Towards a ‘green’ trajectory of economic growth and energy security in Kenya?

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Research Report

Clingendael
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Cover photo: Farmer shows Feed the Future Kenya AVCD team her solar power in Opapo orange-flesh sweet potato site visit in Migori county.
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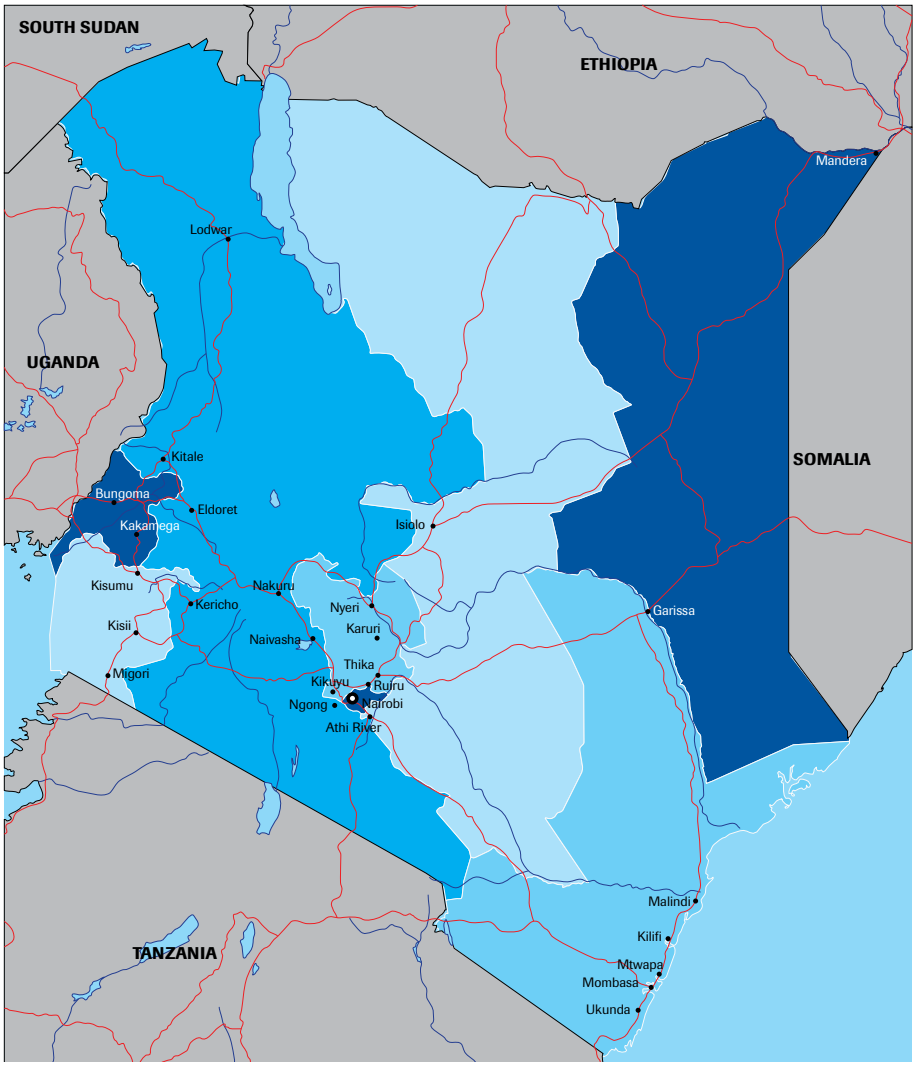
Map of The Republic of Kenya



Source: http://www.worldmap1.com/kenya-map.asp

Executive summary

Kenya's energy security and green growth development occurs against a background of newly found oil reserves on the one hand and, on the other, a growing international consensus on the need to decarbonise national economies and energy production. The degree to which Kenya succeeds in realising green growth therefore crucially depends on the power and influence of groups that advocate either direct economic gains or a combination of social, economic and environmental development within a larger timeframe.

