Research Insight – early May 2020

"Energy Access Challenges in the COVID 19 crisis: Is there a future for Extractives in the Energy Transitions era?"

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Abstract

Access to modern energy is key in addressing the global challenges including poverty, famine and gender inequality. There have been various efforts to tackle the challenge of energy access not only at the national level but also at the regional and international level. However, these efforts are likely to be disrupted given the unprecedented global COVID-19 pandemic that has made the conditions dire, hence triggering global economic shutdowns. The pandemic has had an impact on all spheres of life. In the energy sector, oil demand and consumption has decreased consequently leading to drastic drop in oil prices to below zero as of 21st April 2020. This has led many to question the future of fossil fuels especially in this energy transition era.

Indeed, these worries are valid given the current decline in oil demand especially in the key sectors including transport and manufacturing industries. Nevertheless, we must be aware that, fossil fuels still play a major role in tackling energy access challenges especially in developing countries where coal and oil dominate the energy mix. Unlike most developed countries that have successfully tackled energy access challenges, most developing countries on the contrary are still faced with these challenges. Communities especially in rural areas are still reliant on traditional energy such as firewood and candles for cooking and lighting respectively. Additionally, the energy mix in most of the developing countries is still dominated by biomass and fossil fuels especially for electricity generation. It is against this stark background that this paper analyses the future of extractives in the energy transition era putting into consideration the current global pandemic which undoubtedly will have an impact on the future energy investments and policy decisions.

1. Introduction

It is well known that energy is key in our everyday life. Rightly described by the former UN Secretary General Ban Ki-moon, "*Energy is the golden thread that connects economic growth, increased social equity, and an environment that allows the world to thrive*".[1] Energy is not only essential for the provision of basic social services such as education and health care services, but it is also essential for industrialization and the general economic development.

Although there are various initiatives to ensure the achievement of universal energy access, many people especially in developing countries lack access to modern energy. It is estimated that 1.2 billion people worldwide have no access to modern energy such as electricity and nearly 3 billion people rely on traditional biomass (such as wood and charcoal) for cooking and heating.[2] Of relevance to this research, are the drastic changes in the energy sector due to the current pandemic and how these changes are likely to impact on the national, regional and international efforts to tackle energy access and efforts to transition to a low carbon economy.

1.1. Panoramic overview of the impact of COVID-19 on the Energy sector and the global economy

The Coronavirus disease 2019 (COVID-19 or Coronavirus), has not only negatively impacted on the energy sector but has also generally brought the global economy on a standstill. First detected in December 2019, in Wuhan City in the People's Republic of China- the disease has since spread to more than 114 countries affecting all the sectors of the economy. According to the World Health Organisation (WHO), globally, there were 1,844,863 total confirmed cases and 117,021 total confirmed deaths, as of

[1] UN Secretary-General Ban Ki-moon, Sustainable Energy for All, retrieved at http://www.se4all.org/our-vision/. Last visited on 2nd November 2015.
[2] United Nations Foundation: Achieving Universal Energy Access, http://www.unfoundation.org/what-we-do/issues/energy-and-climate/clean-energy-development.html .

14th April 2020.[3] COVID-19 has not only strained the health care sector globally but has also negatively impacted on other sectors of the economy with many industries and factories on a shutdown reducing the supply of many materials.

The COVID 19 crisis has indeed tested the relevance of the energy sector especially in the economic sphere. Due to the lockdown, energy consumption in the transport and manufacturing industries has drastically reduced. With most factories shut globally, there have been supply chain disruptions in key renewable energy materials including solar panels, electricals and other materials needed in the energy sector especially with this global move to transition to a low carbon economy. These disruptions have also had an impact on the renewable energy projects in different countries especially since many companies operating in these countries are foreign energy companies.

