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Investors' focus on SDG7 means Africa's energy infrastructure is falling short

In trying to meet UN Sustainable Development Goals, is foreign investment aimed at increasing electricity access in Africa doing more harm than good?

By **Jon Whiteaker** 03 Jun 2021 (Last Updated 7 Jun 2021)

People walk under electric wires connected above roofs in a district of Abidjan, showing the challenge facing those wanting to bring widespread electricity to Africa. (Photo by Sia Kambou/AFP via Getty Images)

The UN's seventh Sustainable Development Goal (SDG7) targets "access to affordable, reliable, sustainable and modern energy for all" by 2030.

This objective has mobilised multilateral institutions, donor organisations and private companies to seek energy sector investment opportunities in Africa, which has the lowest rates of electricity access in the world.

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The bulk of this investment has gone towards generation assets, particularly solar and wind power projects, while many transmission and distribution networks in Africa remain underfunded, inefficient and loss-making.

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"There has been very little investment in this space [grid infrastructure]

whichever way you look at it," says Simon Hodson, CEO of Gridworks, a developer of grid and off-grid solutions in Africa, which is backed by UK development finance institution CDC.

"There has been $27bn to $28bn of private venture capital invested into IPPs [independent power producers] and generation, but only a small fraction of that has flowed into grids, either off-grid or on-grid," he adds.

An opportunity gone missing in African infrastructure?

This comes despite an estimated $345bn of investment need in sub-Saharan African transmission and distribution infrastructure to absorb all of the planned new generation assets.

> **The real bottleneck in the market is the capability of African countries to introduce market reforms, strengthen utilities and expand grids.**
>
> **James Mackay,**
> *PwC*

