



AFRICAN ENERGY COMMISSION

ALAMAU 2019

ENHANCING CLEAN ENERGY
GENERATION FOR THE AFRICAN
CONTINENT

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ALAMAU
African Leadership Academy Model African Union

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Acronyms and Abbreviations

The African Development Bank (AfDB)

The African Energy Commission (AfREC)

The African Leadership Academy Model African Union (ALAMAU)

The African Union (AU)

Chlorofluorocarbons (CFC's)

Common Market for Eastern and Southern Africa (COMESA)

The East African Community (EAC)

The East African Power Pool (EAPP)

The Economic Community of West African States (ECOWAS)

Economic Recovery and Growth Plan (ERGP)

The ECOWAS Centre for Renewable Energy and Energy Efficiency (ECREEE)

The Electricity Regulatory Authority-Uganda (ERA)

The European Centre for Developmental Policy Management (ECDPM)

The European Union (EU)

Giga Watts (GW)

The Grand Ethiopian Renaissance Dam (GERD)

Growth and Transformation Plan (GTP)

The International Energy Agency (IEA)

The International Renewable Energy Agency (IRENA)

Mega Watts (MW)

Non-Governmental Organizations (NGO)

Public Private Partnerships (PPP)

The Renewable Energy Management Plan (REMP)

The Southern African Development Community (SADC)

The United States Agency for International Development (USAID)

The United Nations Economic Commission for Africa (UNECA)

The United Nations Environment Program (UNEP)

The World Bank (WB)

Letter from the Chairperson

Dear Delegates,

It is with great pleasure that I welcome you to the African Leadership Academy Model African Union (ALAMAU), and specifically the African Energy Commission (AfREC)!

My name is Alvin Louis Omach. I am from Kampala, Uganda, and am currently a second year student at the African Leadership Academy (ALA). I started to garner an interest in politics during the 2017 presidential age limit bill protest in Uganda. Attempts to stop a 32-year dictatorship were thwarted when Members of



Parliament voted to remove this clause of the constitution, in turn allowing President Museveni to run for a sixth term in office. During this time, the key involvement of the youth in advocating for change specifically caught my eye. These events helped me realize that, “If you don’t take an interest in politics, politics will take an interest in you” (Trevor Lwere).

At ALA, I have further explored my interest in politics and International Relations. Through the International Relations Council (IRC), I was selected to represent ALA as a delegate at the Georgetown Model United Nations (MUN) and Johannesburg MUN. This year, I am honoured to chair the AfREC. Through this conference, we will delve into Africa’s bid to enhance its clean energy generation capacity. You will be afforded the opportunity to conduct research, represent your country and present what you believe will improve our continent. In preparation, I encourage you to read this Study Guide thoroughly. Please note however that this is merely a frame; further reading will be crucial in generating a fruitful debate! Please feel free to contact me if you have any questions on AOmach17@alastudents.org

Best Regards,

Alvin Louis Omach

Chairperson

African Energy Commission

About the Committee

The African Energy Commission is a continental African structure with the objective of providing leadership in the development of Africa's energy resources. It also aims to enhance energy security, generate rapid economic and social growth, protect the environment, eradicate poverty and improve the quality of life of African populations in sustainable ways.¹



The Africa Energy Commission. <https://afrec-energy.org>

¹ African Leadership Academy Model African Union, "African Energy Commission: About the committee", <http://www.alamau.org/committees/#1465077230570-d48c5c1a-9063>, (Accessed 22nd November 2018). For more information, please visit <https://afrec-energy.org/En/>

Statement of the Issue

Terminology

The African Union (AU) Vision 2063: a strategic framework for the socio-economic transformation of the continent over the next fifty years. It builds on current progress made in different fields, and seeks to accelerate the implementation of past and existing continental initiatives for sustainable development in a bid to harness the potential within the continent.²

Fossil fuels: including coal, oil and natural gas, fossil fuels are currently the world's primary energy source. They are formed from organic material over the course of millions of years. Fossil fuels are finite resources and harm the environment. They do not provide a long term solution to Africa's energy needs.³

Industrialization: the development of industries within a country. In Africa, this is an initiative to move away from economies reliant on agriculture to manufacturing economies.⁴

Greenhouse gases: gaseous compounds found in the atmosphere, including water vapour, carbon dioxide, tropospheric ozone, nitrous oxide, methane, and chlorofluorocarbons (CFCs), which have the capacity to trap infrared radiation. These are harmful gases that directly contribute towards global warming.⁵

Geothermal Energy: the power generated from heat energy derived from hot water, steam or hot rock that is below the earth's surface.⁶

Hydropower: the generation of power through moving water to turn turbines. It is the world's largest source of renewable energy and is estimated to contribute around one fifth of renewable energy.⁷

Renewable Resources: naturally replaceable energy sources. Including water, oxygen, solar energy and biomass, they are virtually inexhaustible in duration but limited in the amount of energy available per unit of time.⁸

Solar Power: "The conversion of energy from sunlight into electricity, either directly using photovoltaics, indirectly using concentrated solar power, or a combination."⁹

² African Union, Agenda 2063, <https://au.int/en/agenda2063>, Accessed 13th September 2018

³ Environmental and Energy Study Institute, Topics: "Fossil Fuels", <https://www.eesi.org/topics/fossil-fuels/description>, Accessed 14th September 2018

⁴ Encyclopaedia Britannica, "Topic: Industrialization", <https://www.britannica.com/topic/industrialization>, Accessed 20th September 2018

⁵ United States Environmental Protection Agency, "Overview of Greenhouse gasses", <https://www.epa.gov/ghgemissions/overview-greenhouse-gases>, Accessed 21st September 2018

⁶ Encyclopaedia Britannica, "Science: Geothermal Energy", <https://www.britannica.com/science/geothermal-energy>, Accessed 21st September 2018

⁷ Studentenergy.org, "Topics: Hydropower", <https://www.studentenergy.org/topics/hydro-power>, Accessed 21st September 2018