As the largest economy in the East African Community (EAC) and a regional hub for trade, communication, finance and transportation, Kenya has established itself as an economic powerhouse in the region. Yet unemployment is high, inequality is rising and nearly half of Kenya's gross domestic product (GDP) is derived from resource-dependent industries. Most of these are highly vulnerable to the effects of climate change. Moreover, access to modern energy services is low, due to high costs, irregular supply and poorly maintained infrastructure, while population size is expected to double within the next decades – coinciding with a rising rate of urbanisation. These trends give ample reason for the Kenyan state to support a trajectory of green energy growth serving the purposes of increasing energy security and local grid access, meeting its international climate ambitions and stimulating sustainable economic growth. Yet a combination of political, economic and institutional constraints may hamper this process.

This report assesses the potential of and obstacles to energy security and green growth in Kenya using a political economy analysis (PEA). It points out that although constitutional reform and devolution provide opportunities for improved governance, it also poses additional challenges to the realisation of green growth. Corruption and the intermingling of private and public interests impede implementation efforts of projects in the energy sector, as well as the capacity of the government to regulate. At the same time, donor-funded projects have contributed significantly to Kenya's renewable energy production, and the shared prioritisation of renewable energy development by both donor partners and the Kenyan government provides a unique case with high future potential for green growth. However, the poorest of Kenya's population have mostly been excluded from the benefits of these new energy projects, which further increases the need to stimulate socioeconomic inclusiveness in order to reduce poverty and mitigate local resistance.

Taking the above concerns and Kenya's environmental objectives into consideration, this report makes four recommendations that could contribute to the future direction of energy development in Kenya:

- *Mobilisation of resources.* As Kenya is a leading investment destination in Africa with a business-friendly environment, its private sector needs to be incorporated into the country's energy development in order to increase and diversify capital currently provided largely by donor agencies. This means adequately incentivising private actors to invest in green energy projects by increasing the rate of return from green investments, for instance with tax incentives and Green Economic Zones. Also, continuous donor commitment should be ensured by safeguarding domestic stability, addressing corruption and implementing constitutional reforms. At the least, part of potential fossil-fuel extraction revenues could be redirected towards green investments via sovereign wealth funds.

- *Prioritisation of investment in energy infrastructure.* Investment in energy infrastructure and adequate distribution and transmission should be prioritised so as to increase overall energy access and a reliable supply of electricity. This should coincide with realistic and depoliticised planning in the sector in order to match demand, supply and required distribution infrastructure.

- *Linking economic inclusion and green growth: Incorporating micro-grid and distribute home solutions in national energy goals.* In order to meet the 2020 target of universal energy access, renewable-based micro-grids and distributed solar home systems might provide a quicker and more efficient low-carbon solution to bring electricity to both populated and isolated off-grid areas than large investments in expansion and refurbishing of the national energy grid. For this to succeed however, the Energy Regulatory Commission and parliament need to approve these initiatives and open up the market for competition in the end-use energy sector. Kenya Power can use its resources on upgrading the existing infrastructure to improve efficient and reliable supply in areas connected to the national energy grid. In addition, more competition in the end-use sector can also lead to the entrance of new distributors in national grid areas. This may improve efficiency and result in lower energy prices, making electricity more affordable for poorer segments of the population living in connected regions.

- *Devolution as a solution.* With a well-educated population and high awareness of climate change, constitutional reform and devolution in Kenya provide important opportunities for green growth and energy security by increasing public participation, accountability of elected representatives and representation of citizens. Public and civil society need to be more involved, not just in the discourse for approval but also in the design, development and implementation of green

growth initiatives and energy security programmes at county level. This could increase support on the ground, improve implementation and create a more balanced view on energy solutions, promoting more equitable economic and social programmes that can overcome public protest against (renewable) energy projects.

