

Accelerating Energy Transition in Kenya

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Accelerating Energy Transition in Kenya

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Abstract

Energy is a fundamental human right that is vital in the realization of the Sustainable Development agenda. However, the energy sector is facing several challenges including increasing energy demands due to population growth and the threat of climate change. As a result of these challenges, there is need for the world to transition to sustainable energy systems. The paper critically examines the progress made towards energy transition in Kenya. It argues that Kenya must expedite its journey towards energy transition in order to meet the growing energy demands and tackle environmental challenges including climate change. The paper discusses the challenges hindering the energy transition in Kenya and suggests recommendations towards accelerating energy transition in Kenya in order to achieve Sustainable Development.

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1.0 Introduction

Energy is a fundamental human need that has been described as a basic factor necessary to sustain life.¹ It is a basic human need that has been equated to food, air and water.² The right to energy is so important that some authors have argued that ‘food and energy are the two essential resources to support the modern and civilized society of the mankind’.³ Access to a reliable and quality energy supply is vital to the economic development of any country⁴. It has been argued that energy has the potential to spur economic development and poverty eradication⁵. Enhancing access to energy is therefore crucial in fostering economic development.

Energy plays a vital role in the Sustainable Development agenda. The United Nations 2030 Agenda for Sustainable Development Goal and its Sustainable Development Goal 7 seeks to ‘ensure access to affordable, reliable, sustainable and modern energy for all’⁶. Energy drives industrialization, boosts productivity and economic growth, spurs human development, and is crucial to achieve almost all of the United Nations Sustainable Development Goals (SDGs)⁷. Energy services are a crucial input to the primary development challenge of providing adequate food, shelter, clothing, water, sanitation, medical care, schooling, and access to information which are vital components of the

¹ Goldthau. A & Sovacool. B., ‘The Uniqueness of the Energy Security, Justice and Governance Problem’ *Energy Policy*, 41 (2012) 232-240

² Ibid

³ Tomabeche K, ‘Energy Resources in the Future’ *Energies* 2010, 3, 686-695, 686

⁴ United Nations Conference on Trade and Development., ‘Commodities at a Glance: Special Issue on Access to Energy in Sub-Saharan Africa.’ Available at [https://unctad.org/publication/commodities-glance-special-issue-access-energy-sub-saharan-africa#:~:text=Access%20to%20energy%20is%20defined,Bhatia%20and%20Angelou%2C%202015\).](https://unctad.org/publication/commodities-glance-special-issue-access-energy-sub-saharan-africa#:~:text=Access%20to%20energy%20is%20defined,Bhatia%20and%20Angelou%2C%202015).) (Accessed on 26/09/2023)

⁵ Muigua. K., ‘Access to Energy as a Constitutional Right in Kenya’, available at <http://kmco.co.ke/wp-content/uploads/2018/08/Access-to-Energy-as-a-Constitutional-Right-inKenya-NOVEMBER-2013.pdf> (Accessed on 26/09/2023)

⁶ United Nations., ‘Transforming Our World: The 2030 Agenda for Sustainable Development.’ Available at <https://sustainabledevelopment.un.org/content/documents/21252030%20Agenda%20for%20Sustainable%20Development%20web.pdf> (Accessed on 26/09/2023)

⁷ United Nations Conference on Trade and Development., ‘Commodities at a Glance: Special Issue on Access to Energy in Sub-Saharan Africa.’ Op Cit

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Sustainable Development agenda⁸. In addition, energy also fuels productive economic activities, including agriculture, commerce, manufacture, industry, and mining⁹. Conversely, lack of access to energy contributes to poverty and deprivation and can contribute to economic decline¹⁰. Energy has the potential to stimulate development by connecting the SDGs and unlocking sustainable economic growth¹¹. Realizing SDG 7 ensures access to affordable, reliable, and sustainable energy and is crucial in achieving many of the SDGs from poverty eradication via advancements in health, education, water supply, and industrialization to mitigating climate change¹². On this basis, it has been argued that the Sustainable Development agenda will not be achieved without the realization of the right of access to energy¹³. Ensuring access to cleaner and affordable energy sources is thus an important part of the journey towards achieving the SDGs.