⁸ United States Energy Information Administration, "Energy: Renewable sources", https://www.eia.gov/energyexplained/?page=renewable_home, Accessed 21st September 2018

⁹ Student Energy, "Topics: Solar", <https://www.studentenergy.org/topics/solar>, Accessed 21st September 2018

Wind Energy: energy formed due to the capture of natural wind currents in the environment, which are used to turn turbines and generate electricity.¹⁰

The Paris Accords: signed in 2015, this historic international convention brings all nations together in an ambitious effort to combat climate change and adapt to its effects, with commitment to assisting developing countries too. It aims to keep the global temperature this century to well below two degrees Celsius above pre-industrial levels.¹¹

History and Background

As the second largest continent in the world, Africa is undergoing rapid and sustained economic growth, averaging 3.1% annually over the past decade.¹² In 2015, Africa's combined economy was valued at \$2.5 trillion¹³ and is projected to be valued at \$29 trillion by 2050.¹⁴ As such, it is critical for Africa to enhance its energy generation capacity to maintain its economic trajectory. A key obstacle to consider, however, is that an estimated 600 million people on the continent remain without access to electricity,¹⁵ which is about two thirds of the continent's population. In order to power its growth, Africa will need to ensure it has a reliable, accessible and sustainable energy sector.

While the energy sector in Africa is a crucial stimulus for socio-economic change, it is characterized by corruption, mismanagement and poor performance. Contributing factors include weak policies that fail to support the generation of renewable energy, and rather provide fossil fuel subsidies.¹⁶ Furthermore, energy services have experienced poor performance, as they are expensive and unreliable. Africa is also overly dependent on foreign financing of energy projects, which has led to unsustainable funding practices that burden economies. This energy crisis continues to stifle Africa's economic growth and limit job creation.

It is important to note that Africa has the tremendous capacity to generate cheap, renewable electricity that is not a strain on its natural resources. Africa's geothermal energy potential is at 14GW, its hydro

¹⁰ Student Energy, "Topics: Wind Energy", <https://www.studentenergy.org/topics/wind-power>, Accessed 22nd September 2018

¹¹ United Nations Climate Change, "Processes and meetings: The Paris Agreement", <https://unfccc.int/process-and-meetings/the-paris-agreement/the-paris-agreement>, Accessed 22nd September 2018

¹² The World Bank, "Africa: Overview", <http://www.worldbank.org/en/region/afr/overview>, Accessed 22nd September 2018

¹³ Country economy, "AU-African Unity", <https://countryeconomy.com/countries/groups/african-union>, Accessed 22nd September 2018

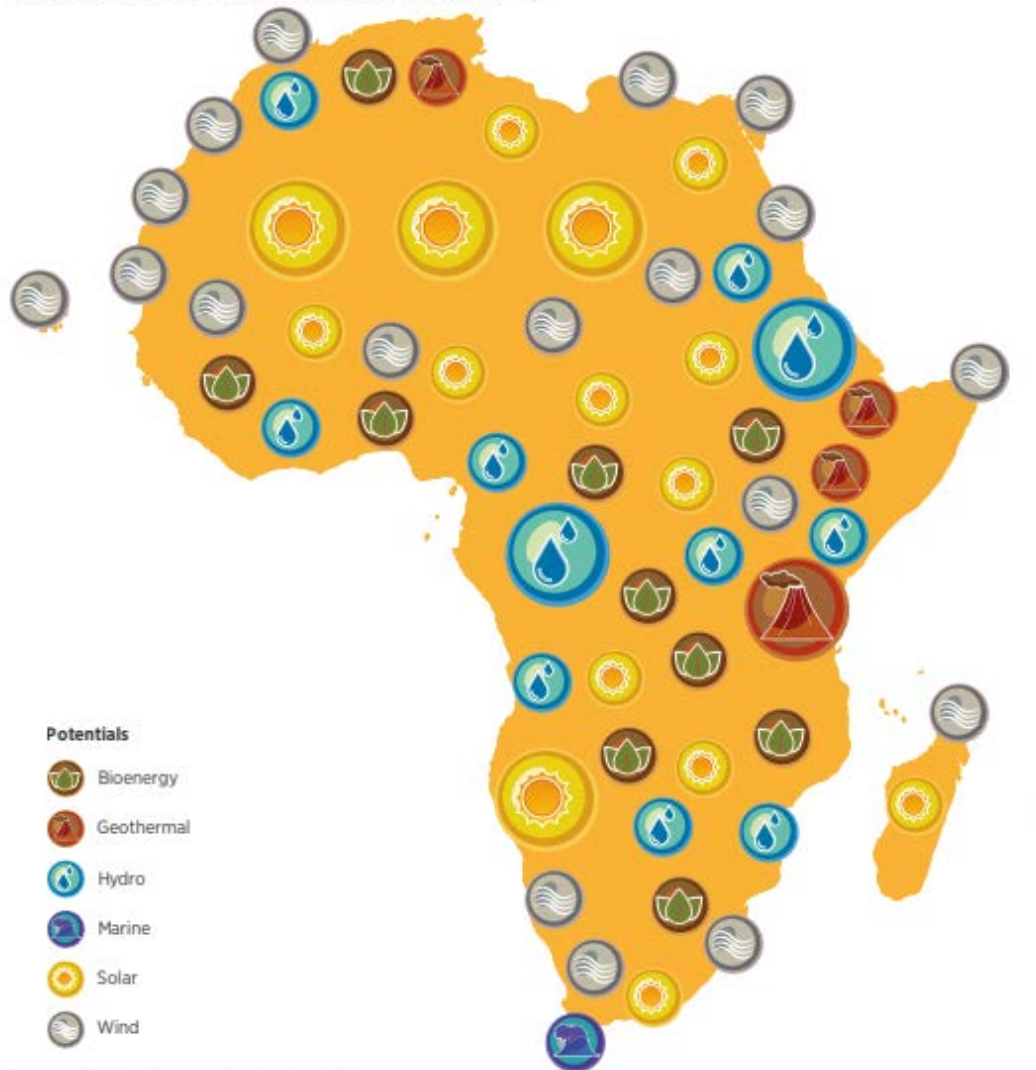
¹⁴ Robertson Charles, CNN, "Get ready for an African boom", <http://globalpublicsquare.blogs.cnn.com/2013/01/22/get-ready-for-an-africa-boom/>, Accessed 23rd September 2018