1 Introduction

The concept of *green growth* is increasingly gaining traction as a way to foster low-carbon economic growth and development while ensuring that natural assets continue to provide the resources and environmental services on which our well-being relies.[1] For many developing and rapidly industrialising countries, the issue of greenness of growth needs to be weighed against the concept of *energy security*: that is, the uninterrupted availability of energy supply at an affordable price.[2] This study is part of a three-tier study on middle-income developing countries: Kenya, Colombia and Indonesia. The research aims to identify political economy constraints and enablers, with a view to offering credible advice for energy and green growth planning.

Kenya is the dominant economy in the East African Community (EAC).[3] It is the only lower-middle-income country in a region dominated by Least Developed Countries. From 2000 to 2015, its gross domestic product (GDP) increased fivefold while the country attracted many new investors from the private sector.[4] Kenya's vision for the future is to become a 'newly industrializing, middle-income country providing a high quality of life to all its citizens by 2030 in a clean and secure environment'.[5] Energy security is recognised as the driver of economic development activities that are required to realise this vision. Therefore, Kenya opts for an adequate, reliable, clean and affordable supply of energy.

In the aftermath of widespread electoral violence in 2007, Kenya adopted a new constitution in 2010 focusing on citizen rights and devolution: 47 county governments are becoming more and more autonomous in their choices, including in energy planning. The constitution has been lauded as a 'significantly progressive document'.[6]

1 Organisation for Economic Co-operation and Development (OECD). 2011. "Towards Green Growth." May 2011. https://www.oecd.org/greengrowth/48012345.pdf

2 International Energy Agency. 2014b. "Energy Security." http://www.iea.org/topics/energysecurity (accessed August 2016).

3 Kimenyi, M.S, Mwega, F.M. and Ndung'u, N.S. 2014. "The African Lions: Kenya Country Case Study." *Brookings Institute*. May 16. http://www.brookings.edu/~/media/research/files/papers/2016/05/16-kenya-country-case-study/kenya-country-case.pdf

4 GDP increased from US$12,705 billion in 2000 to US$63,398 billion in 2015. The World Bank. 2016a. "Kenya." http://data.worldbank.org/country/kenya (accessed July 2016).

5 Government of Kenya. 2007. *Kenya Vision 2030 – the popular version*. Nairobi.

6 Sihanya, B. 2012. "Constitutional implementation in Kenya, 2010-2015: Challenges and prospects." *FES Kenya Occasional Paper* (5)2.

Kenya presents itself as a leading actor at international level on climate and energy issues. The Intended Nationally Determined Contribution (INDC), handed to the United Nations Framework Convention on Climate Change (UNFCCC) Secretariat before Paris COP21, is ambitiously calling for a reduction of 30 percent greenhouse gas (GHG) emissions in 2030 compared to its 'business as usual' scenario.[7] Donor and government interests seem to be aligned in the area of renewable energy, with plenty of renewable sources such as geothermal, wind and solar, which can assist in reaching the national energy security goals.[8]

However, all is not as straightforward as this renewable energy picture seems to suggest. About 85 percent of Kenya's land area is classified as 'arid and semi-arid lands' (ASALs) with a fragile ecosystem where land use is largely pastoral. Moreover, with a large agriculture-dominated economy, Kenya is highly vulnerable to the impacts of climate change.[9] More than 70 percent of natural disasters in Kenya result from extreme climatic events, the most common of which are floods and droughts.[10] The whole African energy system is responsible for only 1 to 4 percent of global emissions, while the impacts of climate change are set to be felt disproportionately.[11]

The issue of green growth and energy security should not be seen in isolation from domestic institutional challenges, political competition and ethnic conflict, growing inequality between and within 'Rural Kenya' and 'Urban Kenya', the country's investment climate and land ownership conflicts.[12] On top of this come international challenges such as the spread of regional terrorism from neighbouring countries (e.g., Somalia) as well as insecurity on international financial markets regarding the price volatility of renewable and fossil energy sources. Moreover, from an energy perspective, the recent discovery of oil and considerations of coal and nuclear technology could alter the trajectory of economic growth, which was intended to focus on renewable energy sources. Therefore, an analysis of the green growth and energy security potential of the country should also focus on the 'political economy' factors enabling or hindering such a green growth

7 Ministry of Environment and Natural Resources. 2015. Kenya's Intended Nationally Determined Contribution (INDC). *UNFCCC*. 23 July: 2.