Despite the importance of energy as a human right, the world continues to face challenges in the sector owing to numerous factors including the ever growing population, advanced technological developments and climate change.¹⁴ Reports have indicated that a significant number of the global population lack access to modern energy services with this problem being more compounded in Sub-Saharan Africa where majority of the population lack access to clean and affordable energy and depend on traditional fuels¹⁵. Access to energy represents one of Africa's greatest obstacles to social and economic

⁸ Bradbrook. A., 'Access to Energy Services in a Human Rights Framework.' Available at https://www.un.org/esa/sustdev/sdissues/energy/op/parliamentarian_forum/bradbrook_hr.pdf (Accessed on 26/09/2023)

⁹ Ibid

¹⁰ Ibid

¹¹ Goldthau. A & Sovacool. B., 'The Uniqueness of the Energy Security, Justice and Governance Problem' Op Cit

¹² Muigua. K., 'Delivering Clean and Affordable Energy for All.' Available at <http://kmco.co.ke/wp-content/uploads/2021/05/Delivering-Clean-and-Affordable-Energy-for-All-Kariuki-Muigua-Ph.D-24th-April-2021-1.pdf> (Accessed on 26/09/2023)

¹³ Muigua. K., 'Access to Energy as a Constitutional Right in Kenya' Op Cit

¹⁴ Muigua. K., 'Exploring Alternative Sources of Energy in Kenya.' Available at <http://kmco.co.ke/wp-content/uploads/2020/10/Exploring-Alternative-Exploring-Alternative-Sources-of-Energy-in-Kenya-Kariuki-Muigua-PhD.pdf> (Accessed on 26/09/2023)

¹⁵ United Nations Conference on Trade and Development., 'Commodities at a Glance: Special Issue on Access to Energy in Sub-Saharan Africa.' Op Cit

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development¹⁶. In addition, the energy sector is by far the main contributor to the global threat of climate change and accounts for approximately 73 percent of human caused greenhouse gases¹⁷.

As a result of global environmental challenges including climate change and scarce energy supplies, it has been argued that the world must transition to sustainable energy systems¹⁸. The paper critically examines the progress made towards energy transition in Kenya. It argues that Kenya must expedite its journey towards energy transition in order to meet the growing energy demands and tackle environmental challenges including climate change. The paper discusses the challenges hindering the energy transition in Kenya and suggests recommendations towards accelerating energy transition in Kenya in order to achieve Sustainable Development.

¹⁶ Hafner. M., 'The Challenge of Energy Access in Africa.' Available at

https://link.springer.com/chapter/10.1007/978-3-319-92219-5_1 (Accessed on 26/09/2023)

¹⁷ United Nations Development Programme., 'Goal 7: Affordable and Clean Energy.' Available at

https://www.undp.org/sustainable-development-goals/affordable-and-cleanenergy?gclid=EAIaIQobChMIxrfXsO3g_wIVDZhRCh1NqALvEAAAYAAAEgJwTvD_BwE

(Accessed on 26/09/2023)

¹⁸ Solomon. B., & Krishna. K., 'The Coming Sustainable Energy Transition: History, Strategies, and Outlook.' *Energy Policy* 39 (2011) 7422-7431

2.0 Legal Framework on Energy Transition in Kenya

Energy plays an important role in Kenya and is one of the key drivers of socio-economic development¹⁹. This has been recognized under the *Vision 2030* development blueprint which identifies energy as one of the key factors in spearheading economic, social and political development in the country²⁰. Kenya considers access to competitively-priced, reliable, quality, safe and sustainable energy as an essential ingredient for the country's social –economic development²¹.