Countries such as China are major producers of various equipment ranging from electronic to energy appliances including solar panels. The current crisis has therefore led to disruption in such energy apparatus. Assuming that the factories were still open, it would still be hard to ship and transport the materials due to the rapid cancellation of sailing containers. For instance, there was a drop of 25 percent in container volume mainly caused by cancellation of over 40 sailings by container-ship operators between mid-February and April 1, 2020. [4]

Decrease in demand for fossil fuels in the transport sector including airlines and automotive industry have also had an impact on the current outlook of the energy sector. For instance, shortages in auto parts have been experienced in different countries such as China, where these were down by 92%, affecting the automotive industry in different regions globally;[5] consequently, leading to the temporary shutdown of major auto brands including Nissan.[6] With respect to the Air transport, many airlines are not only running out of cash, but flights have also drastically declined. According to the International Air Transport Association (IATA), as of 21st April 2020,

[3] The World Health Organisation: Coronavirus disease 2019 (COVID-19) Situation Report-85. Can be accessed at, https://www.who.int/docs/default-source/coronaviruse/situation-reports/20200414-sitrep-85-covid-19.pdf?sfvrsn=7b8629bb_4. Last visited on 20th April 2020.

[4] These are with respect to shipment expected to arrive at the Port of Los Angeles. See, Smith, J. *Port of Los Angeles Sees Coronavirus Impact Sharply Reducing Import* . Wall Street Journal (Feb. 25, 2020).

[5] Tian Y. and Turner M. *China Car Sales Slump 92% in First Half of February on Virus.* Bloomberg (Feb. 20, 2020)

[6] Nissan to shut Japan factory due to shortage of Chinese parts. BBC News (Feb. 11, 2020).

domestic flights worldwide were down to 70% resulting to an estimated $29 billion loss in revenue this year alone.[7] It is further anticipated that post lock-down return to air travel will be in stages hence the demand for energy in this sector will remain low in the coming months.[8]

The above clearly gives an outlook of the COVID-19 impact on the energy sector generally. Although there are various sectors that have been affected by this pandemic, the focus in this discussion is the impact of COVID-19 on the energy sector specifically looking at the energy access challenges in developing countries. In this respect, the main questions to be addressed in this short paper include:

1. How is the COVID-19 crisis escalating energy access challenges in developing countries?

2. What is the relevance of extractives in tackling energy access in the energy transition era?

3. What key issues should policymakers put into consideration?

In addressing the questions above, a three-step framework will be employed in the form of sections. Section one is the introduction giving a general outlook of COVID-19 and its impact on the global economy specifically the energy sector; section 2 analyses how energy access challenges are likely to escalate due to COVID-19 crisis; section 3 highlights the nexus between energy access; extractives and energy transitions. This section is intended to highlight the continued role of fossil fuels in tackling energy access especially with respect to electrification, while at the same time highlighting the progressive nature of energy transitions; section 4 is the conclusion and it highlights key issues for policymakers.

[7] See, Brian Pearce,. COVID-19: Assessing prospects for domestic markets. International Air Transport Association (IATA) (21st April 2020). Can be accessed at, https://www.iata.org/en/iata-repository/publications/economic-reports/covid-19-assessing-prospects-for-domestic-markets/. Last visited on 21st April 2020.
[8] Ibid

2. Understanding Energy Access: Why it is essential in the COVID-19 era?

Goal 7 of the UN SDGs advocates for access to affordable, reliable, sustainable and modern energy for all.[9] There is no agreed definition of the term 'energy access'. Nevertheless, scholars and international institutions have endeavoured to define energy access. For instance, in 2010, the United Nations (UN) endeavoured to define energy access as, "access to a basic minimum threshold of modern energy services for both consumption and productive uses".[10] This definition points to the use of energy not only for household consumption but other productive sectors such as businesses. Comparatively, the International Energy Agency (IEA), in 2014 defined energy access by directly connoting it to the term "modern", thus defining modern energy access as "household having access to electricity and to a relatively clean, safe, means of cooking".[11] This definition introduces the term 'modern energy'.

Modern energy can be distinguished from traditional energy by looking at the quality of energy used, for instance with regard to traditional energy candles, kerosene, and lamps are used for lighting; and firewood for cooking.[12] On the other hand, with regard to modern energy, electricity, natural gas, and liquefied natural gas (LNG) are used for lighting and cooking, respectively.[13]

In this paper, energy access will be defined in simple terms to mean access to electricity. We note that electricity in its natural form tends to appear as lighting and static. The technological advancement have enabled primary sources of energy such as coal, nuclear power, oil, running water and of late renewable energy sources to provide this electricity.

[9] Goal 7 of the UN Sustainable Development Goals, 2016

[10] The Secretary General's Advisory Group on Energy and Climate Change: Energy for a Sustainable Future, Report and Recommendations, 28th April 2010, New York. See, can be found at http://www.un.org/millenniumgoals/pdf/AGECCsummaryreport[1].pdf, last visited on 17th November 2015.

