PAYNE INSTITUTE COMMENTARY SERIES: **VIEWPOINT**

COVID-19: A Wake-up Call to Increase Access to Electricity in Africa

by Jamal Saghir and Adrian Tylim

1. Introduction

Today, the world is at a turning point. COVID-19 is putting enormous pressure on each segment of a country's society and economy. For developing countries that were already facing major social, health and economic challenges before COVID-19, this pressure is particularly excruciating. The social and economic impacts of COVID-19 on developed and developing nations could be severe and long-lasting.[1]

As distancing and stay-at-home measures being imposed on population, a basic premise is expected: access to reliable electricity is available to keep people connected and informed, communicate with one another remotely, and run life-saving equipment in hospitals. First responders and doctors rely on electricity to save lives.

The reality is different for many. Sub-Saharan Africa remains the region with the largest access to electricity deficit: 573 million people—more than one in two—lack access to electricity. It is also home to the 20 countries with the lowest electrification rates, including Burundi, Chad, Malawi, the Democratic Republic of Congo, and Niger, four countries with the lowest electrification rates in recent survey.[2]

In parts of Sub-Saharan Africa, it is estimated that only 28% of health facilities have access to reliable electricity.[3] Lack of access to electricity causes medication and medical equipment needing refrigeration to be unavailable when needed most, putting at risk the ability to run life-saving equipment in hospitals.

According to the United Nations Economic Commission for Africa, at least 300,000 people could lose their lives as a direct result of COVID-19, and push nearly 30 million into poverty—significantly setting back any progress realized in recent years.[4] In order to provide front-line health services and support the poor and vulnerable in Africa, International Financial Institutions and Partners have so far mobilized around $57 billion for Africa including $18

[1] https://payneinstitute.mines.edu/wp-content/uploads/sites/149/2020/04/Payne-Commentary-Series-Post-COVID-19-New-World-Configuration-and-Climate-Change-Actions-Two-Urgent-Priorities.pdf
[2] https://www.seforall.org/publications/tracking-sdg7
[3] http://poweringhc.org/about-us/
[4] https://www.uneca.org/sites/default/files/PublicationFiles/eca_covid_report_en_rev16april_5web.pdf

billion each from the IMF and the World Bank. In addition, private creditors committed $13 billion. However, Africa needs an estimated $114 billion in 2020 in its fight against COVID-19, leaving a financing gap of around $44 billion.[5]

The current pandemic strongly underlines the global energy inequality in which many lacking electricity to power ventilators, intravenous and oxygen pumps, and basic lighting will suffer greatly. The speed of deployment for access to electricity solutions is critical in the eye of a pandemic. Expediting access to renewable energy coupled with energy storage can answer this challenge for many vulnerable communities. A prompt and organized approach towards deploying energy infrastructure will save thousands of lives. Renewable energy, particularly solar energy with batteries for energy storage is well suited for this task.

2. Barriers to access to electricity

Achieving universal access to electricity is one of the most important Sustainable Development Goals.[6] Electricity alone will not spur economic growth, but it is certainly necessary for growth. Electricity access is crucial to human development. Basic activities such as running health facilities and preserving medicines, lighting, refrigeration, running household appliances, and operating equipment—cannot be performed with other forms of energy.

The International Energy Agency estimates that, with appropriate policies, universal access to electricity could be achieved by 2030 with additional annual investment of $40 billion and $27 billion per year specifically in sub-Saharan Africa which is at least double current levels of financing – highlighting the need for major increases from domestic and international sources. [7]

Closing the electricity access gap in developing countries and Sub-Saharan Africa in particular remains an unfinished agenda for many reasons including[8]: (a) difficulty to deliver energy at affordable cost to rural communities characterized by low population density and high proportion of poor households with low electricity consumption; (b) lack of appropriate incentives as often tariff subsidies are designed to favor large consumers who can typically afford it, while failing to incentivize investments in rural electrification; examples are regressive subsidized tariff schemes applied to residential consumers in Sub-Saharan Africa; (c) weak implementation capacity, requiring technical and managerial skills often in short supply; and (d) insufficient electricity generation capacity in more than 30 countries in Sub-Saharan Africa.[9]

International experiences show that policies that can be most effective in addressing barriers to energy access scale-up include: (a) good governance and transparency at the state and corporate level to attract foreign and domestic investors; (b) removing obstacles to effective functioning of energy markets; (c) development of policies that incentivize private sector and community participation in rural energy supply; (d) removing barriers to decentralized energy supply and utilization of more affordable technologies; and (d) capacity management and planning of energy supply and mix.