It has been argued that access to energy is a Constitutional right in Kenya²². Although the Constitution does not expressly provide for the right to access to energy, it recognizes energy as part of the natural resources in Kenya²³. To this extent, the Constitution provides that natural resources means the physical non-human factors and components, whether renewable or non-renewable, including inter alia rocks, minerals, fossil fuels and other sources of energy²⁴. The Constitution also enshrines the principle of Sustainable Development²⁵. Enhancing universal access to affordable, reliable and modern energy services including renewable sources of energy is an essential part of the Sustainable Development agenda²⁶.

The *Energy Act, 2019*²⁷ was enacted to consolidate the laws relating to energy, to provide for National and County Government functions in relation to energy, to provide for the establishment, powers and functions of the energy sector entities; promotion of renewable energy; exploration, recovery and commercial utilization of geothermal

¹⁹ Republic of Kenya: Ministry of Energy., 'Kenya National Energy Efficiency and Conservation Strategy.' Available at <https://unepccc.org/wp-content/uploads/2020/09/kenya-national-energy-efficiency-and-conservation-strategy-2020-1.pdf> (Accessed on 27/09/2023)

²⁰ Republic of Kenya., 'Vision 2030.' Available at <https://nairobi.aics.gov.it/wp-content/uploads/2019/01/Kenya-Vision-2030.pdf> (Accessed on 27/09/2023)

²¹ Muigua. K., 'Exploring Alternative Sources of Energy in Kenya.' Op Cit

²² Muigua. K., 'Access to Energy as a Constitutional Right in Kenya', available at <http://kmco.co.ke/wp-content/uploads/2018/08/Access-to-Energy-as-a-Constitutional-Right-inKenya-NOVEMBER-2013.pdf> (Accessed on 27/09/2023)

²³ Constitution of Kenya, 2010., Article 260, Government Printer, Nairobi

²⁴ Ibid

²⁵ Ibid, Article 10 (2) (d)

²⁶ United Nations., 'Transforming Our World: The 2030 Agenda for Sustainable Development.' SDG 7

²⁷ Energy Act, No. 1 of 2019, Government Printer, Nairobi

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energy; regulation of midstream and downstream petroleum and coal activities; regulation, production, supply and use of electricity and other energy forms; and for connected purposes.²⁸ The Act mandates the government to facilitate the provision of affordable energy services to all persons in Kenya²⁹. It also establishes national energy entities including the Energy and Petroleum Regulatory Authority, the Rural Electrification and Renewable Energy Corporation and the Nuclear Power and Energy Agency which are vital in enhancing energy access in Kenya³⁰. The Energy and Petroleum Regulatory Authority is mainly tasked with regulatory activities related to inter alia the generation, importation, exportation, distribution and supply of electric energy, petroleum and petroleum products, renewable energy and other forms of energy³¹. The Rural Electrification and Renewable Energy Corporation is tasked with overseeing the implementation of the rural electrification programme and promoting the use of renewable energy and technologies among other functions³². The Nuclear Power and Energy Agency is tasked with inter alia implementation of the nuclear energy programme and promoting the development of nuclear electricity generation in Kenya³³. The Energy Act also mandates the government to promote the development and use of renewable energy technologies in Kenya including but not limited to biomass, biodiesel, bioethanol, charcoal, fuelwood, solar, wind, tidal waves, hydropower, biogas and municipal waste³⁴. This is a vital step in accelerating energy transition in Kenya.

*Sessional Paper No. 4 on Energy*³⁵ seeks to promote equitable access to quality energy services at least cost while protecting the environment. It acknowledges that the development objectives of the country are only feasible if quality energy services are

²⁸ Ibid, Preamble

²⁹ Ibid, S 7 (1)

³⁰ Ibid, Part III

³¹ Ibid, S 10

³² Ibid, S 44 (1)

³³ Ibid, S 56 (1)

³⁴ Ibid, S 75 (1)

³⁵ Republic of Kenya., 'Sessional Paper No. 4 on Energy.' Available at <https://repository.kippra.or.ke/bitstream/handle/123456789/1371/SESSIONAL%20PAPER%204%2000N%20ENERGY%202004.pdf?sequence=3&isAllowed=y> (Accessed on 27/09/2023)

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made available in a sustainable, cost effective and affordable manner to all sectors of the economy ranging from manufacturing, services, mining, and agriculture to households³⁶. The Sessional paper identifies several measures that are critical in accelerating energy transition in Kenya including the development and adoption of renewable sources of energy, enhancing rural electrification, research and development, regional trade and cooperation and fostering energy conservation and efficiency³⁷.

