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# Politics of Renewable Energy in Africa: Nature, Prospects, and Challenges

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## Abstract

Energy transition discussions have centered on the technical, economic, and policy aspects of energy transitions. Despite this, the political dynamics have received less attention. It is suggested that since energy policy change threaten incumbent industries and impose substantial costs, enacting and sustaining policies require considerable political support. Even though it is widely acknowledged that barriers to energy transition are primarily political than technical, there is a lack of cohesive literature on the politics that drive, constrain, and shape renewable energy regulation or policy. This gap motivates this study. Adopting a desk research methodology and arguing from the lens of Kingdon's multiple streams framework, the study found among others that the streams of problem, politics and policy shows enough prospects to be coupled for Africa to make a serious consideration on its renewable energy capacity. However, a number of obstacles were also identified to make this venture difficult but are surmountable.

**Keywords:** renewable energy, multiple streams framework, Africa, politics, cleaner energy, energy transition, carbon dioxide emissions

## 1. Introduction

*"Alone we can do so little; together we can do so much"*

Quote attributed to Helen Keller, American Writer and Social Activist.

It is strongly believed that the United Nations (UN) member states were thinking just like Keller when they came up with the sustainable development goals (SDGs) as a means of combining their efforts to confront global developmental challenges of droughts, famine, poverty, climate change, and the likes. Following this, states are expected to "act locally" to ensure that the global SDG agenda is achieved by 2030. Since the discussion here focuses on renewable energy, rehashing Goal 7 of the SDGs is appropriate and situates this discussion in its proper context. The Goal 7 provides that member states should ensure access to affordable, reliable, sustainable and modern energy for all [1]. These include but not limited to ensuring universal access to affordable, reliable and modern energy services; increase substantially the share of renewable energy in the global energy mix; double the global rate of improvement in energy efficiency; enhance international cooperation

to facilitate access to clean energy research and technology. The above targets consistently mention and encourage cleaner energy which makes the discussion on renewable energy timely and relevant.

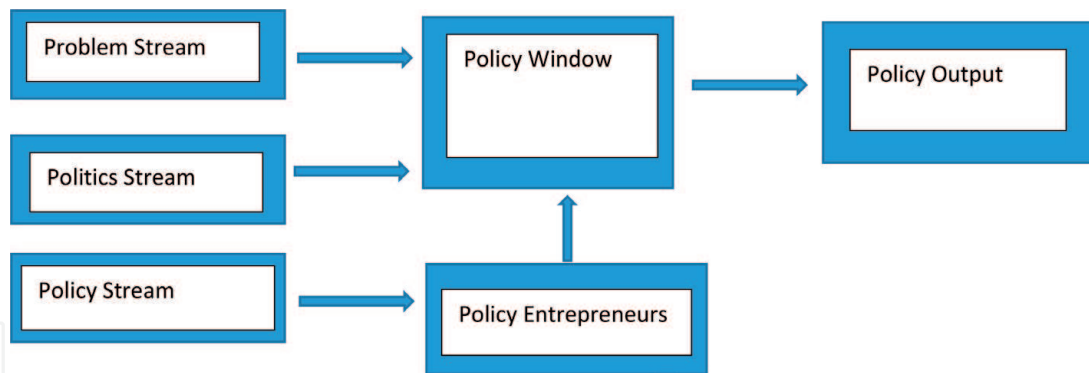
Furthermore, the renewables agenda has become necessary because of global warming evidenced through storms and ice melts, droughts and hunger, unrest and migration [2]. This realization has led to a growing consensus directed at the transition to renewable energy systems, which has come to be known as a process of fuel substitution, a crucial way to addressing the climate crisis [2]. Renewable energy may refer to a form of energy that when used replaces itself and can last indefinitely when well-managed. The principal types of renewable energy consist of solar, thermal, photovoltaics, bioenergy, hydro, tidal, wind, wave, and geothermal [3].

The literature on renewable energy have mostly centered on three key academic fields i.e. political science, policy studies and energy transitions. However, Hughes and Lipsky [4] acknowledge that in political science the subfield of energy politics is “relatively underdeveloped.” They continue that most of the studies fall within the 1970s and 1980s with prime focus on international political economy and oil geopolitics. It is in recent times that there is a gradual shift with new studies relating renewable energy to public opinion [5–7], electoral dynamics [8], coalitional politics [9], and green industrial constituencies [10]. Also, in the policy literature, scholars analyze renewable energy policymaking with theories such as the Multiple Streams Model, Punctuated Equilibrium theory and the Advocacy Coalition Framework. These studies emphasize windows of opportunity for policy change, especially following acute “focusing events” such as oil and nuclear crises [11–15]. The energy transition literature has centered on the technical, economic, and policy aspects of energy transitions [16, 17] with the political dynamics receiving less attention [4, 6]. It is suggested that since energy policy change threaten incumbent industries and impose substantial costs [18], enacting and sustaining policies require considerable political support. Even though it is widely acknowledged that barriers to energy transition are primarily political, there is a lack of cohesive literature on the politics that drive, constrain, and shape renewable energy policy particularly in developing countries [8, 19]. This study builds on the energy transition literature by exploring first, the energy situation in Africa, second, the prospects and challenges from transitioning from non-renewable to renewable, and third, the appropriate lessons that can be drawn to help Africa attain the SDG goal 7. The uniqueness of this study aside the above, is the application of Kingdon’s multiple streams framework (MSF) as an analytical lens at the continental level.