8 Newell, P., Phillips, J., Pueyo, A., Kirumba, E., Ozor, N., & Urama, K. 2014. "The political economy of low carbon energy in Kenya." *IDS Working Papers 2014* (445): 1–38.

9 MER. 2015. "Climate Change Profile Kenya." *Netherlands Commission for Environmental Assessment*. Dutch Sustainability Unit. July 2015.

10 Recent major droughts occurred in 1991/92, 1995/96, 1998/2000, 2004/05 and 2009. Major floods occurred in 1997/98 and 2006. The 2006 floods affected 723,000 people.

11 Climate & Development Knowledge Network. 2014. "Integrating Climate Change in the Post-2015 Development Agenda." March 2014.

12 Booth, D., Cooksey, B., Golooba-Mutebi, F., & Kanyinga, K. 2014. *East African Prospects: An Update on the Political Economy of Kenya, Rwanda, Tanzania and Uganda*. Overseas Development Institute.

trajectory. This adds value to research in areas such as model projections, which are currently unfit for addressing country-specific issues and do not address either decentralised electricity production options or more political-institutional issues.[13]

Structure of the report

This report explores the political economy of energy security and the potential for green growth in Kenya, identifying the stakeholders and interests where energy security and green growth agendas might be aligned. The report follows a structure of four steps. Chapter 2 delineates the fundamentals of Kenya's energy economy, the main issues affecting energy security in the country, and the current uptake of green growth approaches. Chapter 3 moves on to the formal terrain of politics and the state: it explores the basic architecture and structural weakness of the Kenyan state, and outlines the policy frameworks that have been devised in the area of green growth and energy security issues.

The subsequent section, Chapter 4, seeks to delve deeper into the overall challenges of the country by exploring four of the key issues shaping Kenya's national development, and how these intersect with green growth and energy security. These implications are made more concrete in Chapter 5 by looking at the 'political economy' issues. Key stakeholders are identified, obstacles and opportunities are discussed, and alliances and divergences are mapped. The report ends with conclusions in chapter 6.

This study draws heavily on 20 in-depth interviews in Kenya with policy makers in different ministries and state agencies, scientific and energy experts, civil society organisations, economists, political scientists, diplomats and private sector representatives as well as a one-day workshop in Nairobi. This report seeks to analyse this information so as to pinpoint the core issues of a political economy analysis of energy security and green growth in this lower-middle-income country. Sources of information also include existing studies on Kenya's political economy, green growth and energy security analysis and energy data, including related import/export figures and government expenditure.

13 Lucas, P.L., Nielsen, J., Calvin, K., McCollum, D.L., Marangoni, G., Strefler, J., ... and van Vuuren, D.P. 2015. "Future energy system challenges for Africa: insights from Integrated Assessment Models." *Energy Policy* 86: 705-717.

2 Climate, energy and green growth

Kenya is surrounded by Somalia, Ethiopia, South Sudan, Uganda, Tanzania and 536 kilometres (km) of coastline on the Indian Ocean (see map). It has a population of 45 million people (rural 75 percent, urban 25 percent).[14] Energy is a critical component in the development of the Kenyan economy and for raising its population's standard of living. In 2013, energy use was 0.49 tonnes of oil equivalent (TOE) per capita while electricity consumption was 167.7 kilowatt hour (kWh) per capita, which is comparable to the energy consumption of other countries in the region.

Electricity accounts for only 9 percent of final energy consumption in Kenya. Access to electricity has doubled in the past years, but is still low with just 55 percent of the total population having access to the energy grid.[15] The government has set an ambitious target of universal access by 2020, which is a condition for any long-term green energy growth option to succeed. The following discussion provides a succinct overview of the composition and character of energy production, distribution and use, as well as the significance of energy security and green growth for current and future energy plans in the country.