Further, the *National Energy Policy*³⁸ recognizes energy as a critical component for the socio-economic development of Kenya. The policy seeks to achieve several objectives in the energy sector including improving access to affordable, competitive and reliable energy services, promoting energy efficiency and conservation and promoting diversification of energy supply sources in Kenya to ensure security of supply³⁹. It contains several proposals towards the use, development and conservation of energy sources in the country such as coal resources, renewable energy and electricity⁴⁰. The Policy also contains energy efficiency and conservation measures aimed at reducing energy consumption without sacrificing productivity or increasing costs⁴¹. Actualizing this Policy is therefore vital in accelerating energy transition in Kenya.

Kenya joined the *Sustainable Energy for All (SE4ALL)* Initiative in 2014 and developed its national SE4ALL Action Agenda and Investment Prospectus⁴². The national SE4ALL Action Agenda specifies the country's targets for achieving universal access to modern energy access services, doubling the global rate of energy efficiency improvements, and doubling the share of renewable energy in the global energy mix by 2030⁴³. Kenya's

³⁶ Ibid

³⁷ Ibid

³⁸ Ministry of Energy., 'National Energy Policy.' Available at https://repository.kippra.or.ke/bitstream/handle/123456789/1947/BL4PdOqKtxFT_National%20Energy%20Policy%20October%20%202018.pdf?sequence=1&isAllowed=y (Accessed on 27/09/2023)

³⁹ Ibid

⁴⁰ Ibid

⁴¹ Ibid

⁴² Republic of Kenya: Ministry of Energy., 'Kenya National Energy Efficiency and Conservation Strategy.'

Op Cit

⁴³ Ibid

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SE4All seeks to achieve 100% universal access to modern energy services, increase the rate of energy efficiency and increase to 80% the share of renewable energy in Kenya's energy mix, by 2030⁴⁴.

Energy transition in Kenya is also a pertinent concern under the *Climate Change Act*⁴⁵. The Act seeks to combat climate change in Kenya by enhancing national responses to climate change and promoting low carbon climate development⁴⁶. The Act encourages the government to put in place measures for the elimination of climate change including reduction of greenhouse emissions and *use of renewable energy (Emphasis added)*⁴⁷. The Act recognizes the role of energy in combating climate change and urges the state to enhance energy conservation, efficiency and use of renewable energy in industrial, commercial, transport, domestic and other uses⁴⁸. Accelerating energy transition is therefore vital in confronting climate change in Kenya.

3.0 Energy Transition in Kenya: Progress and Challenges

Kenya has made some progress towards fostering energy transition. It has been observed that Kenya is among African countries that have made remarkable progress in providing modern energy services to its citizens⁴⁹. Kenya has been identified as a leader when it comes to expanding the use of renewable energy in Africa with 90% of its electricity being generated from renewable sources including geothermal power, hydropower and wind power⁵⁰. In addition, the government has set a target of meeting 100% of national energy

⁴⁴ Republic of Kenya, Kenya Sustainable Energy for All (SE4All) Action Plan, January 2016 <https://www.seforall.org/sites/default/files/Kenya_AA_EN_Released.pdf> (Accessed on 27/09/2023)

⁴⁵ Climate Change Act, No. 11 of 2016, Government Printer, Nairobi

⁴⁶ Ibid

⁴⁷ Ibid, S 26 (1) (a)

⁴⁸ Ibid, S 13 (3) (j)

