa face significant challenges due to disparities in fiscal policies across countries. Differences in tax regimes, subsidy structures, and budget priorities create barriers to harmonizing energy markets and coordinating investments (Ackah et al., 2024). This lack of regional fiscal coordination slows down the integration of national grids and limits the efficient sharing of energy resources between countries. As a result, potential benefits such as improved energy security, cost reductions, and increased access to clean energy are diminished. Strengthening regional collaboration on fiscal policies is essential to unlocking the full potential of Africa's energy integration efforts.

6.5 Low Public Awareness and Trust

Public misunderstanding and mistrust of fiscal energy reforms, such as subsidy removals or the introduction of energy taxes, frequently result in strong resistance and non-compliance among affected populations (Agoundedemba et al., 2023). Many citizens perceive these reforms as threats to their economic well-being, especially when the immediate benefits of such policies are unclear or poorly communicated. Building trust through inclusive consultations, transparent communication, and public awareness campaigns is essential to gain widespread support. Unfortunately, these efforts are often underprioritized or inadequately funded, which undermines

⁸ Read more here: <https://usea.org/sites/default/files/event-/Democratic%20Republic%20of%20Congo%20Power%20Sector.pdf> Accessed May 26, 2025

⁹ Read more: <https://www.andritz.com/hydro-en/hydronews/hydropower-africa/democratic-rep-congo> Accessed May 26, 2025

reform initiatives and makes it difficult for governments to successfully implement policies needed to promote sustainable energy transitions.

6.6 Inadequate Data and Energy Consumption Monitoring Systems

Fiscal planning for the energy sector in many African countries is frequently constrained by the lack of reliable and comprehensive data on energy usage patterns, consumer behaviour, and the outcomes of previous fiscal interventions. For instance, Kenya has made notable progress in geothermal and solar energy development; however, insufficient data on consumer adoption and energy efficiency continues to hinder effective policy formulation and strategic investment planning (African Union & EU Technical Assistance Facility (TAF) for Sustainable Energy, 2021). Without accurate, disaggregated data, policymakers face challenges in understanding the diverse energy needs of different regions and population groups. This data gap limits their ability to design targeted and effective fiscal policies that respond to local realities and optimize resource allocation. Consequently, fiscal measures may be poorly calibrated, resulting in inefficient spending and reduced impact, which ultimately slows progress toward achieving sustainable energy access and development goals.

6.7 Weak Institutional Capacity and Governance

Many African countries face challenges due to inadequate institutional frameworks for planning, implementing, and monitoring fiscal policies related to the energy sector (Peter Onuh et al., 2024). Weak governance structures often lead to bureaucratic inefficiencies, delays, and a lack of coordination among relevant agencies. Corruption further undermines transparency and accountability, diverting resources away from intended energy projects. For instance, Nigeria's mismanagement of fuel subsidies, marked by the diversion of funds intended for energy development due to corruption, has resulted in inefficiencies in electricity distribution and hindered progress in renewable energy projects (The Africa Report, 2017). Additionally, limited technical expertise within government institutions hampers the design and execution of complex fiscal instruments such as tax credits, green bonds, and sustainable public procurement standards. These institutional weaknesses significantly reduce the effectiveness of fiscal policies in promoting renewable energy adoption and improving energy infrastructure. For instance, South Africa has made efforts to incorporate sustainable public procurement into its fiscal policies; however, technical capacity gaps within government agencies and limited expertise in assessing environmental and social impacts have contributed to implementation delays and slowed overall progress¹⁰.

¹⁰ For more information, follow this link: <https://africasustainabilitymatters.com/why-fiscal-autonomy-and-financial-expertise-must-go-hand-in-hand/> Accessed May 26, 2025

7 Conclusion

This chapter examines the role of fiscal policy in shaping energy consumption patterns across Africa. It begins by outlining the key components of fiscal policy commonly employed in the region, including government expenditures, taxation, public borrowing, fiscal incentives, and subsidies. The chapter highlights that Africa relies on a mix of renewable and non-renewable energy sources. While renewable energy is widely utilized, with the Democratic Republic of Congo being the highest consumer, countries like Algeria predominantly depend on fossil fuels. In terms of alternative and nuclear energy, Mozambique stands out, although the overall consumption of these sources remains significantly lower than that of fossil fuels and renewables. Despite the diversity of energy sources, Africa remains the continent with the lowest overall energy consumption.

The chapter further explores how fiscal policy can influence energy consumption in Africa. Key instruments include subsidies and incentives targeted at the energy sector, public investment in energy infrastructure, government financial support, price stabilization mechanisms, and strategic public procurement. Additionally, development partners contribute to enhancing the impact of fiscal policy on energy consumption through financial assistance, monitoring and evaluation, capacity building, policy dialogue and advocacy, and technical support. The chapter also identified challenges such as inefficient and poorly targeted energy subsidies, constrained fiscal space alongside competing budgetary demands, difficulties in securing sufficient capital for energy investments, fragmented regional energy and fiscal policies, low levels of public awareness and trust, inadequate data collection and monitoring systems for energy consumption, as well as weak institutional capacity and governance frameworks undermines the effectiveness of fiscal policy in enhancing energy consumption.

To enhance energy consumption and sustainability in Africa, several key policy recommendations are proposed. First, governments should introduce targeted tax incentives and investment allowances to encourage private sector participation in off-grid and mini-grid renewable energy projects, particularly in remote communities. For example, rural areas could benefit from solar PV systems supported by VAT exemptions and import duty waivers. Second, addressing Africa's significant energy financing gap requires strategic engagement with development finance institutions, climate funds, and bilateral donors. Programs such as the African Development Bank's *Desert to Power* illustrate how blended finance can attract large-scale investment in renewable energy. Third, the continent's fragmented electricity markets limit cost efficiency and regional energy trade. Coordinated fiscal policies supporting cross-border infrastructure through initiatives like the West and East African Power Pools, can help balance energy supply and demand across countries. Fourth, to reduce emissions and promote sustainable energy consumption, it is essential to phase out fossil fuel subsidies, a step already taken by countries like Nigeria, Ghana, Angola, and Kenya. Finally, improved inter-ministerial collaboration is essential to ensure coherence between fiscal policies and energy goals. Aligning efforts among finance, energy, and environmental ministries will enhance policy effectiveness and support broader development agendas, including the SDGs and Africa's Agenda 2063. Together, these measures can create a more integrated, efficient, and sustainable energy landscape across the continent.

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