2.1 Production and trade

Energy production in Kenya is limited to biomass (wood, agricultural waste) and electricity produced from geothermal, hydropower and other renewables such as wind and solar. These are complemented by crude oil and oil products, (some) imported electricity and small quantities of imported coal used by the cement industry. All petroleum is imported and mainly used in the transport, commercial and industrial sectors. In 2013, imports accounted for 23 percent of Kenya's total primary energy supply, a figure that has remained fairly constant over the last 25 years.[16] Oil and oil products made up 17.9 percent of the total import bill in 2013. Historically, the Kenyan

14 World Bank. 2016b. "World Development Indicators." May. http://data.worldbank.org/country/kenya#cp_wdi (accessed August 2016).

15 Kenya Power. 2016. "Milestones in Kenya's electricity access." http://www.kplc.co.ke/content/item/1040 (accessed August 2016).

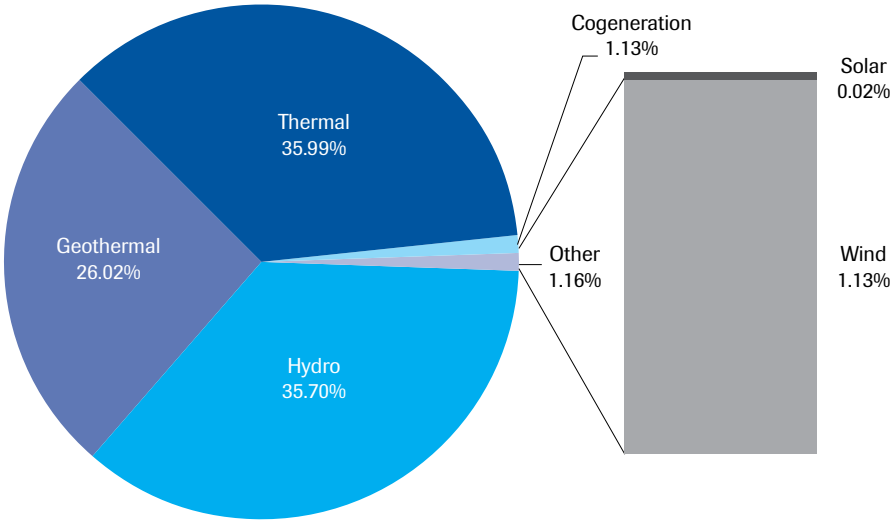
16 Institute of Economic Affairs. 2015. *Situational Analysis of Energy Industry, Policy and Strategy for Kenya.* Nairobi: The Institute of Economic Affairs.

economy has been highly exposed to international energy prices. However, with the discovery of oil in the country, this trend could change,[17] provided that domestic refinery capacity increases in parallel.

2.2 Power generation, transmission and distribution

Total installed electricity generation capacity in Kenya by end 2015 was 2,299 megawatt (MW) made up of the sources shown in the chart below.

Figure 1 Installed generation capacity in Kenya by end 2015



Source: Kenya Power, Annual Report, 2015

Increasing electricity generation and reliability is a major focus for the Government of Kenya (GoK). Historically, hydropower has provided most of the electricity supply (77 percent in 1990). Since then, supply sources have been diversified. Hydropower still has the largest share of installed electricity capacity at 36 percent, but is followed closely by oil-fired thermal at 35 percent and geothermal at 26 percent. Wind, solar and biomass account for the remaining 3 percent, although the installed capacities and their

17 International Energy Agency. 2014a. *African Energy Outlook 2014: a focus on energy prospects in Sub-Saharan Africa*. World Energy Outlook Special Report: 49.

proportions are likely to change significantly when power from the ongoing and planned coal, geothermal, wind, solar and cogeneration projects begin to come on stream by the end of 2016. The table below shows the committed Generation Projects (2015–18).