⁴⁹ International Energy Agency., 'Africa Energy Outlook 2019.' Available at https://iea.blob.core.windows.net/assets/2f7b6170-d616-4dd7-a7ca-a65a3a332fc1/Africa_Energy_Outlook_2019.pdf (Accessed on 27/09/2023)

⁵⁰ Federal Ministry for Economic Cooperation and Development., 'Expanding the Energy Supply.' Available at <https://www.bmz.de/en/countries/kenya/core-area-climate-and-energy-just-transition-70194> (Accessed on 27/09/2023)

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demand from renewable sources and ensuring that all households in Kenya are connected to the electricity grid by 2030⁵¹. Further, Kenya has witnessed one of the fastest growth in electrification within Sub-Saharan Africa with estimates showing that approximately 75% of the population has access to electricity in Kenya⁵².

Kenya has also made significant strides in promoting the use of renewable sources of energy including solar, wind and geothermal power by attracting private investments for renewables projects⁵³. Kenya is considered the world's 8th largest geothermal power producer, has the continent's largest wind farm, a vibrant off grid energy market, and an aggressive last mile campaign to connect every citizen⁵⁴. Kenya has in the recent past commissioned the 310 MW Lake Turkana Wind Power plant and the 185 MW Olkaria Geothermal Power Plant, both among Africa's largest in their respective technologies⁵⁵. It is estimated that Kenya's Lake Turkana wind farm and its 365 turbines make for a generating capacity of more than 300MW, creating one of the most productive projects anywhere in the world⁵⁶. Wind power has been identified as a key contributor to the national grid⁵⁷. The country has also witnessed increased investments in solar energy⁵⁸. The government has initiated programs intended to electrify schools and health facilities in rural areas using solar systems⁵⁹. In addition, private players in the industry have developed customized solar solutions like solar home systems, solar lanterns, solar refrigerators and air conditioners that intend to meet the power needs of the rural population⁶⁰. In addition, it has been argued that nuclear energy can play an integral role

⁵¹ Ibid

⁵² International Energy Agency., 'Africa Energy Outlook 2019.' Op Cit

⁵³ ExpoGroup., 'Kenya Power and Energy Market Analysis 2024.' Available at https://www.expogr.com/kenyaenergy/market_info.php (Accessed on 27/09/2023)

⁵⁴ Muigua. K., 'Exploring Alternative Sources of Energy in Kenya.' Op Cit

⁵⁵ International Energy Agency., 'Africa Energy Outlook 2019.' Op Cit

⁵⁶ Muigua. K., 'Exploring Alternative Sources of Energy in Kenya.' Op Cit

⁵⁷ Ibid

⁵⁸ Energy and Petroleum Regulatory Authority., 'Solar Energy.' Available at <https://renewableenergy.go.ke/technologies/solar-energy/> (Accessed on 27/09/2023)

⁵⁹ Ibid

⁶⁰ Ibid

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in energy transition in Kenya⁶¹. It has been noted that many countries are reconsidering the role of nuclear energy in their energy mix, as a means to alleviate the concerns over climate change, security of energy supply and the price and price volatility of fossil fuels⁶². Proponents of use of nuclear energy argue that it has the potential to combat climate change by reducing pollution and cutting greenhouse gas emissions while also helping countries attain more energy independence⁶³. Kenya recently announced plans to kick off the construction of its first nuclear power plant in 2027 as the country seeks to further diversify its energy generation amid rising demand and push for zero-carbon energy⁶⁴. Actualizing this plan will be a key milestone in accelerating energy transition in Kenya.

