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Introduction

The availability of reliable electricity is essential for economic transformation of countries in Sub-Saharan Africa facing today's digital economy era. In 2024, there were 600 million people in the region without access to electricity. Currently, Sub-Saharan Africa constitutes 85 percent of the world electricity access gap, an increase from 50 percent in 2010. The electricity access gap is still wide despite the addition of new users because population growth is faster than the increase in new connections.

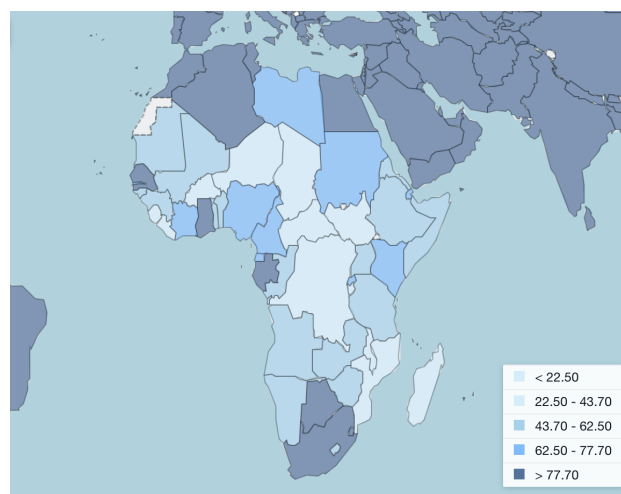


Figure 1: Access to Electricity in Africa, 2024

Moreover, even at this juncture, lack of sufficient investments and financing hampers the process. The absence of electricity access makes it difficult for the local people to engage in business activities, access healthcare services, obtain education and other modern technological facilities, as well as improve their standards of living. Expansion of access to electricity is therefore necessary for SSA's development. However, as SSA is particularly vulnerable to the impacts of climate change, the expansion of electricity access should be pursued in conjunction with international climate change objectives. Clean energy revolution in SSA will result in sustainable economic growth, improvement in the overall health conditions of the people and help in leading a productive life for women and children. Ultimately, it will lead to human security and resilience of nations and communities.

Background

Sub-Saharan Africa has 60% of the most promising solar energy in the world. It allows the continent to leapfrog from the fossil fuel track used by China and many developed countries. According to the World Economic Forum, Sub-Saharan Africa is making significant progress toward the adoption of



clean energy. Nevertheless, there is one big demographic issue in this matter. As per the International Energy Agency (IEA), 560 million Africans do not have access to electricity, and 970 million lack access to clean cooking stoves. The lack of access to clean cooking stoves forces many households to rely on traditional fuels such as firewood and charcoal, contributing to indoor air pollution and deforestation. As

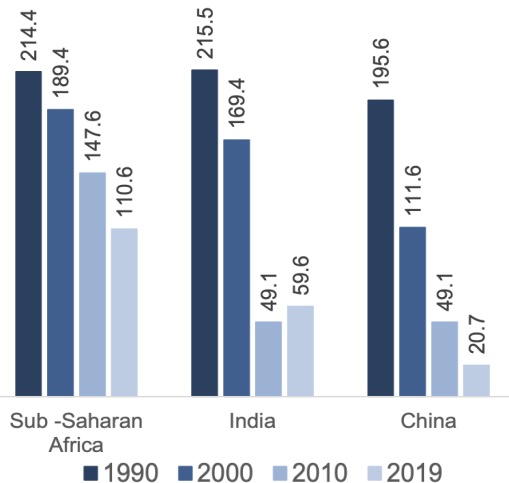


Figure 2: Deaths Attributed to Household Air Pollution in Sub-Saharan Africa, 1990-2019

climate change continues to be a serious global issue, efforts towards reducing fossil fuel usage in SSA will contribute to the world achieving a net zero. Therefore, the issue of energy access in SSA demands international attention and action. The main obstacle in the growth of this type of energy is its high cost. Since international investors perceive investments in Africa as risky due to factors such as low economic growth and low levels of human development, they often charge interest rates of up to 18%. It is nearly four times higher than the 5% interest rates in Europe and the US. Such high costs have contributed to a 16% decrease in clean energy investments in the region. Because of this, international public funding must cover over 70% of these projects. To achieve universal energy access while protecting the global climate, annual investment in Africa must double to \$240 billion by 2030. This requires More Economically Developed Countries (MEDCs) and global banks to provide better financial protections to lower the risk for private investors.

Problems Raised

Rapid Deforestation and Global Climate Risk

The lack of access to reliable and clean energy creates a difficult balance between meeting basic human needs and protecting the environment. In Sub-Saharan Africa (SSA), hundreds of millions of people rely on local forest resources, particularly firewood and charcoal, to meet their daily cooking needs. Approximately 7% of global deforestation is caused by such extensive use of biomass.

