

Briefing Paper: Renewables in the post-COVID-19 recovery packages of African Counties

AUTHORS PETA WOLPE & CHRISTINE JUTA

Content

| | |
|--|---|
| BACKGROUND | 1 |
| DRIVERS FOR RENEWABLE DEPLOYMENT IN AFRICAN COUNTRIES | 2 |
| RENEWABLES, A VITAL COG TO INCLUSIVE, RESILIENT DEVELOPMENT OF AFRICAN COUNTRIES | 2 |
| CHALLENGES IN THE ROLE OF RENEWABLES IN RECOVERY EFFORTS | 4 |
| STRENGTHENING THE ROLE OF RENEWABLES IN RECOVERY AND DEVELOPMENT PLANS | 5 |
| AFRICA'S DEVELOPMENT PLAN: AGENDA 2063 | 6 |
| GREEN RECOVERY, A QUESTION OF GOVERNANCE | 6 |
| REFERENCES | 7 |

THIS BRIEFING PAPER WAS PREPARED FOR THE PARTICIPANTS OF THE POLICY DIALOGUE ON "COVID-19 RECOVERY AND THE ROLE OF RENEWABLES IN AFRICAN COUNTRIES" WHICH TOOK PLACE ON 18TH MAY 2021.

Background

Sub Saharan and North African countries, together account for over 70% of Africa’s electricity demand (IEA, 2019). This paper focuses more on Sub-Saharan Africa, **which faces severe energy poverty and inequality**, with 55% of the region’s urban population living in slums (World Bank, 2017). Urbanization rates in Sub-Saharan Africa are amongst the highest in the world. UN-Habitat projects more people living in urban areas on the sub-continent than in rural areas from 2040 onwards (UN-Habitat, 2014). Yet there remains a disparity between rural and urban communities in terms of electricity access and poverty.

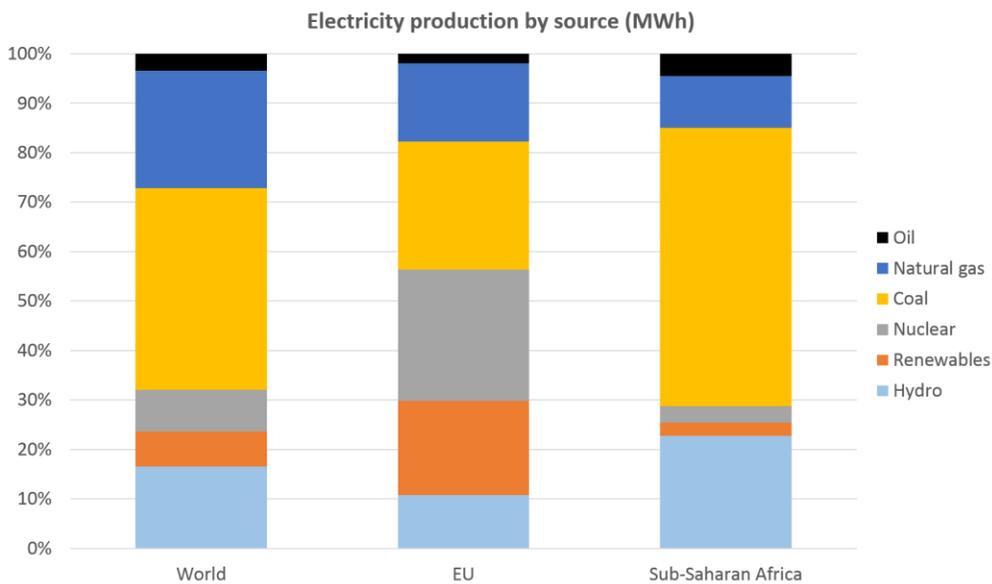


Figure 1: Electricity production by source: Source World Bank

Despite contributing only 2% to global energy-related carbon emissions, Africa is greatly affected by the impacts of climate change (IEA, 2019). Further, heavier reliance on hydro threatens the region’s energy security of supply due to more frequent droughts. Figure 1 illustrates Sub-Saharan Africa’s heavy reliance on coal and hydropower. Greening the electricity sector thus has potential to significantly contribute to the global agenda to reduce carbon emissions, established under the Paris Agreement and contribute to generating much needed electricity in many countries in the continent.