By way of organization, the theoretical framework follows this discussion, followed by the methodology; then, the nature of energy situation in African is also discussed. After this, the discussion on whether conditions are ripe for the transition follows, and then a conclusion is drawn to end the chapter outlining some policy implications for the future.

## **2. Theoretical framework: multiple streams approach**

The multiple streams framework (MSF) is acknowledged to be the handy work of John W. Kingdon, who explains how ideas come into being. In other words what makes important people pay attention to one subject rather than another, how their agendas change from time to time, and how they narrow their choices from a larger set of alternatives to very few [20–23]. These are the issues that the MSF seeks to explain. MSF views the policy process as composed of three streams of actors and processes. First, a problem stream consists of data about various problems



**Figure 1.** Multiple Streams Framework. Source: Zahariadis [25].

and the proponents of various problem definitions. It may also consist of perceptions, opinions, and attitudes held by various members of the public and policy communities [20, 24]. Second, a policy stream which involves the proponents of solutions to policy problems that originate with communities of policy makers, experts and lobby groups. It is important to mention that the policy stream carries recommendations from researchers, advocates, analysts, who use their expertise to propose prospective solutions to them [24–26]. Third, a politics stream consists of elections and elected officials [20–23]. The politics stream also refers to factors such as changes in government, legislative turnover and fluctuations in public opinion. It must be mentioned that the political stream is often associated with contextual attributes such as the composition of ideas and values comprising national “moods” and the power shifts produced by legislative and executive turnover following events such as elections and cabinet shuffles that rotate the composition of policy-makers and affect important events through the composition of political and legislative timetables [24, 27].

According to Kingdon [21], the streams normally operate independently of each other, except when a “window of opportunity” permits policy entrepreneurs to couple the various streams. The success of the policy entrepreneurs in the coupling venture may result in a major policy change [20, 24, 27]. These policy entrepreneurs are vested stakeholders who strategically engage with the streams to open or seize windows of opportunities to advance their favored solutions [23]. In this framework, it is observed that policy development towards addressing a socio-economic problem does not occur automatically; rather, it emerges from the complex interaction and intersection of the three streams, which leads to certain issues being taken up by governments [24]. In this study we seek to explore the politics, problem and policy streams in the renewable energy sector of Africa and whether these streams are being strategically linked to enhance the acceptance of governments or policy makers. **Figure 1** illustrates the model.

### 3. Methodology

This study adopts a desk research methodology or desktop qualitative descriptive method. Desk research refers to the use of secondary data or that which can be collected without fieldwork. To most people it suggests published reports and statistics. In the context of this paper, the term is widened to include all sources of information that do not involve a field survey. These include searching libraries and the internet for data or information.

**Data Sources:** This paper benefitted extensively from text data on energy situation in SSA countries, renewable energy and its potential in Africa and other jurisdictions outside of Africa on the internet and in the libraries of University of Ghana and the Ghana Institute of Management and Public Administration (GIMPA).

**Data Analysis:** The information from the various sources of data were thoroughly studied and analyzed. Analysis was done with the objectives of the study at the background alongside the literature review.

#### 4. The Africa energy situation

The Organization of African Unity (OAU) which is currently known as the African Union (AU) established the African Energy Commission (AFREC) through the Convention of the African Energy Commission (CAEC) adopted in Lusaka, Zambia, on 11 July 2001 and entered into force on 13 December 2006. After the Convention's adoption, it was expected that all member countries of the AU will be part of it, but as at January 14, 2019, only 35 countries had consented to its enforcement. Article 4 of the CAEC indicates that the AFREC is expected to map out energy development policies, strategies and plans based on sub-regional, regional and continental development priorities and recommend their implementation in member countries. This energy commission architecture is hoped to propel Africa's energy situation to its peak but the continent still records the lowest share in terms of access to power by its citizens. World Bank [28] records that the percentage of SSA population with access to electricity is pegged at approximately 44.6%, which suggests that a lot still needs to be done for the people of Africa. It is observed that Africa's energy sector is dominated by fossil fuels, hydro, nuclear and biomass (see **Table 1**).