Severe Public Health Crises and Economic Stagnation

The problem of lack of reliable power supply has brought about a health crisis in Sub-Saharan Africa where the use of wood and charcoal in cooking leads to the loss of about 700,000 lives annually, and this involves mainly women and children. Some 30% of all schools and health facilities lack sufficient power supply, limiting their ability to operate effectively. These challenges can limit the ability of governments and institutions to provide adequate healthcare and educational services, reducing access



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to essential services and negatively affecting people's health, education, and productivity. As a result, health-related challenges can create significant economic losses, estimated at 2–4% of the region's GDP, according to the World Economic Forum.

Growing Debt and Financial Challenges

The model that finances energy projects is placing a great strain on the economies of many governments in Sub-Saharan countries. In order to get foreign investments into projects involving clean energy, state utility companies and governments have to enter into power purchase agreements (PPAs), whereby they agree to make payments in stable foreign currencies such as the dollar or the Euro. However, the electricity produced is supplied locally in local currency, which usually gets devalued due to inflation. The depreciation of local currency makes the repayment of foreign debts very expensive. This has made major state power companies such as Eskom in South Africa incur huge debts in the process needing government bailouts. These debts have left governments with limited budgets to prioritize investments in other important sectors like healthcare and education.

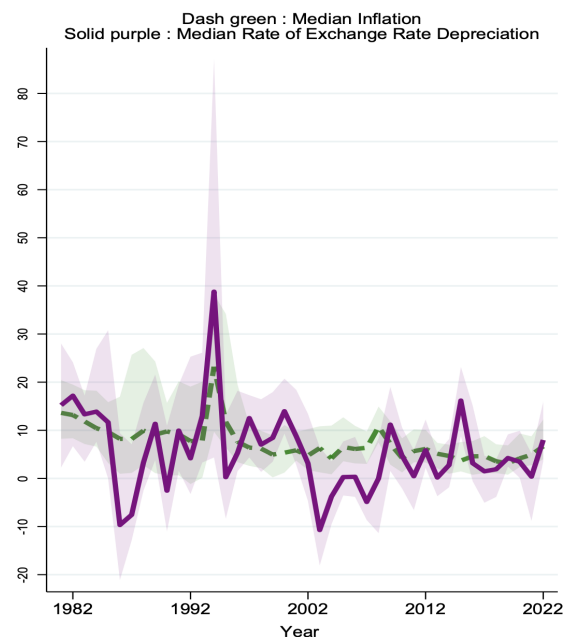


Figure 3: Exchange Rate Depreciation against the US Dollar and Inflation in Sub-Saharan Africa, 1982-2022

International Actions



Figure 4: Launch of Mission 300 National Energy Compacts, 2025

The Launch of “Mission 300”

The World Bank Group and the African Development Bank launched Mission 300 to break regional energy stagnation by connecting 300 million Africans to electricity by 2030. This program differs from previous efforts to connect Africans to centralized and costly power grids, as it implements localized solar mini-grids and solar home kits. To ensure the success of this initiative, countries in Africa have been organized into a collective that changes the energy regulations in their countries to facilitate foreign investment and eliminate unnecessary bureaucracy. By

July 9, 2026, this huge collaborative effort managed to provide electricity to more than 50 million Africans in Kenya, Ethiopia, and Zambia.

The European Union's Global Gateway Strategy

The Global Gateway project initiated by the European Commission acts as a significant financial link that reduces the very high cost of investment in clean energy across the continent. This project combines public funding and low-interest loans that cover financial risks in order to make it easier for the private investors to finance the clean infrastructure projects. This project is based on the EU-Africa Global Gateway Investment Package that invests in the continent a sum of \$173 billion. This particular energy program seeks to install at least 50 GW of renewable energy power generation capacity and supply electricity to at least 100 million people across Africa by 2030. This could facilitate green industrialization and create quality job opportunities in countries such as Kenya, Uganda, DRC, Mauritania, Nigeria, Cabo Verde, Zambia, Tanzania, and Togo.

Green Investment Program for Africa (GIPA)

The African Development Bank (AfDB) launched the Green Investment Program for Africa (GIPA) to address the financing barriers that have limited climate investment in the region, where Africa currently faces an annual climate financing gap of over \$200 billion. GIPA seeks to lower risks of investments through providing technical assistance and guarantees while at the same time increasing private co-funding of small-scale investments which constitute more than 70 percent of economic activities in Africa. This program is in line with the AfDB's 2021 -2025 Climate Change and Green Growth Strategic Framework which aims to increase resilience to shocks, climate change adaptation, climate smart agriculture, green infrastructure, renewable energy, and ecosystem restoration.

