

POWER FOR ALL RESEARCH SUMMARY

Current policy will leave 530 million Africans unelectrified by 2040. Integrated energy planning is needed.

**POWER
FOR
ALL**

In the 2019 Africa Energy Outlook (AEO)¹, the International Energy Agency (IEA) provides an overview of the state of the energy sector in Africa, projecting trends for electricity expansion, based on demographic and economic growth, and considering two policy scenarios: 1) the Stated Policies (STEPS) scenario, versus 2) the Africa Case (AC) scenario. The STEPS scenario reflects current and planned policies, while the AC scenario is built on the premise of achieving Agenda 2063² by the African Union, which aims to deliver inclusive and sustainable development through a series of economic and energy targets. This Research Summary delivers key messages from the AEO relevant to decentralized renewable energy (DRE) practitioners.

530 million

UNELECTRIFIED POPULATION IN SSA BY 2030 UNDER CURRENT AND PLANNED POLICIES

Africa's electricity consumption remains low, due to limited access, low quality of supply and limited ability to pay. Disruptions cost many countries as much as 2% of GDP and result in people turning to dirty energy sources as alternatives.

- » Africa is home to a fifth of the world's population. Its electricity demand, however, is barely 3% of the global demand for electricity. Of the 3%, Northern and South Africa account for 75%. On average, a household in sub-Saharan Africa (SSA) consumes 1,000 kWh per year, less than 1/7 that of a household in an advanced economy. (47,55)
- » Half of Africa's population (600 million) still did not have access to electricity in 2018³, and 80% of companies in SSA suffered from frequent disruptions. Outages average 200 to 700 hours per year. This can cost up to 2% of some countries' GDP. (14,62)
- » Due to low quality of electricity supply, many households and businesses turn to diesel generators for back-up generation. In 2018, there were 40GW of back-up generation capacity in SSA, about 9GW was in Nigeria. (63)

\$ 1 trillion

FINANCING NEEDED TO ACHIEVE CURRENT AND PLANNED POLICIES TARGETS BETWEEN 2019–40

While electrification continues to outpace population growth, current and planned policies ambitions will leave 530 million in SSA still without access by 2030. Integrated electrification planning leveraging the least-cost energy solutions is key to delivering universal access.

- » The population without access peaked in 2013. Between 2014–18, 20 million people gained electricity access every year, outpacing population growth. (41)
- » In the STEPS scenario, 530 million will still lack access to electricity by 2030 and 600 million by 2040 due to rapid population growth. (113,116)
- » Progress of electrification has varied across regions and countries. Successful examples see strong government leadership to mobilize both centralized and decentralized solutions. (43,44)
- » Tripling the pace of electrification from 20 million people per year to 60 million will close the access gap and enable the achievement of SDG 7 by 2030. (118)
- » In the STEPS scenario, about 30% of new connections are from DRE such as standalone energy systems and mini-grids.. Under the AC scenario, an additional 530 million people are connected to achieve universal electrification and 60% of the new connections are from DRE. (134)
- » In terms of electricity generation, in 2018, SSA had 80GW of on-grid generation capacity. This would have to grow to 270 GW by 2040 in the STEPS scenario and 600 GW in AC. (56,129)
- » In AC, DRE delivers nearly 10% of the total electricity demand in SSA by 2040. (126,127)

\$ 2 trillion

FINANCING NEEDS TO ACHIEVE SDG 7 AND AGENDA 2063 BETWEEN 2019–40

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By the Numbers:

530 million

UNELECTRIFIED POPULATION IN SSA BY 2030 UNDER CURRENT AND PLANNED POLICIES

\$ 1 trillion

FINANCING NEEDED TO ACHIEVE CURRENT AND PLANNED POLICIES TARGETS BETWEEN 2019–40

\$ 2 trillion

FINANCING NEEDED TO ACHIEVE SDG 7 AND AGENDA 2063 BETWEEN 2019–40

Electricity demand is set to quadruple in SSA by 2040, driven by strong growth of industry and service sectors. Better regional cooperation can ensure that Africa meets its energy demand while improving resilience and reliability.

- » Africa's energy demand is growing at a pace 2x that of global energy demand. Electricity demand in SSA is set to quadruple from 200 TWh to 790 TWh in STEPS and 1,480 TWh in AC by 2040. (121)
- » In terms of productive use, agriculture, industry and services are all set to grow their electricity demand in SSA, with most demand driven by light industry (e.g., food processing and manufacturing) and services, reaching 340 TWh and 170 TWh by 2040 in AC respectively. (98,121)
- » Natural gas in Africa is at a critical juncture. Between 2011–18, 33% of world's new gas discoveries were in Africa. If strategized properly, natural gas can provide electricity baseload and flexibility to Africa's growing energy demand. In AC, gas becomes the largest source of electricity (27%), followed closely by hydro (26%) and solar PV (24%). (70,127)
- » Closer regional integration of energy systems can improve the resilience and reliability of the systems. (138)
- » Better regional cooperation can unlock hydropower's potential, especially around the Nile Basin and Congo River. (129)

There is still an enormous 5x financing gap to deliver universal electrification by 2030 and maintain 100% electrification until 2040 (the AC scenario). Improving project bankability, strengthening local financial institutions, ensuring long-term financing, and providing subsidy tools are ways to bridge the gap.

- » In the STEPS scenario, US\$ 46 billion is needed per year between 2019–40 to achieve current national targets. To deliver universal access by 2030 and maintain it until 2040, as in AC, the amount of investment needed will be double that of STEPS, reaching US\$102 billion per year between 2019–40. A-fourth of that investment would go into DRE. (141)
- » Current investment level in the SSA power sector however, is just US\$ 21 billion. Thus an enormous financing gap persists. (141)
- » Power sectors in SSA are heavily dependent on public funding, and development finance. Two-thirds of the new generation capacity in Africa were publicly funded between 2014–18. Access to long-term finance is constrained. Local financial institutions play an important role in ensuring steady flow of financing. (152)
- » Improving the bankability of power projects is important to attracting private financing. 20 of the 39 utilities in SSA are loss-making. If network loss drops to 10%, 11 of them can be profitable. (147,148)
- » DRE, on the other hand, is largely private sector-driven, but better enabling environment, such as electricity subsidies, can encourage faster rural electrification through DRE. (151)

Share the Message

- » According to current stated policies, 600 million people will be left without electricity in Africa by 2030 and 600 million by 2040.
- » US\$ 2 trillion between now and 2040 is needed to bridge this gap.
- » The African Union's Agenda 2063 aims to deliver universal electrification by 2030. To achieve this goal, DRE will need to provide 60% of the new connections.

Sources:

1. "Africa Energy Outlook 2019." International Energy Agency. Nov. 2019

2. Closely linked to the UN's Sustainable Development Goals (SDG), Agenda 2063 has energy-related targets, such as increasing electricity access by 50% as compared to 2013 level. [Accessible Online] https://au.int/sites/default/files/documents/36204-doc-agenda2063_popular_version_en.pdf

3. In AEO, the IEA's definition of electricity access excludes pico solar appliances.