Finally, there has been some notable progress towards promoting clean energy sources for purposes of cooking such as Liquefied Petroleum Gas (LPG)⁶⁵. However, despite the progress made in fostering energy transition in Kenya, there have been notable challenges hindering its realization. It has been observed that the country is still grappling with the challenge of unreliable, expensive and unsustainable energy use supporting a stagnating industrial and manufacturing base due to aging energy infrastructure that can no longer meet the modern day requirements as envisaged in the country's economic blueprint, the Kenya Vision 2030⁶⁶. Further, despite the strides made towards enhancing access to electricity in Kenya, there exists a wide disparity in electrification between urban and rural areas a majority of the rural population not having electricity connection⁶⁷. In addition, energy affordability remains a challenge in

⁶¹ Muigua. K., 'Exploring Alternative Sources of Energy in Kenya.' Op Cit

⁶² Ibid

⁶³ Ibid

⁶⁴ The East African., 'Kenya to Build Nuclear Power Plant from 2027.' Available at <https://www.theeastafrican.co.ke/tea/business/kenya-to-build-nuclear-power-plant-from-2027-4380566> (Accessed on 27/09/2023)

⁶⁵ Muigua. K., 'Adopting Green Energy for a Bright Tomorrow.' Available at <http://kmco.co.ke/wp-content/uploads/2023/06/Adopting-Green-Energy-for-a-Bright-Tomorrow.pdf> (Accessed on 27/09/2023)

⁶⁶ Muigua. K., 'Exploring Alternative Sources of Energy in Kenya.' Op Cit

⁶⁷ Moner-Girona. M et al, 'Decentralized Rural Electrification in Kenya: Speeding Up Universal Energy Access' *Energy for Sustainable Development*, Volume 52, October 2019, p 128-146.

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most sub-Saharan African Countries including Kenya due to the high cost of power relative to income making energy sources such as electricity out of the reach of most people⁶⁸. Kenya is also facing the challenge of growing population which places a huge burden on existing energy sources and also affects the achievement of clean and sustainable energy⁶⁹. In addition, it has been pointed out that Kenya's major sources of energy for the main economic production are oil, geothermal and hydro resources for electricity production where oil-based electricity generation is environmentally harmful, expensive and a burden to the national trade balance; the rivers for hydropower and their tributaries are found in arid and semi-arid areas with erratic rainfall leading to problems of supply security, and geothermal exploitation has cost and risk issues, amongst others⁷⁰.

The energy sector in Kenya therefore suffers from several challenges which hinder the quest towards energy transition in Kenya. These challenges include consistent power outages especially during dry seasons, high electricity tariffs which are exacerbated by high poverty and employment rates, energy retail sector monopoly, and cultural issues and biases that affect uptake of cleaner energy technologies, among others⁷¹. As a result, bio-energy sources such as charcoal, wood fuel and dung remain the most common source of energy in Kenya especially among the rural population in Kenya⁷². However, these sources of energy contribute to the threat of climate change by causing environmental challenges such as air and soil pollution and environmental degradation

⁶⁸ Ibid

⁶⁹ Muigua. K., 'Delivering Clean and Affordable Energy for All.' Op Cit

⁷⁰ Ibid

⁷¹ Avila, N., Carvallo, J. P., Shaw, B., & Kammen, D. M., "The energy challenge in sub-Saharan Africa: A guide for advocates and policy makers." *Generating Energy for Sustainable and Equitable Development, Part 1* (2017): 1-79

⁷² Muchiri. L., 'Gender and Equity in Bioenergy Access and Delivery in Kenya' Practical Action East Africa, 2008.' available at

https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&cad=rja&uact=8&ved=2ahUKEwiy2P29z6PnAhUEiFwKHQlyCLOQFjAAegQIBRAB&url=http%3A%2F%2Fwww.cas.ed.ac.uk%2F_data%2Fassets%2Fword_doc%2F0007%2F24793%2FGender_and_Equity_in_Bio_energy_Access_and_Delivery_in_Kenya_final.doc&usg=AOvVaw2AKp1mvTSC9tafkIKJ-36 (Accessed on 27/09/2023)

through deforestation⁷³. There is need to address these challenges in order to accelerate the energy transition in Kenya.