Table 1 Committed generation projects (2015–18)

	Plant	Type	MW	Expected Online Date
1.	Kwale Sugar	Biomass	10	2015
2.	Strathmore University	Solar	0.25	2015
3.	Biojoule	Biogas	2	2016
4.	Kinangop Wind Park	Wind	60	2016
5.	Wellhead units	Geothermal	25	2016
6.	Cummins Power	Biomass	12	2016
7.	Marine Power -Akira	Geothermal	70	2016
8.	OrPower4 Plant IV	Geothermal	50	2016-2017
9.	Lake Turkana Wind Power	Wind	300	2017
10.	Quantum (Menengai)	Geothermal	35	2017
11.	Sosian (Menengai)	Geothermal	35	2017
12.	Ormat (Menengai)	Geothermal	35	2017
13.	ReGen Terem	Hydro	5	2017
14.	Kleen Energy	Hydro	6	2017
15.	Olkaria 1 rehabilitation	Geothermal	(45)	2018
16.	Olkaria 1 rehabilitation	Geothermal	50.7	2018
17.	Olkaria 1- (Unit 6)	Geothermal	70	2018
18.	Wellhead leasing	Geothermal	50	2018
19.	Africa Geothermal International (AGIL)	Geothermal	70	2018
20.	Ol-Danyat Energy	Wind	10	2018
21.	Ethiopia Imports	Hydro	400	2018
22.	Mt. Kenya CBO	Hydro	0.57	2018
23.	Kipeto Energy	Wind	100	2018
	Total		**1,352**	

Source: Kenya Power, Annual Report, 2015

Between 2015 and 2018, some 1,352 MW additional generation capacity is planned, the bulk of which is about 400 MW of electricity imports from Ethiopia, 460 MW of wind and 491 MW of geothermal. It is not clear why this list does not include the two new 960 MW coal power plants planned for construction in 2017.

Regionally, Ethiopia and Uganda still have the highest proportion of renewable capacity, with 90 and 84 percent of their generation capacity coming from hydro sources (respectively). Kenya follows with a combined 64 percent share of renewable electricity

generation. Tanzania and Rwanda, on the other hand, have less renewable generated electricity and have plans to invest in more fossil-fuel power plants.

All electricity generated in Kenya is sold to Kenya Power, formerly the Kenya Power and Lightning Company (KPLC), for transmission and distribution to end customers. However, the connectivity rates are still low in both high-density urban areas and rural areas with low-density settlement patterns. Poorly maintained and failing infrastructure leads to an increased number of blackouts across Kenya, and the geographical mismatch between new capacity coming online and the locations of demand growth will put additional pressure on infrastructure.

With energy reforms that started in 1997, generation was separated from transmission and distribution through creation of the Kenya Electricity Generating Company (KenGen) and KPLC, the latter being responsible for all the functions in the power sector apart from policy. Later in 2008, transmission was separated from distribution with the creation of the Kenya Electricity Transmission Company (KETRACO), leaving KPLC with the distribution function only. KPLC, a limited liability company which transmits, distributes and retails electricity to customers throughout Kenya, was rebranded to Kenya Power (KP) in 2011.

As a result of its monopoly of the sector before the reforms, KPLC developed internal inefficiencies and complacency that led to a poor, unreliable, but expensive, power supply service, with frequent power outages and high system losses. In this role, KP has been implementing a number of interventions aimed at increasing electricity connectivity and lighting urban areas around the country. The distribution network, however, is old and generally dilapidated, resulting in system overloads, high system losses (estimated at 19 percent in mid-2016) and power outages leading consumers, especially the private sector, to call for reform of the electricity distribution market to make it more competitive.

2.3 Consumption

The transport sector is the largest consumer of liquid fuels in Kenya (70 percent of final consumption of oil products in 2013) and has been experiencing rapid growth as personal vehicle ownership increases. However, car ownership remains low at 15 cars per 1,000 people (world average is 125).[18] Charcoal, firewood, paraffin and liquefied petroleum gas (LPG) continue to be the main sources of cooking fuel. Around 35 million people in Kenya rely on traditional biomass for cooking. In total, biomass (including

18 International Energy Agency. 2014a. *African Energy Outlook 2014: a focus on energy prospects in Sub-Saharan Africa*. World Energy Outlook Special Report: 45.

charcoal) provides about 95 percent of the final energy consumption used in the residential sector.[19] For the majority of Kenya's rural population of around 33 million, collected wood is the primary fuel used. For middle- and high-income rural households and urban households, other fuels are used, including purchased wood and charcoal, and there is some use of LPG, kerosene and electricity.

