

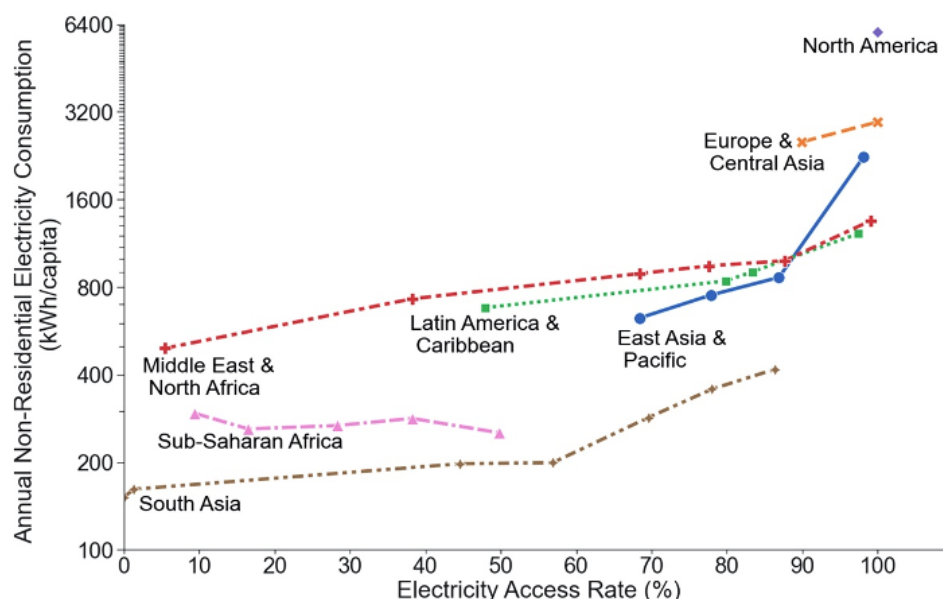
## Sub-Saharan Africa Should Shift its Focus to Developing Productive Uses of Energy

Sub-Saharan Africa continues to aggressively pursue universal electricity access in a bid to drive economic development, improved health, literacy, food security, and gender equality. However, increasing electricity supply and household connections is only one important step towards achieving economic transformation. Countries in the region must also strive for increased use of energy services, not only by households but also for job-creating productive uses and community facilities. The [Modern Energy Minimum](#) calls for a more ambitious standard for modern energy consumption that can drive income generation, productivity, and job creation. This means, in addition to residential consumption, targeting annual non-residential consumption of at least 700 kWh per capita.<sup>1</sup>

### Increased electricity access rates have not been accompanied by growth in productive electricity consumption

So far, improved electricity access rates in Sub-Saharan Africa have not been accompanied by growth in productive electricity consumption, as occurred elsewhere (Figure 1).<sup>2</sup> In fact, non-residential electricity consumption has stagnated around 300 kWh per capita, even as the regional access rate has increased from 10% to 50%. This means that the region still has a long way to go to achieve the productive use component of the Modern Energy Minimum, and makes it more difficult for utilities and mini-grid companies to recover costs and maintain reliable systems.<sup>3</sup>

**FIGURE 1: Annual Non-Residential Electricity Consumption per Capita vs. Electricity Access Rates by Region<sup>4</sup>**



## Strategies for investment in productive uses of electricity

So, what would it take for public and private actors in sub-Saharan Africa to expand productive uses of energy? It could be achieved in three main ways:

- **Replacing existing non-electric energy uses with electricity-based enterprises** in different sectors of the economy such as diesel-powered agricultural activities, like irrigation and grain milling, and transitioning from a fossil fuel-based transportation system to electric mobility.
- **Creating new electricity-based enterprises and productive use engagements** that are inclusive and sustainable. New enterprises such as electric grain drying and commercial cold storage are being explored in off-grid agricultural communities, and so are ice factories and electric fish drying for fish preservation in fishing communities. There is also a growing interest in the idea of installing large data centers in the region to support the growing digital economy and increasing connectivity in the region.<sup>5</sup>
- **Expanding operations of existing electricity-based enterprises** by creating policies and strategies that address key impediments to the growth of enterprises, such as, poor energy infrastructure.