Further, it must be pointed out that traditional biomass energy use (wood, charcoal, agricultural residues and animal waste) and fossil fuels contribute to respiratory illnesses in highland areas of sub-Saharan Africa because of the excess CO<sub>2</sub> emissions [30]. This however calls for the need to look at other sources of clean energy supply. Tables below show the renewable energy potential of African countries (see **Tables 2 and 3**). Additionally, various types of renewable energy have been identified to exist and can be tapped by African countries, these include geothermal, hydropower, wind energy, solar and bioenergy. It must be pointed out that some countries have already taken the lead in tapping these forms of renewable energy (see **Table 4**).

Category	2000	2005	2010	2015
Production of electricity from biofuels and waste	135	163	187	349
Production of electricity from fossil fuels	29,921	37,321	44,975	62,212
Production of nuclear electricity	1,119	971	1,101	1,221
Production of hydro electricity	6,607	8,107	9,738	12,495
Production of geothermal electricity	37	77	126	329
Production of electricity from solar, wind, etc.	20	128	326	1,086

Source: Extracted from AFREC [29].

**Table 1.**  
Summary of Africa's Total Energy Production (Ktoe) 2000–2015.



Country	2009 (MW)	2018 (MW)
Congo DR	2514	2750
Egypt	3354	4813
Ethiopia	1443	4326
Ghana	1187	1659
Morocco	1520	3263
Mozambique	2198	2235
Nigeria	2087	2143
Sudan	1681	2136
Zambia	1723	2446

Source: Extracted from IRENA [31].

**Table 2.**  
*Renewable energy capacity (MW) (leading African countries).*

Country	2009 (GWh)	2017 (GWh)
Angola	3308	7897
Cameroon	4017	5106
Congo DR	7940	9287
Cote D'Ivoire	2132	2054
Egypt	15942	15957
Ethiopia	3593	12585
Ghana	6893	5672
Kenya	3923	8407
Malawi	1813	1915
Morocco	2976	4706
Mozambique	16994	14127
Namibia	1405	1526
Nigeria	7454	7803
South Africa	1648	10453
Sudan	3379	9484
Tanzania	2738	2611
Uganda	1458	3745
Zambia	10604	12537
Zimbabwe	5517	4214

Source: Extracted from IRENA [31].

**Table 3.**  
*Renewable energy production (GWh) (leading African countries).*

## 5. Findings and discussion

This section of the chapter discusses the MSF perspective with respect to the identified constructs of the framework; problem stream, policy stream, politics stream, policy entrepreneurs and policy window. This is followed by an attempt

Renewable energy	Leading African countries with capacity (MW)	Leading African countries in production (GWh)
Geothermal	Ethiopia, Kenya	Kenya
Hydropower	Congo DR, Egypt, Ethiopia, Ghana, Morocco, Mozambique, Nigeria, South Africa, Sudan, Zambia	Angola, Cameroon, Congo DR, Cote D'Ivoire, Egypt, Ethiopia, Ghana, Kenya, Malawi, Morocco, Mozambique, Namibia, Nigeria, South Africa, Sudan, Tanzania, Uganda, Zambia, Zimbabwe.
Wind	Egypt, Ethiopia, Morocco, South Africa, Tunisia.	Egypt, Ethiopia, Morocco, South Africa, Tunisia.
Solar	Algeria, Egypt, Morocco, Reunion, South Africa	Algeria, Egypt, Morocco, Reunion, South Africa
Bioenergy	Eswatini, Ethiopia, South Africa, Sudan, Zimbabwe	Angola, Egypt, Eswatini, Kenya, Mauritius, Reunion, South Africa, Sudan, Tanzania, Uganda, Zimbabwe

Source: Extracted from IRENA [31].

**Table 4.**  
*Types of renewable energy capacity and production in Africa.*

to discuss the extent to which the three streams are being coupled for an effective energy transition on the African continent.

### 5.1 Problem stream

Proponents of the MSF are of the view that for a policy to be considered, it should be politically and technically feasible. Additionally, its capacity to address the corresponding problem that it is expected to address should be relevant. MSF Proponents have pointed out clearly that the problem stream may refer to policy problems in society that potentially require attention [22–25]. In the case of this study, it is observed that Africa's economy is growing at unprecedented rate, and one of the core challenges associated with this economic growth is related to energy constraints. Specifically, economic growth, changing lifestyles and the need for reliable modern energy access require energy supply to be at least doubled by 2030 [32]. An investment of about US\$43–55 billion per year is needed until 2030–2040 to meet demand and provide universal access to electricity. However, the present investment situation in the energy sector is about US\$8–9.2 billion which is woefully inadequate [33]. Furthermore, it is estimated that over 645 million people do not have access to electricity. Again, out of the world's 20 countries with the least access to electricity, 13 can be found in Africa, including Nigeria, Ethiopia, Democratic Republic of the Congo (DRC), Tanzania, Kenya, Uganda, (the former) Sudan, Mozambique, Madagascar, Niger, Malawi, Burkina Faso, and Angola [33]. This has however heightened the need to focus on tapping the enormous renewable energy potential in Africa that is untapped [33].