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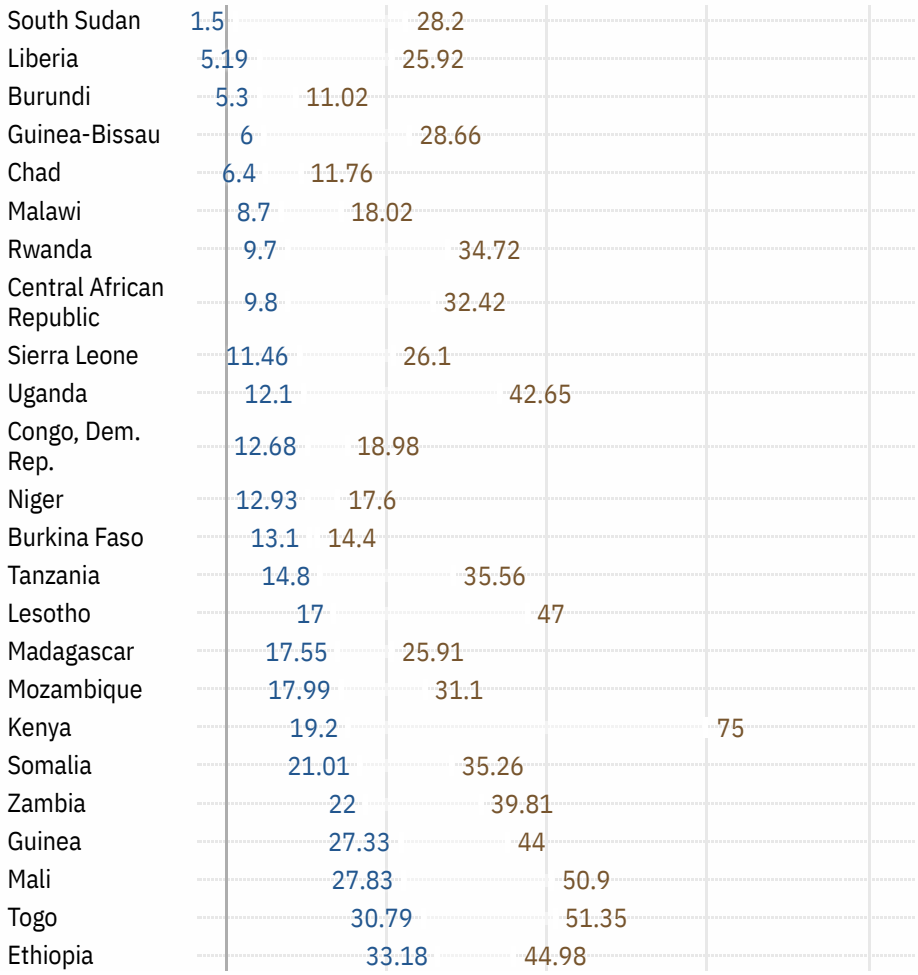
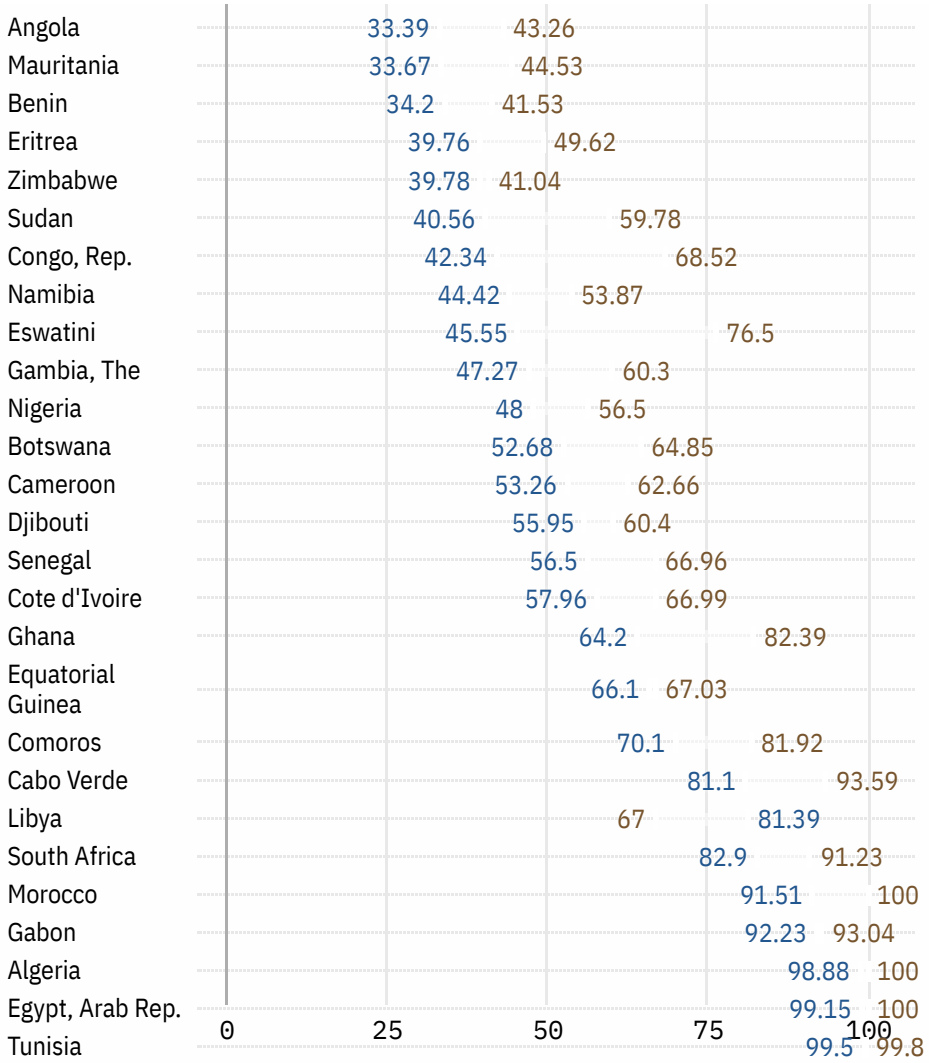
While off-grid solutions have been touted by some as the solution to Africa's electricity deficit, the continent's main transmission and distribution networks, typically operated by state utilities, remain the main source of electricity for most Africans.

"The real bottleneck in the market is the capability of African countries to introduce market reforms, strengthen utilities and expand grids," says James Mackay, an associate director at PwC based in South Africa.