Drivers for Renewable Deployment in African countries

An energy mix in transition

Several factors have influenced the global push for increasing the share of renewables in the global energy mix. These include a general move away from fossil fuels because of climate change and the goal to limit global warming to 1.5 degrees. The price reduction for renewable technologies led to a significant increase in the share of variable solar and wind, which together account for over 50 %

of total installed renewables capacity and cost competitiveness of renewables. Despite the COVID-19 pandemic, 260 GW of renewable generation capacity were installed globally in 2020 (IRENA, 2021).

Africa's population is rising rapidly and the continent is projected to hold an estimated 2.8 billion people by 2060 (Canning, Raja and Yazbeck, 2015). The growing youth population bulge and rapid urbanisation, imply a growing demand for electricity. It will require expansion of electricity generation, transmission and distribution infrastructure, to meet this economic growth. The falling cost of renewables installation and innovative advances in supporting technologies such as advanced metering infrastructure position renewables as a unique opportunity to drive electricity access and create new jobs for the growing population.

Box 1: The Paris Agreement

In December 2015, 196 Parties adopted the legally binding international treaty on climate change. The [Paris Climate Agreement](#) targets to limit global warming to well below 2, preferably to 1.5 degrees Celsius, compared to pre-industrial levels.

Renewables, a vital cog to inclusive, resilient development of African countries

Africa's role in the global energy transition

Despite Africa's rich renewable energy resource potential, energy consumption per capita for most African countries, still falls below the global average. This is due to low electrification rates across the continent, with around 600 million people lacking access to electricity in Sub-Saharan Africa (IEA, 2019). The predominant energy source remains traditional biomass, with 730 million of the current 1 billion population relying on this source for cooking (World Bank, 2017) which has significant health and environmental impacts. Figure 2 shows that the total net electricity consumption of Spain, with a population of only 47 million exceeds that of the whole of Sub-Saharan Africa excluding South Africa, around 1 billion people (Africa Progress Report, 2015). This highlights not only the poor status of electricity generation and consumption available to many people in the region but also the lack of development and prevalence of energy poverty.