¹⁵ University of Cambridge, "The future of renewable energy in Africa: Challenges and opportunities", <https://www.cambridge-africa.cam.ac.uk/news/the-future-of-renewable-energy-in-africa-challenges-and-opportunities/>, Accessed 22nd September 2018

¹⁶ The Global Economy on the economy and climate, "Fossil fuels subsidy reform in sub Saharan Africa: from rhetoric to reality", http://newclimateeconomy.report/workingpapers/wp-content/uploads/sites/5/2016/04/FFS-Reform-in-Africa_NCE-ODI_final.pdf, Accessed 23rd September 2018

and wind energy potential is at 100GW, and its solar energy potential is at 90GW.¹⁷ In order to achieve progress however, Africa will have to continually invest in and revise policies to ensure value for money and renewable energy for long-term, cheap energy generation.

Map 2: Distribution of identified renewable energy potential in Africa



International Renewable Energy Agency, "Africa's renewable future: The path to sustainable growth".
http://www.irena.org/documentdownloads/publications/africa_renewable_future.pdf

Conclusion

To sustain its economic growth, Africa will have to invest in clean energy. As key stakeholders, African nations will have to play a central role in reviewing their energy strategies.

¹⁷ Clean Technica, "Investment critical to unlock Africa untapped renewable ",
<https://cleantechnica.com/2017/02/17/investment-vital-unlocking-africas-untapped-renewable-energy-potential/>,
Accessed 23rd September 2018

Current Trends

Meeting the rising demand for power in an economical, sustainable and eco-friendly way is of paramount importance to Africa.¹⁸ This continent is richly endowed with renewable energy sources and adequate planning is thus a necessity to ensure the right energy mix for the future. It is important to note that Africa has made strides in planning for and investing in its future energy demand. It has developed new strategies, such as the emergence of mini solar and hydro power plants, as well as regional grid interconnection. These initiatives support the generation of renewable energy and improves energy access on a regional and national scale.

Off-Grid Small Hydropower Dams

Africa has a rich history of mini hydropower generation plants, established during the 1960s and 1970s. Over time though, many have fallen into disrepair. Since 2009, there has been a resurgence in mini hydropower generation. These projects have demonstrated a positive step in the right direction towards a renewable energy future. Most noteworthy is the fact that they have a relatively low investment cost in comparison with large-scale projects, as each installed kilowatt of power costs \$1,000-\$20,000.¹⁹



Pumps Africa, "Voith Technology Group, Modernizing the Wanji small hydropower plant in Kenya", <http://www.pumps-africa.com/voith-technology-group-modernizing-wanji-small-hydropower-plant-kenya/>

The East African nations of Tanzania, Kenya and Uganda have used these initiatives to bridge their demand and provide rural communities with essential electricity for basic needs.²⁰ They have also identified an energy potential worth 210 MW, 3 GW and 185 MW respectively.²¹ This potential will aid these nations in meeting their rising demands.

¹⁸ International Renewable Energy Agency, "Africa 2030: A road map to renewable energy future", <https://www.res4africa.org/wp-content/uploads/2016/05/Africa-2030-a-roadmap-for-a-renewable-energy-future.pdf>, Accessed 27th September 2018

¹⁹ Hindawi, International Scholarly Research Articles, "Potential of small-scale hydropower for electricity generation on the African continent", <https://www.hindawi.com/journals/isrn/2012/132606/>, Accessed 28th September 2018

²⁰ International Rivers, "Small Hydro a potential bridge for Africa's energy divide", <https://www.internationalrivers.org/resources/small-hydro-a-potential-bridge-for-africa%E2%80%99s-energy-divide-7649>, Accessed 27th September 2018

²¹ IBID

The Regional Interconnection of Electricity Grids

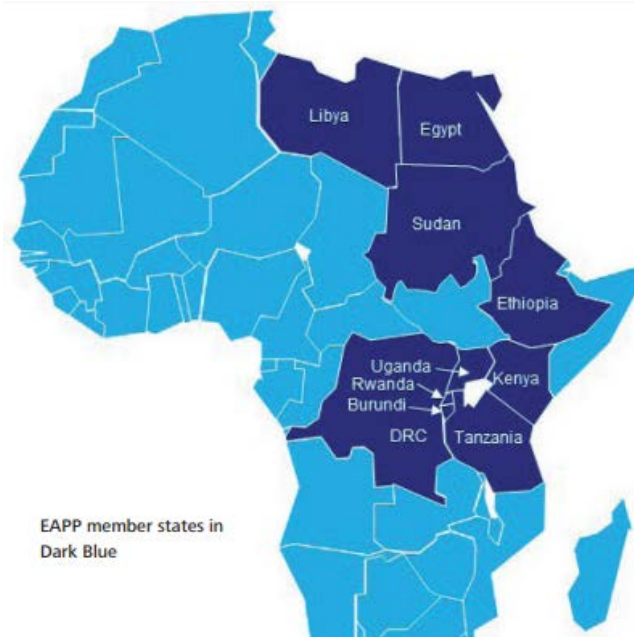
African nations are attempting to foster the development of their energy sectors through the interconnection of national power grids into regional power grids. This aims to improve regional policy planning and foster a supportive environment for renewable energy projects.

In 2005, members of the Common Market for Eastern and Southern Africa (COMESA) bloc began plans for the interconnection of their national electricity grid, termed the Eastern Africa Power Pool (EAPP), which was operationalized in 2015.²² Within this multi-national collaboration, countries such as Ethiopia and the Democratic Republic of Congo (DRC) have hydro-power potential of about 45GW each and an estimated total 1.1 TW of solar energy potential across the member state bloc.²³ The interconnection of national grids ensures the maximization of renewable energy resources in the region to ensure nations can meet the demand. This is an important step for the continent that works towards the AU Vision 2063.