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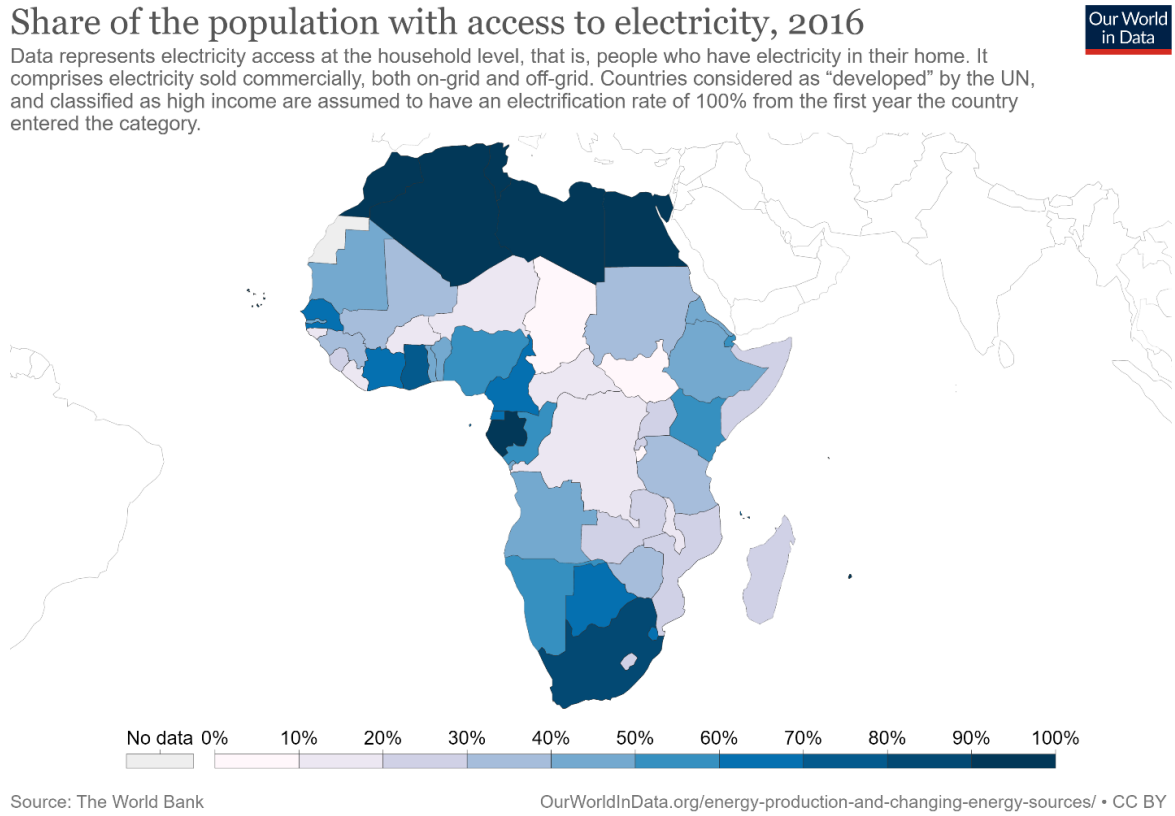
[5] https://www.worldbank.org/en/news/press-release/2020/04/17/world-bank-group-and-imf-mobilize-partners-in-the-fight-against-covid-19-in-africa

[6] https://sustainabledevelopment.un.org/sdg7

[7] https://www.iea.org/reports/sdg7-data-and-projections/access-to-electricity.
https://www.oecd.org/environment/cc/climate-futures/case-study-achieving-clean-energy-access-in-sub-saharan-africa.pdf