4.0 Way Forward

In order to accelerate energy transition in Kenya, there is need for continuous adoption and investments in renewable sources of energy such as wind, solar, hydropower, geothermal and tidal energy that are prevalent in the country⁷⁴. The economic, societal and environmental benefits of renewable sources of energy are numerous. Renewable sources of energy are available in abundance, cheaper and are a healthier option for people and the planet⁷⁵. Generating renewable energy creates far lower emissions than burning fossil fuels⁷⁶. Transitioning from fossil fuels, which currently account for the lion's share of global green house gas emissions, to renewable energy is key to addressing the climate crisis in Kenya and across the globe⁷⁷. It is thus imperative for the government and other players in the energy sector to upscale investments in renewable energy in order to accelerate the energy transition in Kenya.

It is also vital for Kenya to foster energy justice by addressing the concerns that are prevalent in the sector including access to energy and costs of energy in order to actualize its journey towards energy transition⁷⁸. The energy sector in Kenya is clouded with several challenges including disparities in access to energy between rural and urban areas and high costs of energy⁷⁹. These challenges hinder the journey towards energy transition in Kenya since they result in a significant percentage of the population especially the poor

⁷³ Ibid

⁷⁴ Muigua. K., 'Adopting Green Energy for a Bright Tomorrow.' Op Cit

⁷⁵ United Nations., 'Climate Action.' Available at

<https://www.un.org/en/climatechange/howcommunities-are-embracing-renewable-energy> (Accessed on 28/09/2023)

⁷⁶ United Nations., 'What is Renewable Energy?.' Available at

<https://www.un.org/en/climatechange/what-is-renewable-energy> (Accessed on 28/09/2023)

⁷⁷ Ibid

⁷⁸ Muigua. K., 'Towards Energy Justice in Kenya.' Available at <http://kmco.co.ke/wp-content/uploads/2020/02/Towards-Energy-Justice-in-Kenya-00000005.pdf> (Accessed on 28/09/2023)

⁷⁹ Ibid

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in rural areas to resort to bio-energy sources such as charcoal and wood fuel⁸⁰. However, these sources of energy have negative environmental impacts and contribute to the threat of climate change⁸¹. The government should address these justice concerns by putting in place measures to enhance access to clean energy sources of energy such as reducing the cost of Liquefied Petroleum Gas (LPG) and enhancing the affordability of electricity by making connection charges and billing costs more affordable for the benefit of all Kenyans especially those in rural areas⁸². Such initiatives will encourage more people to adopt clean sources of energy and accelerate energy transition in Kenya.

It is also vital to enhance energy efficiency and reliability in Kenya in order to actualize the energy transition in Kenya⁸³. The energy sector in Kenya is crippled with unreliable electricity supply that often results in frequent power cuts which last for days in some areas⁸⁴. Such a situation forces most people to resort to alternative sources of energy including bioenergy and generators that are powered by oil products resulting in environmental concerns⁸⁵. Providing access to electricity is essential, but access has to bring with it a reliable supply of electricity if households, businesses and public services are to reap the full benefits⁸⁶. A lack of reliable electricity supply disrupts daily lives and activities, lowers trust and use of the grid, increases costs for consumers and utilities and may result in the use alternative sources of energy with significant environmental impacts⁸⁷. It is therefore imperative to ensure reliability and efficiency in the energy sector in Kenya in order to accelerate the energy transition.

⁸⁰ Muchiri. L., 'Gender and Equity in Bioenergy Access and Delivery in Kenya' Practical Action East Africa, 2008.' Op Cit

⁸¹ Ibid

⁸² Muigua. K., 'Towards Energy Justice in Kenya.' Op Cit

⁸³ Muigua. K., 'Delivering Clean and Affordable Energy for All.' Op Cit

⁸⁴ Mutiso. R., & Taneja. J., 'The Seven Major Threats to Kenya's Power Sector.' Available at <https://energyforgrowth.org/article/the-seven-major-threats-to-kenyas-power-sector/> (Accessed on 28/09/2023)