Again, energy security is a socio-economic and political factor that contributes to sustainable development (SD) in any nation. Currently, the world is dominated by the usage of non-renewable energy such as fossil fuels. The use of non-renewable energy leads to the emission of large amounts of greenhouse gases (GHGs), which is considered to be the principal cause of climate change. Accordingly, the use of clean energy sources to reduce the release of carbon emissions is a key goal in reducing global warming and promoting sustainable development [33–36].

## 5.2 Policy stream

The policy stream in the view of MSF proponents pertains to the many potential policy solutions that originate with communities of policy makers, experts and lobby groups. This may also include recommendations from researchers, advocates, analysts, and others in a policy community examining problems and using their (sometimes self-proclaimed) expertise to propose prospective solutions to them [24, 39]. Many international energy organizations and researchers have proposed tapping the untapped African renewable resources in confronting the continent's energy challenge [32, 33, 36]. **Table 2** shows African countries that have renewable capacity of 1000 MW and above. Additionally, **Table 4** shows five key renewable energy sources such as geothermal, hydropower, wind, solar and bioenergy alongside corresponding African countries with capacity to be tapped. It is however important to state that some African countries have already begun this effort but more attention should be geared toward that direction.

## 5.3 Politics stream

The third of the streams according to proponents of the MSF is the politics stream. Here, emphasis is placed on factors such as changes in government, legislative turnover following events such as elections and cabinet shuffles that rotate the composition of policy makers and fluctuations in public opinion [24, 25]. Although efforts were made in the early 2000s at the continental level with the adoption of the Convention of African Energy Commission, the renewables agenda has gained momentum in recent times due to the adoption of the AU Agenda 2063. This agenda is a shared framework for inclusive growth and sustainable development for Africa to be realized in the next fifty years. A new crop of African leaders have realized that African problems can only be solved by Africans, and so they agreed in 2013 through the 50th Anniversary Solemn Declaration during the commemoration of the Fiftieth Anniversary of the Organization of African Unity (OAU) to bring forth the Agenda 2063 which consist of seven aspirations [40]. This is to guide individual member states in their own development planning. This has also led to some reforms in the AU especially the shift to self-financing of the AU policies and programs [41].

## 5.4 Policy entrepreneurs

Policy entrepreneurs are vested stakeholders who strategically engage with the streams to open or seize windows of opportunities to advance their favored solutions [23]. The literature reveals that various bodies within member countries are in charge of energy in general and renewable energy to be specific [30, 37]. Aside the AFREC which is supposed to carry out research activities and inform policy directions of AU member states in the energy sector, many other international institutions and NGOs either directly or indirectly influence Africa's energy governance with their activities. Some of these actors include the International Energy Agency (IEA), the Intergovernmental Panel on Climate Change (IPCC), the United Nations Environment Programme (UNEP), the United Nations Framework Convention on Climate Change (UNFCCC), the World Bank, the European Renewable Energy Council (EREC), the OPEC, African Development Bank, International Renewable Energy Agency (IRENA), the Renewable Energy and Energy Efficiency Partnership (REEEP) and the Sustainable Energy for All (SE4ALL) [42]. Some of the strategies adopted by these actors include for example the World Bank and AfDB may



target their lending activities to projects related to energy or renewable energy. The IRENA on the other hand may adopt innovative strategies to promote renewable energy by concentrating on a narrowly defined set of goals with regards to the deployment of renewables and additionally provide epistemic services as well [42]. The study shows that the policy entrepreneurs to push the renewable energy agenda are vast and wide, with some of them already in the process (WB, AfDB, IRENA, UNEP, and AFREC).

### **5.5 Policy windows**

MSF proponents are of the view that policy windows present opportunities that pave the way for policy entrepreneurs to push their policy ideas to the policy makers/governments [24]. The AU Agenda 2063 is one of the continental policy windows with regards to the adoption of a renewable energy policy. The first aspiration of Agenda 2063 posits “a prosperous Africa based on inclusive growth and sustainable development” [40]. It could be argued that this aspiration opens doors to discuss issues of renewable energy which could aid in inclusive growth and sustainable development. Another important policy window is the rise in population growth which has shifted focus on alternative sources of energy. Again, in recent times the increase in oil prices and the sustainable development Goals has further heightened interests in the call for renewable energy. As stated earlier, Goal 7 enjoins all UN member states to ensure access to affordable, reliable, sustainable and modern energy for all [1].