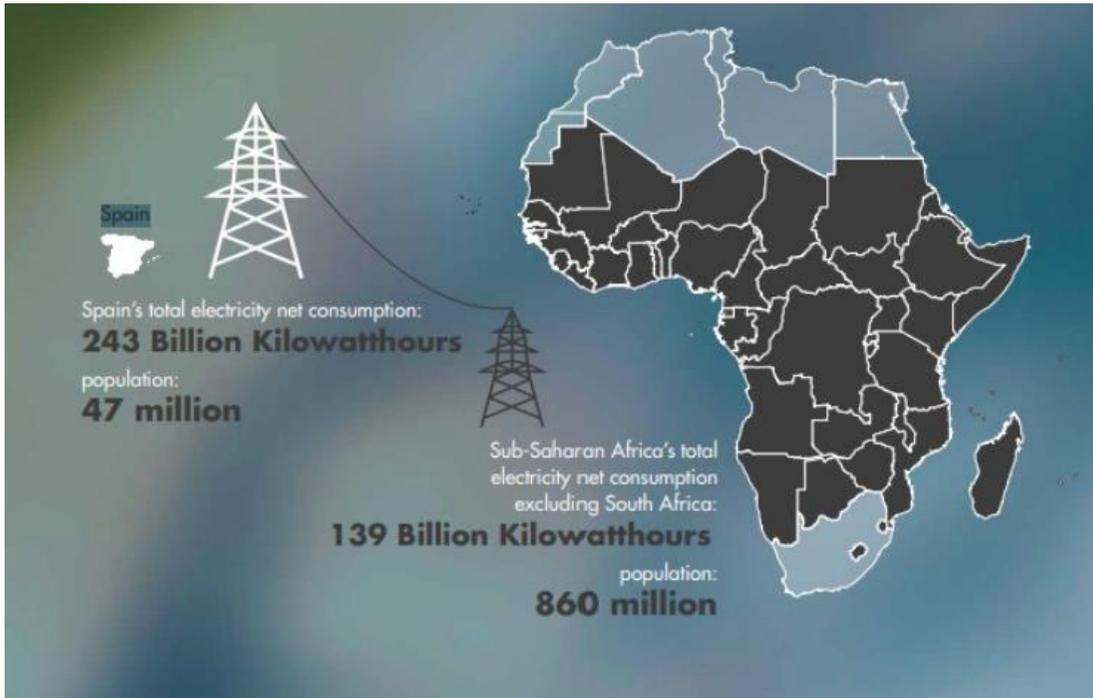


Figure 2: Contrasting Spain's electricity consumption to that of Sub-Saharan Africa(excluding South Africa) (Africa Progress Report, 2015)

Box 2: Sustainable Development Goal 7 (SDG 7)

SDG 7 targets to achieve universal access to affordable and reliable energy, increase the share of renewables and double the global rate of improvement in energy efficiency by 2030.

Access to clean, affordable and reliable energy is central to realising the Sustainable Development Goals (SDGs). Renewable technologies present an opportunity to meet Africa's growing energy demand while at the same time charting a low carbon, sustainable development path.

Innovations in enabling technologies such as storage, blockchain and advanced metering infrastructure have implications for market design and system operation. In addition, the emergence of new business models such as pay-as-you-go schemes, peer-to-peer trading and aggregators have also impacted on the growth of renewables (IRENA, 2019).

While there have been multiple approaches to electrification efforts across African countries, *decentralised solutions* have emerged as the *least-cost strategy* in particular for rural electrification where grid expansion has not progressed much, as it is often costly and timely.

Box 4: Rural Electrification in Zimbabwe

The national electrification rate in Zimbabwe is 42%, and only 13% of the rural households have access to electricity. The Rural Electrification Agency (REA) was established in 2002, to facilitate rapid and equitable electrification. The National Energy Policy of 2012, expanded the REA mandate to include the provision of electricity and other modern energy services to rural areas using renewables.

Challenges in the role of renewables in recovery efforts

The COVID-19 pandemic has had several *impacts on the power sector*, notably, *reduced electricity demand* due to limited industrial activity depending on the extent of lockdown restrictions, which varied from country to country.

The widespread adoption of ‘work from home’ has caused a significant electricity *demand shift* with increased residential demand. Many countries experienced prolonged school closure, prompting the use of online learning. However, this has shone light on the extent of *energy access inequality*, impacts of system *unreliability* and consumer *ability to pay* for electricity due to reduced income as a result of strained economies.

Box 5: Nigeria Economic Sustainability Plan

The objectives of the Nigerian federal government’s US\$ 5.9 billion plan, include increasing infrastructure investment in roads, bridges, *solar power* and communications technologies to *stimulate growth* and create jobs.

Among the proposed projects to sustain economic activity is a Solar Home Systems Project targeting 5 million households, who are currently without access to electricity. To create jobs, local manufacturing of solar equipment will be required. The installation and maintenance of these systems is also expected to create thousands of jobs.

Box 6: REACT Kenya Relief Fund

The fund aims to ensure companies providing distributed energy services to rural communities continue to operate effectively during the COVID-19 pandemic. The fund is managed by the Africa Enterprise Challenge Fund (AECF) and businesses operating in the off-grid sector must be registered in Kenya to be eligible for grants of between US 50,00 - 200,000.

Many African learners and workers have been excluded, further widening the digital divide. In response to these challenges, short-term measures included provision of free electricity, tax exemptions on electricity bills and in some cases waiver of bill payments. However most economic stimulus packages in Africa did not explicitly target renewables, with the exception of *Nigeria, Kenya* and *Burkina Faso* (Mccarthy and Hammond, 2020). In

2019, renewables accounted for 74% of total electricity capacity and generation in Kenya, 16 % in Nigeria and 25% in Burkina Faso (IRENA, 2020c)(IRENA, 2020b)(IRENA, 2020a).

Box 7: Burkina Faso

In April 2020, an announcement from The President of Burkina Faso, His Excellence Mr Roch Marc Christian Kabore declared several tax incentives for critical sectors including a reduction in electricity bills. Specific to renewables is a Solar Home System project, that will see a 50% cost reduction for solar kits for vulnerable households.