⁸⁵ Ibid

⁸⁶ International Energy Agency., 'Africa Energy Outlook 2019.' Op Cit

⁸⁷ Ibid

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Further, there is need for Kenya to integrate energy planning with the national economic, social and environmental policies in a manner that ensures inclusivity and participation of all people⁸⁸. Integrated energy planning has the potential to foster development of energy supply and demand balances and ensure sustainable environmental conservation⁸⁹. Public participation plays an important role in the energy sector in Kenya⁹⁰. It has been pointed out that some of the energy providers do not readily provide information on such matters as tariffs, pollution, real costs and other cost and affordability-related issues thus hindering effective decision making for most people on the available sources of energy⁹¹. Further, while undertaking energy projects, some of the stakeholders have violated the constitutional principle of public participation⁹². Public participation has the ability to foster efficient decision making in the energy sector by ensuring that the views of all stakeholders are taken into account therefore promoting inclusivity and non- discrimination⁹³.

In addition, it is essential to mainstream gender issues in the energy sector by ensuring involvement of all persons especially women. In the African set up, production and use of biomass fuels is the responsibility of women and children⁹⁴. However, due to diminishing biomass energy supplies, women and children in some parts of the country are spending increasing amounts of time fetching firewood and other biomass fuels leaving little time for other productive activities for women; and limited study-time particularly for the girl child⁹⁵. Therefore, it is important to mainstream gender issues in policy formulation and in energy planning, production and use, and undertake public

⁸⁸ Republic of Kenya., 'Sessional Paper No. 4 on Energy.' Op Cit

⁸⁹ Ibid

⁹⁰ Muigua. K., 'Towards Energy Justice in Kenya.' Op Cit

⁹¹ Muigua. K., 'Access to Energy as a Constitutional Right in Kenya' Op Cit

⁹² Ibid

⁹³ Ibid

⁹⁴ Republic of Kenya., 'Sessional Paper No. 4 on Energy.' Op Cit

⁹⁵ Ibid

education and awareness creation on clean sources of energy in order to address this challenge and accelerate energy transition in Kenya⁹⁶.

Finally, there is need for continuous research and development in the energy sector in order to accelerate energy transition in Kenya⁹⁷. Research and development plays a critical role in the development, conversion, transportation and use of energy⁹⁸. Through research and development, it is possible to identify the challenges and concerns in the energy sector and develop solutions to address such challenges⁹⁹. Research is also vital in developing new sources of energy and enhancing the efficiency of existing sources¹⁰⁰. It is therefore important for Kenya to enhance research and development in the energy sector in order to accelerate its energy transition.

5.0 Conclusion

Energy is a fundamental human need that plays a vital role in socio-economic development and the Sustainable Development agenda¹⁰¹. Concerns in the energy sector including increase in population and climate change necessitate transition in the energy sector.¹⁰² Kenya has made progress towards energy transition including embracing renewable sources of energy¹⁰³. However, there are still problems relating to access, costs, efficiency and reliability of energy in Kenya¹⁰⁴. It is therefore imperative to accelerate energy transition in Kenya by adopting and investing in renewable sources of energy, enhancing access to energy, ensuring affordability of energy, fostering energy reliability and efficiency, embracing public participation and mainstreaming gender concerns in the

⁹⁶ Ibid

⁹⁷ International Energy Agency., 'Africa Energy Outlook 2019.' Op Cit

⁹⁸ Republic of Kenya., 'Sessional Paper No. 4 on Energy.' Op Cit

⁹⁹ International Energy Agency., 'Africa Energy Outlook 2019.' Op Cit

¹⁰⁰ Ibid

¹⁰¹ Goldthau. A & Sovacool. B., 'The Uniqueness of the Energy Security, Justice and Governance Problem' Op Cit

¹⁰² Muigua. K., 'Exploring Alternative Sources of Energy in Kenya.' Op Cit

¹⁰³ Ibid

¹⁰⁴ Muigua. K., 'Towards Energy Justice in Kenya.' Op Cit

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energy sector and promoting research and development¹⁰⁵. Accelerating energy transition in Kenya is an imperative whose time is now.

¹⁰⁵ Republic of Kenya., 'Sessional Paper No. 4 on Energy.' Op Cit

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