[11] International Energy Agency: World Energy Outlook-Methodology for Energy Access Analysis, 2014 www.worldenergyoutlook.org/media/weowebsite/EnergyAccess_Methodology_2014.pdf, last visited on 6th October 2015.

[12] Nalule, V.R., 2018. *Energy Poverty and Access Challenges in Sub-Saharan Africa: The Role of Regionalism*. Springer.

[13] Nalule, V.R., 2018. *Energy Poverty and Access Challenges in Sub-Saharan Africa: The Role of Regionalism*. Springer.

Access to energy or electricity is key in achieving all the other UN SDGs including goal 3 on health; goal 4 on quality education; goal 5 on gender equality just to mention but a few. For instance, with respect to SDG 5, we note that women are the main users of energy especially in developing regions including Asia and Africa. This is due to the social roles of women including cooking. Estimates indicate that women spend on average 1.4 hours a day collecting fuel wood and four hours for cooking.[14] Therefore, access to electricity is key is improving the livelihood of these women.

With respect to SDG 3, the connection between energy and healthy living lies in the fact that electricity is key in healthcare services including hospitals. Additionally, lack of access to electricity implies that many people in the developing world will use traditional energy such as firewood for cooking and this definitely has various negative effects to the lives of the people especially due to the indoor air pollution. The IEA report indicates that, household air pollution due to over reliance on traditional energy is responsible for 2.8 million premature deaths every year.[15] The health sector is the most important sector in the current pandemic. However, although the developed countries are not bothered with lack of access to electricity in their hospitals, this is a big issue in many developing countries. The current crisis requires countries to be ready to adequately respond to the health challenges, but this is definitely hard for regions with insufficient health cares services and lack of access to electricity in these countries definitely escalates the health challenges.

Although it would appear that given the important role of electricity in our everyday life, it should be globally recognised as a right, some scholars argue that, economically, treating electricity as a right would undercut electricity access and reliability, holding back economic growth.[16] In the next section, the nexus between extractives, energy access and energy transitions is discussed highlighting the continued role of fossil fuels in the current crisis.

[14] See, International Energy Agency: World Energy Outlook Special Report, 2017, Page 3. The report can be accessed at https://www.iea.org/publications/freepublications/publication/WEO2017SpecialReport_EnergyAccessOutlook.pdf.

[15] See, International Energy Agency: World Outlook Special Report, 2017, Page 28

[16] Burgess, R., Greenstone, M., Ryan, N. and Sudarshan, A., 2020. The Consequences of Treating Electricity as a Right. *Journal of Economic Perspectives*, *34*(1), pp.145-69.

3. The continued role of extractives in tackling energy access challenges in the energy transitions era

On Monday the 20th of April 2020, the world experienced a drop in the US crude for May turning to negative. This caused a lot of bankruptcy panic among various oil companies especially US shale companies.[17] As discussed in section 1, the drop in oil prices is mainly due to the March 2020 oil price wars: additionally, the COVID-19 pandemic which has reduced oil demand in the transport sector and manufacturing industry has also significantly contributed to the low oil prices. Consequently, there have been massive stress in the oil industry with many companies losing their value including Halliburton, Noble Energy, Marathon Oil and Occidental (OXY)- which have lost more than two-thirds of their value.[18]

One can arguably say that, the above developments do favour the energy transitions efforts which advocate for renewable energy. Additionally, for the first time, renewables overtook coal-fired power generation in OECD. According to the IEA April 2020 report, electricity produced from natural gas in 2019 increased by 4.8% and was responsible for 29.0% of the total electricity production. Comparatively, coal production in the same year was 13.4% lower than in 2018 contributing to 22.1% of the total electricity production.[19]

Taking stock of the above, one may question the future of fossil fuels. We note that, developed and developing countries do face different energy challenges. As noted above, the developed countries in OECED have made significant efforts in increasing renewable energy in the electricity production. This, however, did not just happen suddenly, it has taken years of investments, research and technological advancement to be able to reduce reliance on fossil fuels in these countries. We also note that, these countries are not worried about energy access issues but rather energy security, which

[17] Matt Egan., Oil prices turned negative. Hundreds of US oil companies could go backrupt. CNN Business (21st April 2020). Can be accessed at, https://edition.cnn.com/2020/04/20/business/oil-price-crash-bankruptcy/index.html. Last accessed on the 22nd of April 2020.