Off-Grid Solar Energy Generation

Africa has huge potential for the generation of solar energy at an estimated 90GW.²⁴ As such, in order to meet future energy demand, it is crucial to exploit its solar energy potential. African nations have taken up this initiative and increased investment into mini-grids across their nations.

In Tanzania, the company 'JUMEME' has piloted its first solar power plant in Ulkara. They are targeting the construction of 300 mini grids to utilize Tanzania's solar potential.²⁵ This model has proven successful and has accordingly been adopted by other countries, including Senegal which has 35 solar hybrid power plants, and Mali,



Deloitte, "The Road map to a fully integrated and operational East African Power Pool",
https://www2.deloitte.com/content/dam/Deloitte/ke/Documents/energy-resources/ER_Power%20TL.pdf

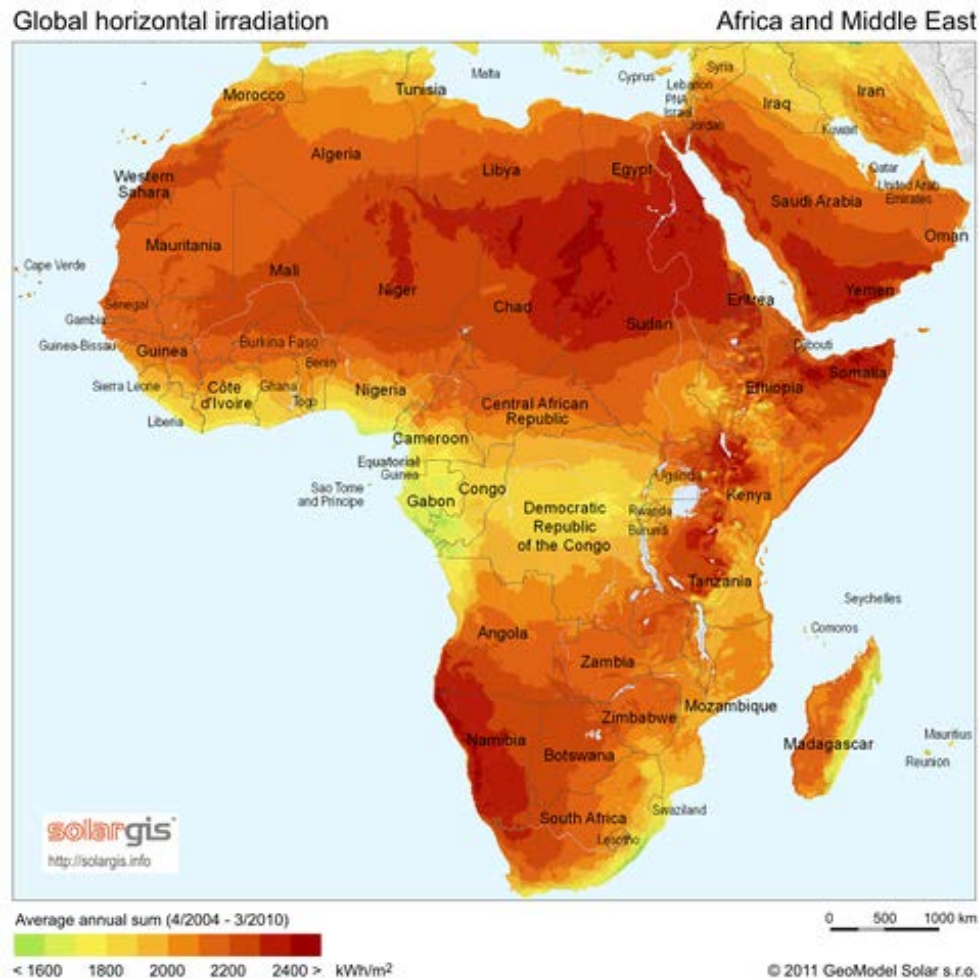
²² RES4Africa, "Role of regional integration in fostering re-integration of the East African Power Pool",
<https://www.res4africa.org/wp-content/uploads/2018/01/PP-9-Role-of-interconnection-in-fostering-RE-integration-in-the-EAPP.pdf>, Accessed 28th September 2018

²³ IBID

²⁴ Clean Technica, "Investment critical to unlock Africa untapped renewable ",
<https://cleantechnica.com/2017/02/17/investment-vital-unlocking-africas-untapped-renewable-energy-potential/>, Accessed 29th September 2018

²⁵ Sustainable Energy for All, "JUMEME's unique mini grid model gaining traction in Tanzania",
<https://www.seforall.org/content/jumeme-unique-mini-grid-model-gains-traction-tanzania>, Accessed 29th September 2018

which has about 400 solar power mini grids.²⁶ The support of the government is crucial to the implementation and success of these projects. They have the potential to provide a conducive environment, as well as the necessary partnership to finance these projects.



Eniday, "Unlocking Africa's solar energy potential",
https://www.eniday.com/en/sparks_en/unlocking-africas-solar-potential/

Conclusion

To sustain its economic growth, Africa will have to invest more in energy that is eco-friendly and sustainable. New initiatives adopted by African nations to bolster their renewable energy generation, such as off-grid energy generation and regional power pools, are steps in the right direction.