Aside the above policy windows, two important global environment initiatives have also stimulated greater interest in renewables in Africa. The first was the United Nations Conference on Environment and Development (UNCED) held in Rio de Janeiro, Brazil in 1992. At this Conference, an ambitious environment and development document entitled “Agenda 21” was reviewed by one of the largest gathering of Government Heads of States and endorsed by a large number of multi-nationals companies. Agenda 21 sought to operationalize the concept of sustainable development. In addition, the Rio Conference provided the venue for the second important event, the signing of the United Nations Framework Convention on Climate Change (UNFCCC) by 155 Governments. The Convention came into force in early 1994 after ratification by 50 States. Renewables featured in both Agenda 21 and the Climate Change Convention. In addition, renewables featured high on the agenda of the Johannesburg World Summit on Sustainable Development (WSSD) in 2002. In the UN-led implementation plan of action for the WSSD, dubbed WEHAB (which stands for Water, Energy, Health, Agriculture and Biodiversity), top priority was given to the renewables and other alternative forms of energy services. One of the targets proposed at WSSD was for every country to commit itself to meeting 10% of its national energy supply from renewables [30].

### **5.6 Coupling the streams and the associated challenges**

The multiple streams framework suggests that the ability of a policy entrepreneur(s) to strategically couple the streams of problem, policy and politics through a window of opportunity and with the consent of policy makers, gives a high possibility for a policy to be adopted or an issue to get to the agenda stage [20–25]. The ensuing discussion clearly reveals that all the necessary factors are in place as proposed by the MSF. The question to ask then is: Has coupling of the streams been successful on the continental level? The discussions above points to the fact that prospects are high especially when you want to focus on Goal 7 of the SDGs, that proposes that member states should ensure access to affordable,

reliable, sustainable and modern energy for all [1]. The contribution of Africa to ensure universal access to affordable, reliable and modern energy services, to increase substantially the share of renewable energy in the global energy mix and to enhance international cooperation to facilitate access to clean energy research and technology, including renewable energy are yet to be realized, as it is recorded that the percentage of Sub-Saharan African population access to electricity is still below average [28] and then the existence of substantial potential of renewable energy resources that also remain untapped [31, 33]. It must be quickly pointed out that these are early days yet as the SDGs were born barely 4 years ago and the AU Agenda 2063 also about 6 years when it was agreed upon. This suggests that Africa has not been idle and it will be unfair on our part to gloss over the modest efforts being pursued by member countries of the AU.

However, despite the above, it is appropriate to focus attention on the factors that are likely to work against the efforts of African countries. First, it is observed that African countries differ in a number of ways, for example institutional frameworks and governance systems differ greatly. Some have open systems whereas others still practice a closed system. According to Gordon [43], the Ethiopian state is tightly controlled by the ruling coalition, the Ethiopian People's Revolutionary Democratic Front (EPRDF). The EPRDF is made up of four constituent parties based on ethnic groups, consisting of the Tigrayan People's Liberation Front (TPLF), the Amhara National Democratic Movement (ANDM), the Oromo Peoples' Democratic Organization (OPDO), and the Southern Ethiopian People's Democratic Movement (SEPDM). Ethiopia is regarded as a country with a very high public investment rate but a low private investment rate. As a result the largest companies in the country are state-owned; those found to be private are owned by close allies of powerful political elites. On the other hand, in Kenya for example, private companies have been present for decades and the country has become a hub for innovation in commercial off-grid and micro-grid systems [43]. These experiences reflect different political, regulatory, and security environment and therefore poses contextual challenges to push for a collective renewable agenda without a comprehensive assessment and understanding of AU member states.

The legislative and regulatory constraints in many African countries make it difficult to embark on a sustainable energy policy that would be workable in national jurisdictions. Different states have their own strategies in dealing with similar issues. And so a one size fits all renewable energy strategy will not suffice. Again, electoral related conflicts and other forms of ethnic-based violence in places like Congo DR, Sudan, Cote D'Ivoire, Kenya, Somalia, etc. poses security risks. Gordon [43] reports that the risk of protests represents the greatest physical threat to renewable energy assets. He recounts that between 2015 and 2018, protests recurred in Oromia, Amhara, and to a lesser extent in Addis Ababa and the Somali region. Protests often attracted thousands of people, and in Oromia and Amhara led to attacks on foreign businesses, particularly those that were either associated with the ruling party or those that were central to the government's economic policy. Additional challenge is the overreliance on international financing. This comes with a lot of conditionalities that are sometimes unfavorable to the socio-economic and political environment of most African countries. This calls for carefulness and due diligence in international business transactions but at the same time to reduce undue delays in contract performance. A classic case is the Lake Turkana Wind Power Project in Kenya which took nine years to reach financial closure. There are other ongoing projects like the Corbetti Geothermal project in Ethiopia which has taken 7 years and still counting [43].

Also, the issue of infrastructure and skilled human resources leave much to be desired in this venture. It is observed that majority of infrastructure projects on

the continent were financed by large international agencies because of the large costs involved. Also, the unstable economic environments highlighted in currency exchange rate fluctuations, depreciation and high interest rates do not provide opportunities for indigenous businesses to thrive.