## Critical factors that stimulate demand and enable productive-use at scale

In order to stimulate productive uses in the C&I sector, customers must have access to:

**Affordable power:** Affordability is an important determinant of how and to what extent electricity customers can benefit from electricity services. High tariffs may discourage new investments, displace potential productive use engagements and contribute to the financial unviability of existing electricity-based enterprises. Service agreements between new commercial customers and energy providers should include a commitment to favorable, stable and sustainable tariffs.

**Reliable power:** Power quality and reliability is an important factor that affects the entry of new enterprises, as well as the retention and expansion of existing firms. Unreliable and poor-quality electricity has been found to have a significant negative impact on firm productivity and income; outages cause African firms to lose on average 4.9% of annual sales, resulting in about a 2% reduction in GDP.<sup>6</sup> Service agreements between commercial customers and energy providers should also include an expected level of service. Governments and other relevant stakeholders could also incentivize provision of high-quality reliable electricity service for example through policies that link quality of service provision to tariff structures. Additionally, facilitating coordination among customers, energy providers, and appliance manufacturers and distributors, particularly of nascent technologies, may be critical in ensuring compatibility with, and maintaining reliability of electricity systems.

**Affordable financing and payment methods:** High up-front capital costs of purchasing equipment can be prohibitive for end-users. Development partners and energy providers can help increase access to credit for purchasing electric equipment and appliances. Providing innovative consumer financing models such as pay-as-you-go schemes, lease-to-own and fee-for-service models may also be critical in wide-scale adoption of productive use equipment. It is also important for financiers to receive training in assessing creditworthiness of rural customers using non-traditional measures such as historical electricity bill payments.<sup>7</sup>

**Productive-use equipment:** Electricity customers, particularly in remote locations, may lack access to efficient and high-quality electric equipment that meets their needs. Governments and development partners ought to lower entry barriers for appliance manufacturers and distributors in rural markets by offering de-risking mechanisms such as partial guarantees, subsidies, tax incentives and results based financing facilities. Critical policy support for off grid appliance quality and efficiency standards will ensure that rural off-grid customers are not exposed to poor quality electric appliances. Government and donor support for market intelligence studies could deepen appliance manufacturer and distributor insights into consumer needs thus informing appropriate product development and distribution strategies.

**International markets:** While electricity has been linked to improved productivity of commercial, industrial and agricultural enterprises, increased incomes and subsequent development can only happen if there is access to markets that can absorb the additional products and services. Governments need to invest in transport infrastructure, particularly in remote areas, to enable movement of produce to the marketplace. Relevant stakeholders should support formation of producer organizations and cooperatives to ensure that individuals and small businesses are able to negotiate and secure fair prices in the marketplace.

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## Endnotes

1. Energy for Growth Hub, [Modern Energy Minimum: Raising Global Energy Ambitions](#)
2. Productive electricity consumption refers to income-generating activities that depend on electricity as an input, such as commercial, industrial and agricultural activities.
3. Trimble C, Kojima M, Arroyo IP, Mohammadzadeh F. [Financial Viability of Electricity Sectors in Sub-Saharan Africa: Quasi-Fiscal Deficits and Hidden Costs](#). Washington DC; 2016 Aug. Report No.: 7788.
4. Figure was created by the author using data from IEA and from The World Bank Group.
5. Blimpo MP, Cosgrove-Davies M. [Electricity Access in Sub-Saharan Africa: Uptake, Reliability, and Complementary Factors for Economic Impact](#). Washington, DC: The World Bank; 2019.
6. Scott, A., 2015. [Building electricity supplies in Africa for growth and universal access](#). Background paper for Power, People, Planet: Seizing Africa's energy and climate opportunities. New Climate Economy, London and Washington, DC.
7. S. Santana and M. McCall. [Closing the Circuit, Stimulating End-Use Demand For Rural Electrification](#). Rocky Mountain Institute, Boulder, CO, 2018.