²⁶ International Renewable Energy Agency, "Africa 2030: Road Map for a renewable energy future",
<https://www.res4africa.org/wp-content/uploads/2016/05/Africa-2030-a-roadmap-for-a-renewable-energy-future.pdf>,
 Accessed 30th September 2018

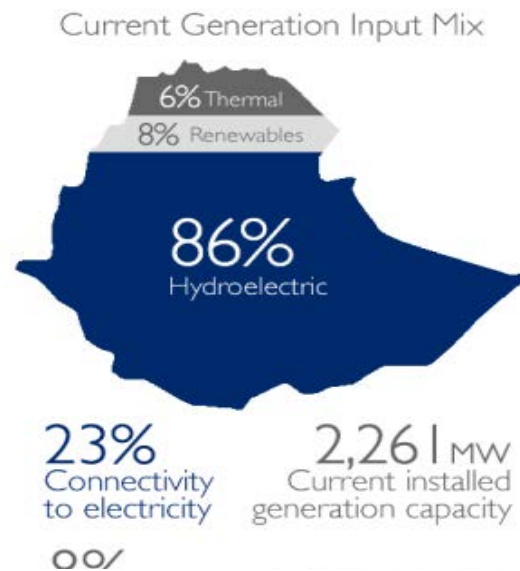
Case Study One: Ethiopia's Approach to Energy

This section will offer a critical analysis of a country that has enhanced renewable energy generation. It will scrutinize the effectiveness of its policies and their possible replication across Africa.

An Overview of Ethiopia's Energy Sector

As the fastest growing economy in Africa, averaging a 10.3%²⁷ growth over the past decade, Ethiopia's rapid development has been fuelled by increased investment in the energy sector that has availed cheap electricity. With an abundance of renewable energy resources, including hydropower, solar, geothermal and wind energy, and a generation potential of 60,000 MW,²⁸ Ethiopia has the capacity to run its energy sector entirely on renewable energy.

With a current generation capacity of 2300MW, Ethiopia's energy sector is mainly powered by renewable energy sources such as hydropower, which contributes 86% to the Ethiopian national grid. Through Phase One of its Growth and Transformation Plan (GTP),²⁹ Ethiopia has invested heavily in its energy sector. It is also nearing completion of the 1870MW Gibe 3 dam, the 1450MW Gibe 4 dam, the 600MW Gibe 5 dam and the 6000MW Grand Renaissance Dam (GERD). Ethiopia's relentless investment in renewable energy posits a promising future for this nation.



United States Agency for International Development, "Power Africa in Ethiopia", https://www.usaid.gov/sites/default/files/documents/1860/Ethiopia%20Country%20Fact%20Sheet_0.pdf

Ethiopia's Energy Policy and National Development Plan

Ethiopia's approach to systematically planning its national development and clearly outlining its energy policy has been crucial in its renewable energy generation. As per its GTP, Ethiopia has planned for the investment and implementation of a series of renewable energy projects. This will enable it to meet its 2020 target of 17000MW generation capacity and 35000MW by 2037.³⁰ Ethiopia has further grown its renewable energy generation capacity and provided cheap electricity for its citizens through the implementation of certain policies. These include the Climate Resilient Green Economic (CRGE)

²⁷ The World Bank, "Country Overview: Ethiopia", <https://www.worldbank.org/en/country/ethiopia/overview>, Accessed 10th October 2018

²⁸ Export.gov, "Ethiopia-Energy", <https://www.export.gov/article?id=Ethiopia-Energy>, Accessed 11th October 2018

²⁹ United States Agency for International Development(USAID), "Power Africa In Ethiopia", https://www.usaid.gov/sites/default/files/documents/1860/Ethiopia%20Country%20Fact%20Sheet_0.pdf, Accessed 11th October 2018

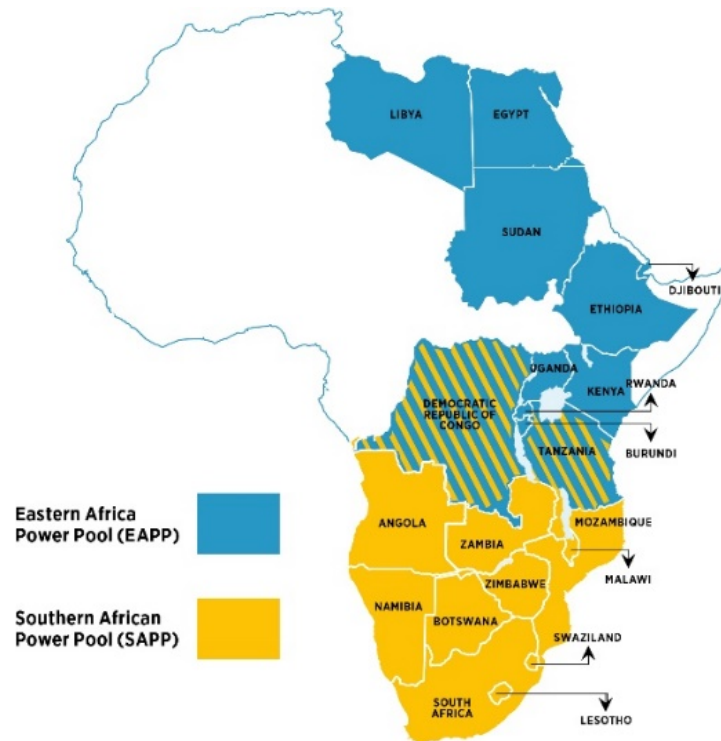
³⁰ ibid

plan.³¹ Similarly, the implementation of the Ethiopian electricity Feed-in-Tariff Proclamation incentivizes renewable energy generation.³²

Partnerships with the Private Sector

In line with its national policy, Ethiopia has engaged in partnerships with the East African Community and is a part of the East African Power Pool (EAPP). This is an agreement to share electricity across the region to cover deficits in varied countries. It provides a platform for the financing of energy projects, as well as ensuring the implementation of renewable energy policies.³³

Ethiopia has further managed to secure key partnerships. This is exemplified through the implementation of the ‘Scaling-Up Renewable Energy Program’,³⁴ in conjunction with the African Development Bank (AfDB) and the World Bank (WB).



The Eastern Africa Power Pool, <http://eappool.org/#top>

Conclusion

Key to Ethiopia’s rapid energy growth has been the strategic implementation of its national development plan and the adequate structuring of its energy policy to ensure the realization of its targets. The formation of key partnerships with developmental partners such as the AfDB and the WB have provided the government with the necessary funds for its projects. The replication of Ethiopia’s development policy is feasible, but requires strong policy formation and implementation.