[8] https://siteresources.worldbank.org/EXTESC/Resources/Addressing_the_Electricity_Access_Gap.pdf

[9] https://openknowledge.worldbank.org/handle/10986/2692



3. Toward an accelerated energy paradigm shift for electricity

The world is already transitioning quickly to renewable energy. For a few years now, utilities and private sector around the world have been building renewable power plants at a faster rate than other types of conventional energy. Many countries in Sub-Saharan Africa are currently embarking to accelerate access to electricity based on renewable energy power plants that can fill the electricity access gap and be cleaner. Renewable energies coupled with battery storage increase availability and reliability of service delivery.

In the last several years, rapid advances in renewable technologies, especially solar and wind, have opened major opportunities for both decentralized supply options. Solar technologies are changing the situation for decentralized service. According to the World Bank, recent and continuing declines in the manufacturing costs of photovoltaics (PV) and battery storage technologies, and information technology control packages are enhancing the case for decentralized renewables and fundamentally expanding electricity service options beyond the traditional grid system supplemented by diesel generators. [10]

Important gains in solar technologies have supported the rapid development of residential solar systems and mini-grid service options in recent years. Policy makers need to ensure that new capacity and service availability is focused on cost-effective alternatives, essentially cleaner,

[10] https://openknowledge.worldbank.org/handle/10986/29667?locale-attribute=es

renewable technologies, and avoids perpetuating the prevailing energy sources of the past, like fossil fuels.

4. Saving Lives with Rapid Deployment of Electricity

In times of emergencies, solar power plants can be deployed quickly and cost effectively in isolated areas remote from the grid. When paired with energy storage, they can efficiently support essential services around the clock. Storage provides additional reliability and enhances the availability of services. Distributed power plants provide sustainable resilient sources that are not impacted by grid outages or network failures. A small photovoltaic power plant with a battery can be quickly deployed and provide an estimated need of less than 5kW of power for 24 hours per hospital bed.

A relatively quick solution to increase access to electricity in Sub-Saharan Africa and confront the pandemic is to install a microgrid that supplies energy to power several clinics and hospitals.

Energy Storage: Key For Energy Access And Resiliency To Fight Covid-19

Solar and wind renewable energy power plants are extremely competitive in providing low cost energy around the globe. Small solar photovoltaic (PV) power plants to support a clinic or a handful of buildings can be built and connected within days to weeks, much quicker than other traditional forms of energy generation.

A microgrid is an independent electricity grid that supplies energy generated from the solar PV Plant to power several buildings (or electric loads) and charge a battery to have energy available 24/7. It can even have a separate electric generator as a back-up power.

Energy storage makes the microgrid robust by adding a layer of reliability and resiliency ensuring that clean, renewable energy generated from the sun (or wind) is always available when needed to power medical clinics, hospitals and other essential services.

Quickly deploying small microgrids powered by solar panels and energy storage will save lives.

5. Need to get Policies Right

Energy access saves lives, spurs economic growth and is essential to fighting the pandemic. It can keep ventilators on and protect vulnerable populations.

While an extensive array of relevant energy technologies exists today to speed up access to electricity in Africa, energy sector policy reform is urgently needed to create the conditions for these technologies to be transferred, to be deployed where they can be most effective and to stimulate the required investment. These include: energy pricing and cost recovery strategies; removing subsidies that increase greenhouse gas emissions; incentives for the use of new technologies during market build-up and pre-commercial public financing to stimulate their development; credible regulatory frameworks characterized by stability and predictability and

operating wherever possible in a market environment to attract private investment; and, when addressing social consequences of market pricing, a shift from broad-based subsidies to targeted interventions to assist the poor will release substantial resources for use elsewhere.

The Covid-19 pandemic is a wakeup call to speed up access to electricity. The agenda for energy access scale-up in Africa should build on the international commitments to poverty reduction, to a low carbon economy and adaptation to climate change. The biggest challenge in scaling up energy access will be in mobilizing the necessary financing to close the financing gap and speed up implementation.

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