Key Players

The World Bank & African Development Bank (AfDB)

The World Bank and AfDB are the largest financial institutions supporting energy infrastructure in Sub-Saharan Africa, providing loans, grants, and technical assistance for grid expansion and renewable energy projects. Both organizations consider renewable energy as more than just being environmentally friendly but rather the quickest and cheapest way to create jobs and educate people through digital technology.

The European Union (EU)



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The EU is an important player in terms of geopolitical investments towards Africa, utilizing strategies such as the Global Gateway policy, which seeks to invest in the infrastructure required for developing renewable energy sources in Africa. The EU places great importance on quick adoption of renewable energy and may provide funding for projects that meet environmental standards. However, such policies have been faced with opposition by certain African governments as they may hinder their freedom of choice in energy development. To address these concerns, the EU and African governments have strengthened cooperation through initiatives such as the Africa-EU Energy Partnership. By 2025, more than \$23 billion had been committed under the Africa-Europe Green Energy Initiative to support renewable energy development and expand electricity access in Africa.

The United Arab Emirates (UAE)

As a country that is now emerging as one of the main investors in renewable energy across Africa, the United Arab Emirates has made a commitment to invest in the region in the form of an initiative worth \$4.5 billion during the 28th COP meeting to build huge solar and wind power plants in the region.



Figure 5: UAE's Renewable Energy Initiative at COP28

Possible Solutions

Localized Solar and Off-Grid Systems



Figure 6: Community Solar Mini-Grid in Rural Africa

Governments should prioritize decentralized solar mini-grids and off-grid systems in remote areas where extending the national grid is too costly or difficult. However, slow licensing processes and limited private investment remain major barriers, since the government controls the price of electricity and keeps it low which makes it too risky for investors. Therefore, in this case, fast-tracking of licensing is essential in order to speed up the development of mini-grids, and both governments and

international institutions like the African Development Bank (AfDB) need to provide financial assistance and risk-sharing to encourage private investment. For instance, in 2023, less than \$2.5 billion was committed towards providing electricity access in Sub-Saharan Africa, which is much lower compared to about \$15 billion needed yearly to achieve universal access by 2035. Once these barriers are addressed,

community-based solar mini-grids will be able to electrify the whole village while household solar and solar equipment will electrify households and small businesses.

Connected Grids and Regional Energy Sharing

Sub-Saharan Africa countries have some regional power pools as well as cross-border electricity connections, but many countries remain insufficiently connected and regional electricity trade is still limited. To address this, SSA countries will have to enhance connectivity and integrate their regional power pools especially the one involving Eastern and Southern Africa. For example, the Zambia–Tanzania interconnector is being developed to connect the Southern African Power Pool (SAPP) with the Eastern Africa Power Pool (EAPP), allowing countries to exchange electricity more efficiently. In this case, the UN and other regional organizations can be involved in making agreements among the countries participating while MEDCs and international financial institutions may fund the cross-border electricity lines. Common technical standards and electricity-trading rules should also be developed to make cross-border power exchange more reliable. This would allow countries with sufficient renewable electricity sources such as hydroelectric power in Ethiopia and geothermal power in Kenya will be able to trade surplus electricity with neighboring countries experiencing electricity shortages, reducing the need for additional fossil-fuel power plants

Affordable Financing and Flexible Payment Models

Although pay-as-you-go (PAYG) financing allows households to pay for solar systems in small installments, it remains unaffordable for many low-income households. According to the World Bank, only 16% of people in Sub-Saharan Africa without access to electricity can afford the monthly payments for a basic PAYG solar system. Governments should therefore introduce targeted subsidies for the poorest households, covering part of their monthly PAYG payments and reducing the amount they need to pay themselves. International lenders could provide funding to governments and energy companies to support these subsidy programs, while governments could target households based on income or location to ensure that assistance reaches those who need it most. This would allow more low-income households to access solar systems without creating a large upfront financial burden.

Glossary

Net Zero

A state in which greenhouse gas emissions are balanced by removing an equal amount of greenhouse gases from the atmosphere, preventing their overall level from increasing.



Private Investment

Money invested by private companies or individuals rather than governments or public institutions.

Biomass

Organic material, such as wood and charcoal, used as a source of energy.

Power Purchase Agreement (PPA)

A long-term contract in which an electricity producer agrees to sell electricity to a buyer under agreed terms and prices.

Currency Depreciation

A decrease in the value of a country's currency relative to foreign currencies.

Utility Company

A company or organization that provides essential public services such as electricity, water, or gas.

Government Bailout

Financial assistance provided by a government to prevent a financially distressed company or institution from failing.

PAYG (Pay-As-You-Go)

A payment model that allows households to use a solar energy system by making small, regular payments instead of paying the full cost upfront.

Off-grid system

An electricity system that operates independently from the national power grid.



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