³¹ Renewable Energy and Energy Efficiency Partnership, “Ethiopia (2014)”, <https://www.reeep.org/ethiopia-2014>, Accessed 12th October 2018

³² *ibid*

³³ Kangereha Dorcas, Construction Review Online, “Construction of Phase 1 of the regional power pool set for completion”, <https://constructionreviewonline.com/2018/08/phase-i-of-regional-power-pool-project-set-for-completion-by-mid-2019/>, Accessed 13th October 2018

³⁴ Renewable Energy and Energy Efficiency Partnership, “Ethiopia (2014)”, <https://www.reeep.org/ethiopia-2014>, Accessed 13th October 2018

Case Study Two: Nigeria's Approach to Energy

This section will offer a critical analysis into Nigeria's attempt to implement strategies to enhance renewable energy generation. It will scrutinize the effectiveness of its policies and the possible replication of these strategies across the continent.

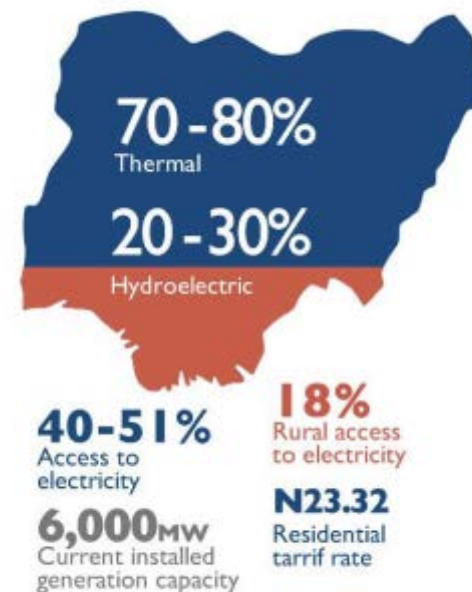
An Overview of Nigeria's Energy Sector

As per the 2015 Power Africa report³⁵, Nigeria currently has an estimated 12500MW energy generation, with only 4000MW available for transmission to the customer. This capacity consists of fossil fuels accounting for 87.5% and hydropower that accounts for 12.5%.³⁶

Nigeria's energy sector consists of thermal energy, which is formed from the burning of non-renewables and contributes 87.5% to the national grid, and hydro-electricity that contributes 12.5% to the national grid. This energy generation capacity is incapable of meeting the demand of Nigeria's population, which stands at an estimated 184 million.³⁷ In fact, the under-generation of power in Nigeria has led to 15 hour power cuts, which in turn stifles the growth of industries.

In a bid to counter the inefficiencies within the sector, the government is instituting a phased plan to increase generation and promote efficiency within its sector. In particular, Nigeria plans to increase installed generation capacity to 100,000MW by 2030.³⁸ In order to achieve this target, Nigeria is investing \$20 billion into twenty solar energy projects aimed at generating 10,000MW.³⁹ A further \$5.8 billion is being invested into the construction of a 3050MW dam.⁴⁰ The increased investment into renewable energy projects is a step in

Current Generation Input Mix



Source: US Energy Information Administration, International Energy Statistics, 2010; NERC, Multi-Year Tariff Order (MYTO) 2.1, 2015 - 2018

Power Africa, "Nigeria Energy sector overview", <https://bit.ly/2KkBiHn>

³⁵ Power Africa, "What Power Africa Means for Nigeria, Nigeria Energy sector overview", https://www.usaid.gov/sites/default/files/documents/1860/Nigeria%20Country%20Fact%20Sheet_05_04_15.pdf, Accessed 21st October 2018

³⁶ Africa-European Union Renewables, "Nigeria-Energy Sector", <https://www.africa-eu-renewables.org/market-information/nigeria/energy-sector/>, Accessed 22nd October 2018

³⁷ The World Bank, "Country review: Nigeria", <https://www.worldbank.org/en/country/nigeria/overview>, 23rd October 2018

³⁸ Future Energy Nigeria, "Opportunities in Nigeria", <http://www.future-energy-nigeria.com/opportunities>, Accessed 23rd October 2018

³⁹ Construction Review Online, "Nigeria Invests \$20 billion in 20 new solar projects", <https://constructionreviewonline.com/2017/12/nigeria-invests-us-20bn-20-new-solar-projects/>, Accessed 27th October 2018

⁴⁰ Bloomberg LP, "Nigeria to start building \$5.8 billion hydro-power plant in 2018", <https://www.bloomberg.com/news/articles/2018-01-30/nigeria-to-start-building-5-8-billion-hydro-power-plant-in-2018>, Accessed 27th October 2018

the right direction to ensure that it can meet the local demand while ensuring that its energy generation is eco-friendly and economically viable.

Despite being rich in fossil fuels, Nigeria has opted to implement an energy policy that favours renewable sources to ensure the long-term development of its sector. In line with its national Renewable Energy Management Plan (REMP),⁴¹ Nigeria has set itself a target of 3000MW of renewable energy generation by 2025.⁴² It further plans to add 10GW of electricity from renewable sources, set for completion by 2030 under the Economic Recovery and Growth Plan (ERGP).⁴³

Partnerships with Private Companies and developmental Agencies

Nigeria has signed partnership deals with private sector organizations to improve renewable energy generation and attract funding. In 2013, the government privatized power holding and distribution companies to improve efficiency, attract more capital and incentivize the development of this sector.⁴⁴ The government specifically instituted a Power Purchasing Agreement (PPA) with the companies as a regulatory framework in this regard.

As a member of ECOWAS, Nigeria has partnered with the ECOWAS Centre for Renewable Energy and Energy Efficiency (ECREEE). Under the auspices of the Ouagadougou Declaration,⁴⁵ this partnership aims to ensure the sustainable development of the nation's energy sector as well as the promotion of renewable energy sources. These partnerships have enabled Nigeria to prioritize renewable energy and use it as a simulant to reignite the growth of its economy.