Additionally, inadequate planning policies, lack of co-ordination and linkage in the Renewable Energy Technology program, weak dissemination strategies, poor baseline information and, weak maintenance service and infrastructure [30] are crucial challenges that should not be ignored. It is important to state that there is always an advantage in cooperation, and so the prospects to consider renewable energy as a very important energy source in Africa's energy mix should be sustained at worst and intensified at best if Africa is to make any meaningful contribution to the SDGs and its own Agenda 2063.

## **6. Conclusion and policy implications**

This study has added to the extant literature on energy transition by exploring the situation in Africa and how best the continent can increase its energy mix with a focus on renewable energy. The study has clearly demonstrated that the energy situation in Africa has been dominated by fossil fuels which cause excessive emission of CO<sub>2</sub> into the atmosphere leading to climate change with its attendant consequences. A number of development opportunities have opened the door for discussions on renewable energy in Africa and the world at large. Excerpts of these opportunities include the famous SDGs, the AU Agenda 2063, the Earth Summit in Rio, the World Summit on Sustainable Development in Johannesburg, South Africa in the year 2002 and other important multilateral and bilateral treaties. Again, the study has revealed that the dominant renewable energy resources on the continent include geothermal, hydropower, wind energy, solar and bioenergy; and that many countries have already taken the lead in exploiting these resources [31].

Moreover, the study has shown that from the MSF perspective, the prospects of transitioning to renewable energy is high, in the sense that, the problem has been clearly defined as the huge gap in energy supply to the growing African population, the cost and scarcity associated with fossil fuels, and the excessive emission of greenhouse gases into the atmosphere leading to climatic changes by fossil fuels. African political elites and international actors have all agreed that renewable energy is not a bad idea and can add significantly to the energy mix in Africa. However, the challenge of political insecurity, infrastructural inadequacies, confusion in regulatory and institutional frameworks in some African countries, lack of skilled manpower, initial cost and investment risks are but a few of these challenges that require enormous attention if progressed is to be witnessed in the renewable energy venture.

Furthermore, in order to make significant progress in attaining the renewable energy objective as reflected in SDG Goal 7 by African countries, five main policy implications are worth considering. First, there should be conscious efforts of planning and developing a comprehensive renewable energy implementation framework for African countries with AFREC providing a supervisory role to ensure that AU member states are prioritizing renewable energy considerations in their domestic energy policies and programs. Second, efforts should be made to carefully select renewable energy technologies that are conducive to the African environment. In doing this, there should be a deliberate attempt by governments to train Africans in various aspects of renewable energy technologies. Third, the economic environment should be made conducive to attract and support indigenous Africans who are interested and want to embark on renewable energy investments.



Fourth, governments should take it upon themselves to ensure that regulatory and institutional frameworks are harmonized, made simple, easily accessible and easily understood to clearly define the parameters for investors, governments and the citizens/indigenous people. Fifth, AU member states can and should explore the option of trading electricity among themselves to widen the market base for renewables and curb the challenge of intermittent power supply. In conclusion, renewable energy comes along with many prospects in promoting national development; as a result, serious attention should be given to it at the national, sub-regional and continental levels.

## Abbreviations

AfDB	African development bank – An international Bank for African countries that aims to encourage sustainable economic development and social progress thus contributing to poverty reduction.
AFREC	African energy commission – This body was set up by the Organization of African Unity (OAU) now known as AU to map out energy development policies, strategies and plans based on sub-regional, regional and continental development priorities and their implementation.
AREF	African renewable energy fund – This is a fund established to support small to medium scale independent power producers (IPPs) across sub-Saharan Africa. It is managed by Berkeley Energy, an experienced renewable energy fund manager active in Asian and African emerging markets.
AU	African Union – An intergovernmental organization with African Countries as members. It was formed in 2002 for mutual cooperation to replace the defunct Organization of African Unity.
EREC	European renewable energy council – This was created in the year 2000, and it is the umbrella organization of the major European renewable energy industry, trade and research associations active in the field of photovoltaics, small hydropower, solar thermal, geothermal, etc.
GWh	Giga Watts per hour – A unit of energy representing one billion watt hours and equivalent to one million kilowatts hour. It is used as a measure of the output of large electricity power stations.
IEA	International Energy Agency – An intergovernmental organization that ensures reliable, affordable and clean energy for its 30 member countries and beyond. Their mission is focused on 4 main areas: energy security, economic development, environmental awareness and engagement worldwide.
InfraCo Africa	InfraCo Africa is part of the multilateral Private Infrastructure Development Group (PIDG). InfraCo Africa seeks to alleviate poverty by mobilizing private investment into infrastructure projects in sub-Saharan Africa's poorest countries to the highest standards.
IPCC	Intergovernmental Panel on Climate Change – This is the UN body for assessing the science related to climate change. It provides regular assessments of the scientific basis of climate change, its impacts and future risk and options for adaptation and mitigation.
IRENA	International Renewable Energy Agency – An intergovernmental organization that supports countries in their transition to a sustainable energy and serves as the principal platform for