[18] Ibid

[19] International Energy Agency, Key electricity trends (14th April 2020). Can be accessed at, https://www.iea.org/articles/key-electricity-trends-2019. Last accessed on 20th April 2020.

underpins the need for uninterrupted distribution of affordable and sustainable energy. Consequently, this explains why it is easy for these countries to transition to a low carbon economy putting their focus on renewable energy development. Indeed, the same efforts are also taken in developing countries such as those in Africa. Albeit, for a country with more than 60% of the population lacking electricity, the focus will not entirely be on the kind of primary energy used to provide this electricity, but rather on ensuring that people shift from wood and biomass usage to electricity whether it is generated from renewables or fossil fuels. This shift therefore brings in the progressive nature of energy use, thus highlighting why energy transitions should be progressive in nature giving developing countries a chance to shift from wood, to fossil fuels then to renewables- as was the case in developed countries.

Fossil fuels are still needed for electricity generation in many developing regions including Africa. Millions of people remain with no electricity and yet, in the IEA scenario, it is estimated that more than half a billion people mostly in SSA will remain without electricity in 2040.[20] Already most countries are still relying on fossil fuels for electricity generation. In Southern Africa for instance, coal is the most dominant source of electricity in the SADC region, contributing to over 60% followed by hydro, which contributes 21.02% of the electricity generation capacity. This heavy reliance on coal in SAPP can be attributed to the fact that South Africa dominates the power generation as it accounts for 76% of the overall generation capacity.[21]

The above clearly highlights the continued role of fossil fuels in tackling energy access challenges in developing countries despite the COVID-19 pandemic. Nevertheless, this does not in any way mean that these countries are climate change deniers. There are several initiatives in these countries to transition to a low carbon economy

[20] International Energy Agency: World Energy Outlook Special Report, 2016. Can be accessed at https://www.iea.org/publications/freepublications/publication/WorldEnergyOutlook2016ExecutiveSummaryEnglish.pdf

[21] See, SADC Energy Monitor, 2018. Page 33

including the deployment of renewable energy; energy efficiency technologies; electricity vehicles just to mention but a few.[22]

4. Concluding Remarks

The current pandemic has with no doubt negatively impacted on the energy sector. It has led to a decrease in energy demand and consumption of fossil fuels hence skidding the oil prices. The losses encountered by many oil companies will make it hard for these companies to consider new investments in the near future.

Nevertheless, policymakers should be aware that, post the pandemic, fossil fuels are still likely to play a significant role in tackling energy access challenges in developing countries especially due to population growth and urbanisation. For instance, according to the BP report, population growth is estimated to increase by around 1.7 billion to reach nearly 9.2 billion people in 2040. Additionally, the global boom in urbanization is projected to increase, as almost 2 billion people are likely to live in urban centres by 2040 and Africa is projected to contribute one-third of this increase in urbanization. [23]

Taking stock of the above, if developing countries are not well prepared, the increase in population growth and urbanisation will escalate the energy access challenges. In this respect therefore, there is a need for African policymakers to think ahead of the current COVID-19 pandemic and be ready to use all the available energy resources including fossil fuels to tackle energy access challenges which are likely to escalate with an increase in energy consumption due to population growth and escalated urbanisation.

The global lockdown has also proved how important it is for countries to adequately invest in local healthcare services; in the energy sector; and in local industries that can manufacture essential items. Policymakers should therefore set up the necessary laws and plans to effectively achieve these in the future.

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[22] For a full discussion on energy transitions in Africa, see, Nalule, V.R., 2020. Transitioning to a Low Carbon Economy: Is Africa Ready to Bid Farewell to Fossil Fuels?. In *The Palgrave Handbook of Managing Fossil Fuels and Energy Transitions* (pp. 261-286). Palgrave Macmillan, Cham.

[23] See, BP Energy Outlook, 2018, https://www.bp.com/content/dam/bp/en/corporate/pdf/energy-economics/energy-outlook/bp-energy-outlook-2018.pdf ENERGY OUTLOOK. Last accessed on 3 March 2018.