Conclusion

Nigeria is experiencing what can be termed 'energy poverty'.⁴⁶ It has, however, excelled in the conception and implementation of projects aimed at enhancing its renewable energy generation.⁴⁷

⁴¹ Laurea University of Applied Sciences, "Nigeria & renewable energy", <https://www.laurea.fi/en/document/Documents/Nigeria%20Fact%20Sheet.pdf>, Accessed 27th October 2018

⁴² International Energy Agency, "Nigeria Renewable Energy Management Plan", <https://www.iea.org/policiesandmeasures/pams/nigeria/name-24808-en.php?s=dHlwZT1yZSZzdGF0dXM9T2s.&return=PG5hdiBpZD0iYnJlYWRRjcVtYiI-PGEgaHJLzj0iLyl-SG9tZTwyYT4gJnJhcXVvOyA8YSBocmVmPSlvcG9saWNpZXNhbmRtZWZzdXJlcy8iPlBvbGJjaWVzIGFuZCBNZWFzdXJlcwvYT4gJnJhcXVvOyA8YSBocmVmPSlvcG9saWNpZXNhbmRtZWZzdXJlcy9yZW5ld2FibGVlbmVyZ3kvlj5SZW5ld2FibGUgRW5lcmd5PC9hPjwvbmF2Pg...>, Accessed 28th October 2018

⁴³ Federal Republic of Nigeria, "Economic Recovery and Growth Plan, 2017-2020", <https://yourbudget.com/wp-content/uploads/2017/03/Economic-Recovery-Growth-Plan-2017-2020.pdf>, Accessed 29th October 2018

⁴⁴ Power Africa, "What Power Africa Means for Nigeria, Nigeria Energy sector overview", https://www.usaid.gov/sites/default/files/documents/1860/Nigeria%20Country%20Fact%20Sheet_05_04_15.pdf, Accessed 29th October 2018

⁴⁵ Economic Community of West African States, "ECOWAS centre for renewable energy and energy efficiency (ECREEE)", <http://www.ecowas.int/specialized-agencies/ecowas-centre-for-renewable-energy-and-energy-efficiencyecreee/?nohlkfbimdbie>, Accessed 30th October 2018

⁴⁶ Energy Poverty: the lack of access to modern energy services according to EnergyPedia, https://energypedia.info/wiki/Energy_Poverty, Accessed 31st October 2018

⁴⁷ Sambo Abubakar, "Implementation of energy plans, a solution to Nigeria's energy crisis", https://www.researchgate.net/publication/321342659_IMPLEMENTATION_OF_ENERGY_PLANS_A_SOLUTION_TO_NIGERIA'S_ENERGY_CRISIS, Accessed 31st October 2018

Through its increased investment, partnerships with regional organizations, and the formation of adequate policies, it has been able to restructure its energy sector aimed at the efficiency and growth of its clean energy generation. As such, despite the challenges it has faced, Nigeria is working tremendously hard to ensure the long-term viability of its energy sector.

Stakeholders

The African Energy Commission

This continental African structure of the AU is responsible for the protection and integration of energy resources on the continent. It plays a crucial role in the sustainable development of the energy sector through policy formation and funding schemes for energy projects in Africa. It is accordingly a crucial stakeholder in ensuring the unilateral implementation of projects and policies across the continent towards the enhancement of clean energy generation.

The African Population

Only fifty percent of the 1.2 billion people in Africa have access to electricity. All citizens are accordingly impacted by the energy policies and projects that their governments implement. Clean energy is a cheaper and more eco-friendly alternative, and the implementation of such projects has the potential to spur growth.

International Non-Governmental Organizations (NGOs)

Numerous developmental agencies partner with African governments to ensure the development of various energy sectors. Agencies of the UN, including the United Nations Environment Programme (UNEP), the United Nations Economic Commission for Africa (UNECA), and funding agencies that invest billions in projects, such as the International Monetary Fund (IMF), the WB and several other organizations, have direct and indirect partnerships with energy projects and infrastructure developments in Africa. These organizations fund projects and provide technical support to ensure adequate energy policies are developed and implemented. As such, they are crucial stakeholders in ensuring African governments have the financial capability to fund projects, as well as in ensuring that policies are aimed at improving renewable energy generation.

African Governments

The development of national economies and the industrialization of nations are important to African governments. This can only be achieved with a reliable energy sector that can provide cheap, eco-friendly energy. Governments thus play a key role in the implementation of energy policies and projects.

Proposed Solutions

Regional Collaboration

Governments have been successful in forming partnerships to foster the enhancement of clean energy generation across the continent. In East Africa, the governments of the member states of the EAC bloc formed a power sharing agreement; the EAPP.⁴⁸ This project is set to save these countries \$1.2 billion annually and improve reliability of their respective energy sectors by 5%.⁴⁹ In addition, it has attracted 208.9 million euros in funding for clean energy projects.⁵⁰ This model of regional

IRENA, "Africa clean energy corridor", <https://bit.ly/2FwqHdN>

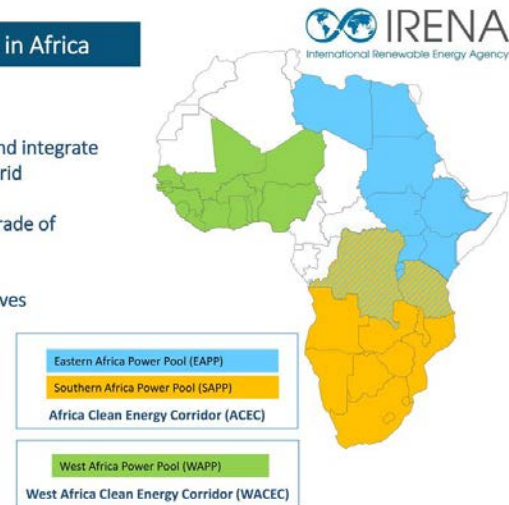
collaboration towards a shared aim has the ability to be replicated across the continent and could be effective in solving the challenges that Africa faces.