	international co-operation, a center of excellence, and a repository of policy, technology, resource and financial knowledge on renewable energy.
Ktoe	Kiloton of Oil Equivalent – This is a unit to measure the amount of Energy released by burning a thousand tonnes of crude oil.
MSF	Multiple streams framework – A theory developed by John Kingdon to explain agenda setting in the policy making process.
MW	Mega Watt – This is a unit of power equal to one million watts, especially as a measure of the output of a power station.
PIGD	Private Infrastructure Development Group – It encourages and mobilizes private investment in infrastructure in the frontier markets of sub-Saharan Africa, south and south-east Asia, to help promote economic development and combat poverty. Since 2002, PIDG has supported 154 infrastructure projects to financial close and provided 222 million people with access to new or improved infrastructure.
REEEP	Renewable energy and energy efficiency partnership – A body that develops innovations, efficient financing mechanisms to advance market readiness for clean energy services in low and middle-income countries.
SE4ALL	Sustainable energy for all – An independent not for profit international organization with headquarters in Vienna, Austria. Some of its priority areas include electricity for all in Africa, energy for displaced people, energy and health, etc.
UNEP	United Nations Environment Programme – It is part of the UN system. It is the arm of the UN that takes charge of all environment-related issues.
UNFCCC	United Nations Framework Convention on Climate Change – It is part of the UN system, and established in 1992. It is tasked with supporting the global response to the threat of climate change.

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## References

- [1] United Nations Economic Commission for Africa. Accelerating SDG 7 Achievement Policy Briefs in Support of the First SDG 7 Review at the un High-Level Political Forum 2018. Retrieved from: [https://sustainabledevelopment.un.org/content/documents/18041SDG7\\_Policy\\_Brief.pdf](https://sustainabledevelopment.un.org/content/documents/18041SDG7_Policy_Brief.pdf)
- [2] Burke MJ, Stephens JC. Political power and renewable energy futures: A critical review. *Energy Research & Social Science*. 2018;**35**:78-93. DOI: 10.1016/j.erss.2017.10.018
- [3] Boyle G. *Renewable Energy*. Oxford: Oxford University Press; 2004
- [4] Hughes L, Lipsky PY. The politics of energy. *Annual Review of Political Science*. 2013;**16**:449-469
- [5] Ansolabehere S, Konisky DM. *Cheap and Clean: How Americans Think About Energy in the Age of Global Warming*. Cambridge, Massachusetts: MIT Press; 2014
- [6] Stokes LC. The politics of renewable energy policies: The case of feed-in tariffs in Ontario, Canada. *Energy Policy*. 2013;**56**:490-500. DOI: 10.1016/j.enpol.2013.01.009
- [7] Stokes LC, Warshaw C. Renewable energy policy design and framing influence public support in the United States. *Nature Energy*. 2017;**2**(17107): 1-6. DOI: 10.1038/nenergy.2017.107
- [8] Stokes LC, Breetz HL. Politics in the US energy transition: Case studies of solar, wind, biofuels and electric vehicles policy. *Energy Policy*. 2018;**113**:1-43. Available at: <https://escholarship.org/uc/item/8v19r289>
- [9] Meckling J, Jenner S. Varieties of market-based policy: Instrument choice in climate policy. *Environmental Politics*. 2016;**25**(5):853-874. DOI: 10.1080/09644016.2016.1168062
- [10] Aklin M, Urpelainen J. Political competition, path dependence, and the strategy of sustainable energy transitions. *American Journal of Political Science*. 2013;**57**(3):643-658. DOI: 10.1111/ajps.12002
- [11] Carlisle JE, Feezell JT, Michaud KE, Smith ER. *The Politics of Energy Crises*. Oxford: Oxford University Press; 2016
- [12] Grossman PZ. *US Energy Policy and the Pursuit of Failure*. Cambridge: Cambridge University Press; 2013
- [13] Nohrstedt D, Weible CM. The logic of policy change after crisis: Proximity and subsystem interaction. *Risk, Hazards and Crisis in Public Policy*. 2010;**1**(2):1-32
- [14] Nohrstedt D. The politics of crisis policymaking: Chernobyl and Swedish nuclear energy policy. *Policy Studies Journal*. 2008;**36**(2):257-278
- [15] Smith ERAN. *Energy, the Environment, and Public Opinion*. Lanham: Rowman and Littlefield Publishers; 2002
- [16] Smil V. *Energy Transitions: History, Requirements, Prospects*. Santa Barbara: Praeger; 2010
- [17] Schwerhoff G, Sy M. Developing Africa's energy mix. *Climate Policy*. 2019;**19**(1):108-124
- [18] Breetz HL, Mildemberger M, Stokes LC. The political logics of clean energy transitions. *Business and Politics*. 2018;**20**(4):492-522
- [19] Delucchi MA, Jacobson MZ. Providing all global energy with wind, water, and solar power. Part II:

- Reliability, system and transmission costs, and policies. *Energy Policy*. 2011;**39**(3):1170-1190
- [20] Kingdon JW. *Agendas, Alternatives, and Public Policies*. 2nd ed. New York: Harper; 1995
- [21] Kingdon JW. *Agendas, Alternatives and Public Policies*. 2nd ed. England: Pearson Education Limited; 2014
- [22] Howlett M, McConnell A, Perl A. Streams and stages: Reconciling kingdon and policy process theory. *European Journal of Political Research*. 2015;**54**:419-434
- [23] Ruseva T, Foster M, Arnold G, Siddiki S, York A, Pudney R, et al. Applying policy process theories to environmental governance research: Themes and new directions. *Policy Studies Journal*. 2019;**47**(S1):S66-S95
- [24] Howlett M, McConnell A, Perl A. Moving policy theory forward: Connecting multiple stream and advocacy coalition frameworks to policy cycle models of analysis. *Australian Journal of Public Administration*. 2016;**76**(1):65-79
- [25] Zahariadis N. The multiple streams framework: Structure, limitations, prospects. In: Sabatier P, editor. *Theories of the Policy Process*. 2nd ed. Boulder, CO: Westview Press; 2007
- [26] Voß J-P, Simons A. Instrument constituencies and the supply side of policy innovation: The social life of emissions trading. *Environmental Politics*. 2014;**23**(5):735-754
- [27] Stimson JA. *Public Opinion in America: Moods Cycles and Swings*. Boulder: Westview Press; 1991
- [28] World Bank. Sustainable Energy for All (SE4ALL) Database from the SE4ALL Global Tracking Framework led jointly by the World Bank, International Energy Agency, and the Energy Sector Management Assistance Program. 2017. Retrieved from <https://data.worldbank.org/indicator/EG.ELC.ACCS.ZS?locations=ZG>
- [29] AFREC. *AFREC Africa Energy Database*. Algiers: African Energy Commission (AFREC); 2015
- [30] Karekezi S, Kithyoma W. Renewable energy development. In: *The Workshop for African Energy Experts on Operationalizing the NEPAD Energy Initiative*; 2-4 June 2003. Senegal: Novotel, Dakar; 2003
- [31] IRENA. *Renewable Energy Statistics 2019*. Abu Dhabi: The International Renewable Energy Agency; 2019
- [32] IRENA. *Africa 2030: Roadmap for a Renewable Energy Future*. IRENA: Abu Dhabi; 2015
- [33] UNEP. *Atlas of Africa Energy Resources*. Kenya: UNEP; 2017
- [34] Owusu PA, Asumadu-Sarkodie S. A review of renewable energy sources, sustainability issues and climate change mitigation. *Cogent Engineering*. 2016;**3**:1-15
- [35] International Energy Agency. *Energy Climate and Change World. Energy Outlook Special Report*. 2015. Retrieved from: <https://www.iea.org/publications/freepublications/publication/WEO2015SpecialReportonEnergyandClimateChange.pdf>
- [36] Souza GM, Ballester MVR, de Brito Cruz CH, Chum H, Dale B, Dale VH. The role of bioenergy in a climate-changing world. *Environmental Development*. 2017;**23**:57-64
- [37] Bishoge OK, Zhang L, Mushi WG. The potential renewable energy for sustainable development in Tanzania: A review. *Clean Technology*. 2018;**1**:70-88

[38] Lauber V. Political economy of renewable energy. In: Wright JD, editor. *International Encyclopedia of the Social and Behavioural Sciences*. Oxford: Elsevier; 2015. pp. 367-373

[39] Birkland TA. Focusing events, mobilization, and agenda setting. *Journal of Public Policy*. 1998;**18**(1):53-74

[40] African Union Commission. *Agenda 2063: The Africa We Want*. Addis Ababa, Ethiopia: AUC; 2015. Available from: [www.agenda2063.au.int](http://www.agenda2063.au.int)

[41] Kagame P. *Report on the Proposed Recommendations for the Institutional Reform of the African Union*. Addis Ababa: African Union; 2017. Retrieved from: <https://au.int/sites/default/files/pages/32777-file-report-20institutional20reform20of20the20au-2.pdf>

[42] Ozkan G. Global energy security, international politics and renewable energy resources. *International Journal of Multidisciplinary Approach and Studies*. 2018;**05**(1):39-47

[43] Gordon E. *The Politics of Renewable Energy in East Africa*. Oxford: The Oxford Institute for Energy Studies; 2018