Kenya makes strides in electricity access

Percentage access to electricity, 2010–18





By focusing on building new mini-grids rather than strengthening existing transmission networks, foreign investors are actually making the situation worse by forcing already indebted government entities to pay even more in subsidies, some argue.

“The vast majority of African electricity utilities have insufficient revenues to cover all of their operational expenditures and capital expenditures,” says Hodson.

This situation has been made worse by the economic impacts of Covid-19, and many state utilities are reaching a crisis point.

“Many African countries are approaching their debt ceilings for borrowing,” says Mackay. “They cannot fall back on the concessionary long-term funding that they have previously used for the power sector, whether to fund transmission investment or subsidise distribution companies, which they have done for decades.”

The problem with state utilities

"Since Thomas Edison created the first utility company in New York, we have not really seen a lot of change in how power is supplied," says Francois Pienaar, business development manager for Africa and Asia at Irish engineering consultancy ESB International. "You generate centrally or where there is a source of power, transmit over distance and distribute to households. For more than 100 years, nothing much changed," he adds.

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Pienaar has worked with utilities across Africa and globally on electricity access. He says the cultures within utilities are very conservative, with high staff retention rates and skills that are not easily transferable.

This atmosphere does not lend itself to risk-taking or embracing radical reforms, and often leads to inefficiency.

"Africa is stuck in a fossil fuel, centralised, integrated utility model," says Mackay. "Countries are trying to break out of it, but a lack of fiscal headroom and political will make it really difficult to take the hard decisions needed."

South Africa's Eskom is the archetypal example of a dysfunctional state utility: hugely loss-making, yet it retains control over generation, either as the producer or single buyer to IPPs, distribution and transmission.

Eskom is now proceeding with a long-touted unbundling of its generation, transmission and distribution divisions but is also committing to procuring 12 gigawatts of renewable, gas-fired and coal-fired power over the next two years.

How the essentially insolvent utility will pay the tariffs for all of this new generation is not clear.

The problem of foreign investment in utilities

Some of the money flowing into the African power sector has exacerbated the problems faced by utilities.

"The endeavours of donors and multilaterals to increase connections can

inadvertently damage the utilities. We come across managers of distribution and utility companies who worry that donor money for new connections only leads to increasing losses," says Hodson.

> **A lot of African countries don't see the SDG7 as a priority.**
>
> **Francois Pienaar**

Distributed energy is typically located in rural areas to maximise social impact, yet consumers of power in those areas are typically the least able to pay. The subsidies required to ensure a return for the investors is a cost borne by the utilities or government.

"These companies are largely financed by impact investors and want a fairly healthy return. The cost to deploy is high, and they run a large overhead," says Pienaar.

Hodson adds that the first generation of off-grid solutions deployed in sub-Saharan Africa required huge subsidies and were not bankable because they lacked critical mass and the required regulatory support. The sorts of developers attracted to these projects were also not committed long-term.

"It attracted companies with no balance sheet or track record, or contractors who are just there to build something, make a margin and move on," says Hodson.

Pienaar agrees there is a lack of experience in the off-grid sector and that the very complex problem of reforming the energy sectors in wildly diverse African countries has been made more complex by "external organisations trying to oversimplify it".

Is universal access a priority for African countries?

Pienaar calls SDG7 "a curse" because it has led to a rush of money trying to increase energy access, which he says should not be prioritised over "creating long-term, sustainable electricity supply that is economical and feasible".

"A lot of African countries don't see the SDG7 as a priority," he adds. "I had a meeting with a government minister a year ago who said [his country] would rather spend money on water infrastructure and building up the economy than providing electricity access to all parts of the country."

Percent of firms choosing electricity as their biggest obstacle in African countries

Hodson agrees that SDG7 is more of a political aspiration in the West than it is for many African governments. “Increasing access is one target, but the most import thing is putting in place building blocks to make the utilities sustainable,” he says.