Privatisation

Recently, governments have opted to privatise energy projects in a bid to seek capitalization and efficiency of their energy sectors. Countries such as Uganda successfully managed to privatize accordingly. Through the Electricity Act of 1999,⁵¹ it eradicated load shedding and grew electricity generation from 359.5MW⁵² to about 1600MW.⁵³ This is a testament to the positive potential effects of privatization. As such, privatisation is a viable solution for many countries in the continent.

Clean Energy Corridors in Africa

- Develop RE resources and integrate renewable power into grid
- Promote cross-border trade of renewable power
- Build on regional initiatives



⁴⁸ The Eastern Africa Power Pool, "Eastern Africa Power Pool (EAPP) is a regional adopted as specialized institution of COMESA for the electric power sector." <http://eappool.org/>, Accessed 9th November 2018

⁴⁹ Eastern Africa Power Pool, "African electricity supply industry standards, perceived need of the power pools", [http://web.vdw.co.za/Portals/15/Documents/Presentations/EAPP%20presentation to AFSEC-%205.pdf](http://web.vdw.co.za/Portals/15/Documents/Presentations/EAPP%20presentation%20to%20AFSEC-%205.pdf), 10th November 2018

⁵⁰ The African Union, "The Africa-EU partnership", <https://www.africa-eu-partnership.org/en/success-stories/investing-renewable-energy-east-africa>, Accessed 11th November 2018

⁵¹ Martin Keith, Norton Rose Fulbright, "Power Privatizations in Africa: Key lessons", <http://www.nortonrosefulbright.com/knowledge/publications/150409/power-privatizations-in-africa-key-lessons>, Accessed 12th November 2018

⁵² United States Agency for International Development, "Power Africa in Uganda: Uganda's Energy Sector Overview", https://www.usaid.gov/sites/default/files/documents/1860/UgandaCountryFactSheet.2016.09_FINAL.pdf, Accessed 14th November 2018

⁵³ Electricity Regulatory Authority, "Uganda's Electricity Sector Overview", <https://www.era.or.ug/index.php/sector-overview/uganda-electricity-sector>, Accessed 14th November 2018

Renewable Energy Policies

The introduction of energy policies, particularly those that favour the development of renewable energy resources, grants nations strategic direction. Countries such as Ethiopia, through its GTP, has been able to increase its energy production from 2000MW to 10,000MW.⁵⁴ These policies have in turn encouraged investors to fund projects. Streamlining existing policies to ensure the strategic planning and phased implementation of these projects will be essential for countries across Africa.

Sustainable Funding

In July 2016, a 0.2% levy on African imports was proposed by the AU to contribute funds towards the implementation of AU projects.⁵⁵ This taxation plan is projected to generate \$1.2billion to fund projects.⁵⁶ These funds, although not sufficient to fund Africa's energy needs, are beneficial in contributing towards the enhancement of clean energy generation on the continent.

Public-private partnerships are an alternative funding scheme that could be used to meet Africa's energy sector demands. Governments can partner through these partnerships to execute projects. Countries such as South Africa, for example, have managed to attract \$16billion in funding for renewable energy projects, including the Gouda Wind Project.⁵⁷



The Green Political Foundation, <https://bit.ly/2DQfraC>

⁵⁴ United States Agency for International Development, "Power Africa In Ethiopia: Ethiopia's Energy Sector Review", https://www.usaid.gov/sites/default/files/documents/1860/EthiopiaCountryFactSheet_2016.09%20FINAL_0.pdf, Accessed 14th November 2018

⁵⁵ Apiko Philomena, European Centre for Development Policy Management (ECDPM), "Analysis of the implementation of the African Union's 0.2% levy", <https://ecdpm.org/wp-content/uploads/BN98-Apiko-Aggad-November-2017.pdf>, Accessed 14th November 2018

⁵⁶ Kagire Edmund, The East African, "Rwanda approves draft law on new tax for financing AU", <https://www.theeastafrican.co.ke/business/Rwanda-approves-draft-law-tax-financing-African-Union/2560-3812500-vsbldez/index.html>, Accessed November 2018

⁵⁷ Ahifeldt Chris, Blue Horizon, "Public-Private Partnership Success Story: South Africa announces more Utility-Scale renewables", <https://www.bluehorizon.energy/public-private-partnership-success-story-south-africa-announces-more-utility-scale-renewable-energy-projects-from-ipp/>, Accessed 14th November 2018

Questions a Resolutions Must Answer

1. To exploit its immense natural resources, Africa must invest despite its constrained budget, in order to harness its true potential. What possible financing methods can be employed to ensure Africa gains as much as possible from its abundance of energy potential?
2. With thirty-three African states ratifying the Paris accord, Africa has made the commitment to producing energy in an eco-friendly manner, as well to reducing emissions. What can be done to ensure that African governments are held accountable on generating clean forms of energy on the continent?
3. Poor policy formation and energy governance threatens to derail developmental efforts in numerous African nations. With this in mind, what policies and frameworks can be created or revised to ensure efficiency in the implementation of key projects?
4. According to a January 2017 report published by the United Nations Development Programme, there are 226 million youth, aged 15-24, in the continent.⁵⁸ This number is expected to double by 2055. In light of Africa's ever growing young population, what role can the youth play in the shift to clean energy in order to harness Africa's energy potential?
5. Education is a vital tool in implementing energy innovations. What can be done by African nations to improve awareness in future generations on sustaining the advancements in clean energy generation and expediting our growth in the energy sector?

⁵⁸ United Nations Development Programme, "Africa's Defining challenge", http://www.africa.undp.org/content/rba/en/home/blog/2017/8/7/africa_defining_challenge.html, Accessed 18th November 2018

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*"Never doubt that a small group of
thoughtful, committed citizens can
change the world;
indeed, it's the only thing that ever has."*

- Margaret Mead



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