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COVID-19 and Energy Access: An Opportunity Or a Challenge for the African Continent?

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Abstract

As the COVID-19 pandemic gains ground in the African continent, it will obviously create havoc and unprecedented health and economic crisis compounded by the low access to reliable electricity. It is also anticipated that the crisis will brought ample opportunities and the African governments and the people should make coordinated and concerted effort in developing conducive business environment and exploit the opportunities effectively to facilitate energy access focusing on clean and renewable energy technologies.

1. Introduction

The growing of worldwide energy demand together with the unsustainable sources of conventional energy have led to considerable interest in renewable energy development over many years. As part of this effort and the ambition to implement the Sustainable Development Goal 7 (SDG7), African leaders have agreed on two energy policy goals¹, with one being the provision of universal access to modern energy and energy services^{2,3}, and the second focusing on complete decarbonization of the energy sector limiting the climate change to well below 2°C^{4,5}. Many has doubted achievement of these goals citing the financial challenges facing Africa but this has changed as the state of renewable energy technologies has improved, and their costs have fallen. In sub-Saharan Africa, energy access stands at 43%⁶, which is half of the global electrification rate of 89% in 2017⁷. However, such progresses even at slower rate have now halted because of the arrival of COVID-19 pandemic.

The pandemic is causing unprecedented disruptions to businesses and the day-to-day life of human being in the world. COVID-19 has exposed the robustness and resilience of the economies and services such as health systems around the world and it is disaster in the making while the pandemic is spreading fast to the developing world-particularly to the African continent. This is alarming mainly because the continent has weak health system compounded by low access to modern and reliable electricity. In sub-Saharan Africa, only 28%⁸ of health facilities have access to reliable electricity. A number of hospitals that have access to electricity equally suffer from frequent blackouts, which is a daily occurrence in the continent. The spread of COVID-19 would be the greatest test of these under-served health systems. However, all is not lost as the pandemic is having unpredictable consequences with several opportunities and challenges arising.

2. The opportunities in the making for energy access

2.1. Covid-19 and reliable energy access

Assessment of the impact of Covid-19 by different research results shows that existing energy systems are being under pressure⁹. To the contrary, energy intensive businesses and industries are being closed reducing their electricity consumption. A recent study by the International Energy Agency showed that countries are experiencing an average of 25% and 18% decline with full and partial lockdown respectively with the demand reduced by 3.8% globally including the demand for oil dropping by 5%¹⁰. In Africa where the energy supply is not reliable and strained, a closure of these energy intensive business and industries is becoming an opportunity to provide sustained and reliable electricity supply to the people who are staying at homes. Health systems that have unreliable access to electricity are also benefiting from such closures. This is a huge short-term opportunity for the housing and health sectors as the reliability of electricity has dramatically improved during the pandemic. With the disruption of the global transport sector, the oil market has dropped affecting the profits of fuel-based industries¹¹. This is becoming a driving force for the renewable energy based industries to expand their businesses as a matter of urgency to support the health facilities to deal with the on-going pandemic. This is expected to have positive outlook for increasing the share of renewable energy in the energy mix.

2.2. COVID-19 and the environment

The pandemic has been an effective learning school for those who deny the cause of environmental impact to the world. During the pandemic, the demand for oil and other dirty fuels has collapsed¹² with transportation systems and industries coming to a halt causing a dramatic change in the environment. Studies in the COVID-19 epicenters such as Wuhan, Spain, the USA indicated that pollution has reduced up to 30%¹³ with Delhi, the megacity of India, registering about 40% to 50% improvement in air quality within four days of lockdown¹⁴ and Rio de Janeiro showing a substantial reduction of CO levels averaging from 30.3 to 48.5¹⁵. This is sending clear message to the world to change the way we have been doing business prior to the pandemic and should be utilized as the greatest opportunity and united the world to rethink and clear the way for investing more in clean and reliable energy resources.

3. The challenges in the making for energy access

The greatest negative impact of COVID-19 is on the energy business. The impact is more visible for off-grid energy companies that have the greatest impact in reaching to communities living beyond the grid systems. They are the most susceptible to the COVID-19 because of liquidity with customer liquidity coming to standstill, decreasing sales, and reduced access to capital making it difficult to maintain their businesses. A survey by GOGLA showed that nearly 46% of off-grid companies would not survive if the restrictions last for three to four months¹⁶. Prior to the pandemic, solar-based off-grid businesses have been flourishing in the African continent. However, with the lack of local development and manufacturing capacity of the continent, many of the African countries are dependent on importing solar and wind energy technologies in order to fulfill the local demands. In the period 2009-2013 alone, African countries (mainly South Africa, Ethiopia and Egypt) collectively imported wind turbines to the amount of USD 342 million from other countries. They have also imported PV cells and modules from China worth of USD 869 million in the same period^{17 18}. On the other hand, the supply chain is heavily affected with the source of these technologies such as China, the USA and Germany shifted their attention to deal with the pandemic. This is a wake up call for the African continent to

find ways of developing effective policy to support and stimulate the local industrial capacity to develop and manufacture their own energy technologies and facilitate energy access to achieve the Sustainable Development Goals.