In addition, the port closures and restricted movements caused considerable delay in delivery and installation of equipment for renewable energy projects. This has negatively impacted completion periods for these projects.

In many European, but also Asian (e.g. India, Bangladesh, Philippines) recovery packages, RE is particularly mentioned to either (or both) reduce energy bills or add

local economic value. This has not been a trend in Africa in part because with low emissions per capita compared with many other countries, the priority for the continent is development, alleviating poverty and inequality, rather than a reduction of emissions. Infrastructure is inadequate and access to modern and safe energy is limited. COVID-19 has worsened the economies of many of the African countries, many of which have made efforts towards increasing the share of RE in their energy mix to harness socio-economic benefits. However, the continent can still do better in harnessing the intent to scale up renewables to drive development. Renewable energy roll-out needs to be approached within a more holistic context, with sustainability at its centre.

Strengthening the role of renewables in recovery and development plans

What does Recovering Better mean for Africa's Energy Sector?

Business across Sub-Saharan Africa incur average annual losses of around 8% of total revenue due to electricity disruptions (IEA, 2019). If African economies are to emerge from the global pandemic, there is a need to increase generation capacity through increasing the share of renewables. This has the potential to greatly improve electricity system reliability to facilitate economic growth, even in the most remote regions.

Power sectors across the continent are dominated by state owned, vertically integrated utilities which exhibit poor

Box 8: Public-Private partnerships in South Africa

South Africa's Integrated Resources Plan (IRP 2019) aims to increase the share of renewables in the energy mix with an additional 14.4 GW of wind and 6 GW of solar generation by 2030 (Keen 2020).

Since its launch, the Renewable Energy Independent Power Producer Program (REIPPPP) has seen US \$16 billion in private-sector investment, totalling 5,243 MW of renewable energy (Partnership on Transparency in the Paris Agreement, 2020). Since its inception tariff rates for solar PV and wind projects have declined significantly.

technical and financial performance¹. Addressing the inadequate policy and regulatory frameworks² in order to support renewables will require nuanced approaches which take into consideration very different country contexts (REN21, 2021). Creating a conducive environment will accelerate private investment to meet the high capital costs and supporting technologies for renewables (United Nations Economic Commission for Africa, 2016). Development Finance Institutions (DFIs) can offer partial risk guarantees to strengthen government guarantees and mitigate business risks for Independent Power Producers (IPPs) (Eberhard, Kolker and Leigland, 2014). Independent regulators can also play a key role in protecting independent power producers from arbitrary government action. This will encourage investment in renewables at a time when uncertainty is the order of the day.

Africa's development plan: Agenda 2063

The reliance of African countries on development aid could impact funding for RE projects as countries reprioritize, in the wake of the global pandemic (Mccarthy and Hammond, 2020). Agenda 2063, Africa's economic blueprint, aims to ensure inclusive growth and sustainable development. Among the Agenda 2063 goals is creating environmentally sustainable and climate resilient economies and communities through renewables. Now operational, the Africa Continental Free Trade Area is one of the Agenda 2063 flagship projects which aims to accelerate intra-African trade. By strengthening Africa's common voice and policy space in global trade negotiations, the (AfCFTA) can boost Africa's trading position in the global renewable energy market (African Union, 2015).

Further, the second phase of the Programme for Infrastructure Development in Africa (PIDA PAP II) sets sector priorities which include the Africa Single Electricity Market (AfSEM) aimed at establishing market operation over continental interconnected electricity infrastructure. The AfSEM has potential to realize economies of scale for the relatively small and fragmented power systems on the continent (Shen and Ayele, 2020).

Green recovery, a question of governance

Sustainable development remains the main challenge for the continent and African leaders must create strategies that propel economic recovery and green growth. If Africa increases electrification using fossil fuels, the continent will fail to meet its commitments to the Paris Agreement. The role of renewables in shaping Africa's Covid-19 recovery efforts will largely be a question of leadership and institutional capacity. Government policies and economic stimulus packages will impact the transition to clean energy. Cities can and have played an important role in the implementation of

¹ Across the continent, early power sector reforms were driven by poor technical and financial performance of vertically integrated state owned utilities. However, the results of the application of the standard reform model in Sub-Saharan Africa have not mirrored progress in OECD countries. Many Sub-Saharan African countries have retained state-owned utilities, with no wholesale and retail competition at all. As a result of below cost tariffs, utilities are unable to finance technical improvements required to address frequent blackouts and high transmission and distribution losses (Gratwick and Eberhard, 2008) (Eberhard and Godinho, 2017).