> **There is an increasing realisation that to try and force down the throats of African countries these donor- or multilateral-funded access provisions, without creating sustainable business models, is not going to work.**
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> *Gridworks*

Hodson adds that he once worked with multilateral consultants on calculating the cumulative subsidy required to meet universal electricity access in a small

the cumulative subsidy required to meet universal electricity access in a small west African country. Assuming that donors covered all capital costs, the operational expenditure subsidy required over the period to 2028 would be a completely unaffordable $500m.

"I think there is an increasing realisation that to try and force down the throats of African countries these donor- or multilateral-funded access provisions, without creating sustainable business models, is not going to work," says Hodson.

"Why is it that non-African entities are busy building the road map for Africa?" Pienaar asks. "None of these corporate companies are African, none of the companies that provide the studies and reports are African. It has just become a different way of collecting money and taking it back to other countries."

Examples of successful investment in utilities

An injection of private investment into a state utility is no guarantee of success, but Umeme in Uganda is often cited as an example of private investment successfully improving performance of an African power utility.

It came into existence through a World Bank auction process in 2004 that attracted only one bidder, a consortium of then-CDC-owned Globeleq and Eskom (though the latter subsequently pulled out of the bid).

> **CIE in Côte d'Ivoire has been a success story that shows you can offer reasonable tariffs and provide a good service.**
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> **Francois Pienaar**

Despite an inauspicious beginning, Uganda became the "exception that doesn't prove the rule", Hodson says.

He adds that it has gone from being one of the worst-performing utilities to "one of the best performers across the continent and wouldn't look out of place in many other continents", citing its low technical and commercial losses, its profitability, good health and safety record, and its listing on the Nairobi and Kampala stock exchanges.

CIE, 54% owned by French company Eranove, has operated a concession for generation, transmission and distribution assets in Côte d'Ivoire since 1990.

"CIE in Côte d'Ivoire has been a success story that shows you can offer reasonable tariffs and provide a good service," says Pienaar.

Hodson says Eranove operates 50 to 60 mini-grids alongside operating the main grid. "You have an organisation that is working well; it's delivering a reasonable service to a very high proportion of the population," he adds.

Pienaar says that though most utilities remain inefficient and closed to innovation, there are some that are investing heavily in innovation research, such as KPLC in Kenya, Umeme and ECG in Ghana.

A new approach to grid investment

"There are pockets of success, and we shouldn't be overly pessimistic, but they are small in the context of what Africa needs," says Mackay. "Population growth is outstripping energy growth. Africans are becoming energy-poorer despite all this activity. Unless we can triple or quadruple these programmes, all we are doing is marking time."

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He adds that African countries should look to models such as Local Solar for All, which prioritises integrating distributed power and traditional grid networks through digitisation to achieve benefits of scale. Mackay advocates an unbundling of the utilities, moving uses onto a cost-reflective tariff for transmission, and aiming for digitisation to connect assets to better manage the network.

"What joins the dots is the ability of governments and utilities to play a really strong and visionary leadership role in allowing the market to start to dictate," says Mackay. "Let the private sector take the market risk. Be the enabling balancing factor and don't try and constrain the market."

In November 2020, Gridworks was awarded a contract for the Essor A2E Inititaive, which involves building solar generation and distribution networks in three cities in the Democratic Republic of the Congo that currently have no grid access.

access.

Hodson believes the Essor project could provide a template for energy sector reform elsewhere in Africa. “We have private-sector capital and donor-funded capital all under the same umbrella, and it is perhaps a model for the wider sector,” he says. “There needs to be a fusion of private and multilateral capital working together in some form to make the sector sustainable.”

Pienaar stresses the importance of remembering that Africa is not homogenous and no single model will work for the whole continent. He says the operational efficiency of transmission infrastructure can be improved through private-sector investment but that state utilities should still play a role.

“The answer is for utilities to stand on their own feet in order to forge their own futures,” says Pienaar.

For that, they need strong political support to reform and rebalance their books before attempting to expand their operations. Making state utilities sustainable over the long term may have a more positive impact on Africa's energy sector than meeting the target of universal energy access by 2030.

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SDGs Sustainability

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Jon Whiteaker is a senior editor at *Investment Monitor* focusing on FDI in the energy sector.

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