4. The way forward

The COVID-19 pandemic brought an opportunity to reinforce the need for sustainable energy transitions in the African continent and several development partners and funding organizations are mobilizing resources to protect the progress made so far towards achieving the sustainable development goals in order to effectively exploit the opportunities created by the crisis. A coordinated effort is being made by GOGLA to protect its members involved in off-grid energy business through COVID-19 Energy Access Relief Fund¹⁹. There are also several financial pledges, examples include: \$160 million by the African Development bank, \$91.5 million by the export import bank of the United States²⁰. As per the “Africa Energy Outlook 2019 report”, nearly \$120 billion is required to provide universal access to 530 million people of the continent. This reinforces the need for the African governments to make substantial effort in developing conducive business environment including developing strong project implementation, monitoring and evaluation making the case to get more funding from developing partners. This crisis has all the means to be effective in facilitating energy access focusing on clean and renewable energy if the political leadership in the continent is ready to grasp this opportunity and change the way business have been going on before the pandemic. Therefore, it is a high time for the African continent meaning it will swim and brought prosperity through facilitating Universal energy access if the opportunities brought by the crisis is effectively utilized or it will sink if the challenges brought by the crisis flourishes.

References

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- ¹ Africa Renewable Energy Initiative, Summary of the African renewable energy initiative framework document and action plan. [https://europa.eu/capacity4dev/file/30241/download?token\\$=\\$hNmlKr6Z](https://europa.eu/capacity4dev/file/30241/download?token$=$hNmlKr6Z), (2015).
 - ² Morgan Bazilian, Benjamin F Hobbs, Will Blyth, Iain MacGill, and Mark Howells. Interactions between energy security and climate change: A focus on developing countries. *Energy Policy*, 39(6): 3750–3756, (2011)
 - ³ Patrick Nussbaumer, Morgan Bazilian, and Anthony Patt. A statistical analysis of the link between energy and the millennium development goals. *Climate and Development*, 5(2):101–112, (2013)
 - ⁴ Ottmar Edenhofer. *Climate change 2014: mitigation of climate change*, volume 3. Cambridge University Press, (2015)
 - ⁵ Joeri Rogelj, William Hare, Jason Lowe, Detlef P Van Vuuren, Keywan Riahi, Ben Matthews, Tatsuya Hanaoka, Kejun Jiang, and Malte Meinshausen, *Nature Climate Change*, 1(8):413, (2011)
 - ⁶ Moussa P. Blimpo and Malcolm Cosgrove-Davies, *Electricity Access in Sub-Saharan Africa Uptake, Reliability, and Complementary Factors for Economic Impact*, The African Development Forum, The world Bank Group, (2019)
 - ⁷ UN Secretary-General. *Special Edition: Progress Towards the Sustainable Development Goals* (UN Economic and Social Council, (2019)
 - ⁸ The Challenge, *Powering health care*, <https://poweringhc.org/about-us/> (2020)

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- ⁹ <https://www.worldbank.org/en/news/opinion/2020/04/22/energy-access-critical-to-overcoming-covid-19-in-africa> (2020)
- ¹⁰ The impacts of the COVID-19 crisis on global energy demand and CO2 emissions, International Energy Agency, (2020)
- ¹¹ Penn, I. Oil companies are collapsing, but wind and solar energy keep growing. The New York Times; [https:// www.nytimes.com/2020/04/07/business/energy-environment/ coronavirus-oil-wind-solar-energy.html](https://www.nytimes.com/2020/04/07/business/energy-environment/coronavirus-oil-wind-solar-energy.html), (2020)
- ¹² Jayaram, K., Leke, A., Ooko-Ombaka, A. & Sun, Y. S. Tackling COVID-19 in Africa. McKinsey and Company [https://www. mckinsey.com/featured insights/middle-east-and-africa/ tackling-covid-19-in-africa](https://www.mckinsey.com/featured-insights/middle-east-and-africa/tackling-covid-19-in-africa) (2020)
- ¹³ Sulaman Muhammad, Xingle Long, Muhammad Salman, Science of The Total Environment, Volume 728, 138820, (2020)
- ¹⁴ Susanta Mahato, Swades Pal, Krishna Gopal Ghosh, Science of The Total Environment, Volume 730, 139086, (2020)
- ¹⁵ Guilherme Dantas, Bruno Siciliano, Bruno Boscaro França, Cleyton M. da Silva, Graciela Arbilla, Science of The Total Environment, Volume 729, 139085, (2020)
- ¹⁶ COVID-19: Coordinating an Industry Response for the Off-Grid Solar Sector , GOGLA, (2020).
- ¹⁷ UNEP. South-south trade in renewable energy: trade flow analysis of selected environmental goods, (2014)
- ¹⁸ Rasmus Lema, Roberta Rabellotti, and Padmashree Gehl Sampath, The European Journal of Development Research, 30(3):345–363, (2018)
- ¹⁹ COVID-19 Energy Access Relief Fund, <https://www.energyaccessrelief.org> , (2020)
- ²⁰ Ujunwa Ojemeni, Can COVID-19 accelerate funding for access to electricity: <https://www.devex.com/news/opinion-can-covid-19-accelerate-funding-for-access-to-electricity-97067> , (2020)