² Although regulatory agencies have been established across many African countries, the effective application of regulatory frameworks is somewhat hindered by the continued dominance of state owned utilities and arbitrary government intervention in tariff setting or licensing procedures (Foster and Rana, 2020).

national policies to roll out renewables. Across the globe, countries leading the energy transition are not necessarily those with the best renewable energy resource potential, but those with good governance and strong institutions.

References

Africa Progress Report (2015) *Africa Progress Report, The Guardian*. Available at: <http://www.theguardian.com/environment/2015/oct/29/how-tanzania-plans-to-light-up-a-million-homes-with-solar-power%5Cnpapers3://publication/uuid/1CB4A546-20ED-4BF6-90E4-5BC2F1E98DD2>.

African Union (2015) *Agenda 2063: The Africa We Want*. Available at: <https://au.int/en/agenda2063/overview> (Accessed: 17 April 2021).

Attia, B. and Shirley, R. (2017) *Living Under the Grid: 110 Million of Africa's Unconnected Customers Represent a Massive Opportunity*, *Green Tech Media*. Available at: <https://www.greentechmedia.com/articles/read/living-under-the-grid-110-million-of-africas-unconnected-customers-represen>.

Canning, D., Raja, S. and Yazbeck, S. A. (2015) *Africa's Demographic Transition: Dividend or Disaster?*

Eberhard, A. and Godinho, C. (2017) 'A Review and Exploration of the Status, Context and Political Economy of Power Sector Reforms in Sub-Saharan Africa, South Asia and Latin America', pp. 1–42.

Eberhard, A., Kolker, J. and Leigland, J. (2014) 'Republic of South Africa Review of the South Africa Renewable Energy IPP Process', pp. 1–64.

Foster, V. and Rana, A. (2020) *Rethinking Power Sector Reform in the Developing World, Rethinking Power Sector Reform in the Developing World*. doi: 10.1596/978-1-4648-1442-6.

Gratwick, K. N. and Eberhard, A. (2008) 'Demise of the standard model for power sector reform and the emergence of hybrid power markets', *Energy Policy*, 36(10), pp. 3948–3960. doi: 10.1016/j.enpol.2008.07.021.

IEA (2019) 'Africa Energy Outlook 2019 - Overview Ethiopia', *World Energy Outlook Special Report*, p. 288. Available at: <https://www.iea.org/reports/africa-energy-outlook-2019#energy-access%0Ahttps://www.iea.org/reports/africa-energy-outlook-2019#africa-case>.

IRENA (2019) *Innovation landscape for a renewable-powered future: Solutions to integrate variable renewables*, International Renewable Energy Agency, Abu Dhabi.

IRENA (2020a) *Nigeria Energy Profile, IUPAC Compendium of Chemical Terminology*. doi: 10.1351/goldbook.e02112.

IRENA (2020b) *Renewable Energy Statistical Profiles 2020 (Kenya)*.

IRENA (2021) *Renewable capacity statistics 2021*.

Mccarthy, M. and Hammond, S. (2020) 'Globale RE Congress: COVID-19 energy sector responses in Africa: A review of preliminary government interventions', (January).

Partnership on Transparency in the Paris Agreement (2020) *South Africa's Renewable Energy Independent Power Producer Procurement Programme*. Available at: <https://www.transparency-partnership.net/gpd/south-africas-renewable-energy-independent-power-producer-procurement-programme>.

Shen, W. and Ayele, S. (2020) 'Energy and economic growth: COVID-19 and the African energy sector', (September).

United Nations Economic Commission for Africa (2016) *Enabling measures for an inclusive green economy in Africa*.



This project has been made possible through the generous support of the **German Federal Environmental Foundation (Deutsche Bundesstiftung Umwelt/DBU)** and the **Stiftung Mercator**. Additional support for this project was made available by **Mr. Amir Roughani**, Ambassador for the **World Future Council**.