Electricity consumption patterns by the rural and urban population are changing due to increasing urbanisation and shifting lifestyles, which will be addressed in Chapter 4, section 4.3. For energy security and green growth this means the government will not only have to stimulate electricity generation but also address changing consumption and demand patterns through policy and regulation. The challenges herein will be to anticipate growing peak demand centres and ensure an efficient and reliable energy grid.

2.4 Energy security

The energy sector in Kenya is largely dominated by biomass, electricity and imported petroleum, with biomass (wood fuel, charcoal and agricultural waste) providing the basic cooking and heating energy needs of rural communities, the urban poor and the informal sector. Biomass is also the third cheapest source of electricity and has significant potential in Kenya, provided that it can be produced sustainably, including through the use of agricultural by-products. Kenya has a large agricultural base with industries such as tea, coffee and flowers. Charcoal, sourced mostly from unsustainable biomass, also plays a major role in household cooking. Considered holistically, the annual contribution of charcoal to the economy is estimated at about 135 billion Lenyan shillings (US$1,33 billion).[20] The charcoal industry nevertheless faces several challenges, including unsustainable fuelwood resource and economic exploitation along the value chain.

Kenya has overall been facing serious constraints in modern energy supply, including poor access to modern energy services, the high cost of energy, irregular supply and the high cost of energy investments. Kenya has high electricity tariffs compared to neighbouring countries,[21] which makes it unaffordable for a large proportion of the population and reduces the competitive advantage of firms based in Kenya versus

19 Ibid, 34.

20 Ministry of Environment Water and Natural Resources (GoK). 2013. *Analysis of the Charcoal Value Chain in Kenya*. Final report August 2013. http://www.kenyaforestservice.org/documents/redd/Charcoal%20Value%20Chain%20Analysis.pdf

21 Electricity prices in Kenya in 2013 were US$0.20/kWh versus 0.03/kwh in Ethiopia and US$0.09/kWh in Tanzania. See Kant et al. 2014.

regional rivals. Since the early 2000s, and following the experience of the severe droughts since 1999, Kenya has intentionally diversified its energy mix. One of the ways Kenya has diversified has been the setting up, in 2008, of the Geothermal Development Company (GDC) to 'fast track the development of the country's plentiful geothermal potential'.[22] Geothermal is supported by the government because of its relatively high potential and low cost.[23]

Actors active on other energy sources, such as solar, complain about inadequate incentivisation of the private sector to fully participate in their development. The main challenges Kenya is facing with large wind projects, such as the 300 MW Lake Turkana Wind Park, are high upfront costs, long distances between windy areas and the national grid, inadequate data, limited expertise and experience with the technologies, and competing land use.[24] The benefits and challenges of grid-connected solar energy are similar to those of wind power. However, the technology faces challenges associated with intermittency, although it is less susceptible to connectivity problems. Grid-connected solar plants can be installed in most parts of Kenya because the whole country has adequate irradiation levels.[25] This cuts down on the need for expensive lines, and reduces the losses in power transmission lines. The first solar power system with a power purchase agreement (PPA) to supply electricity to the Kenyan grid under the current feed-in-tariff was realised in 2015 in the shape of a 600kW project at Strathmore Business School in Nairobi. Currently, the total dispatchable capacity for both wind and grid-connected solar are 25 MW and 0.45 MW, respectively.

Because of the intermittent nature of both wind and grid-connected solar energy, they both require significant investment in stand-by equivalent generating capacity. Besides grid-connected solar PV (photovoltaic), and because of the high daily insolation in Kenya (4-6kWh/m2),[26] a vibrant solar energy market has developed in Kenya over the years for providing electricity to homes and institutions remote from the national grid and also for medium temperature water heaters for domestic and commercial usage. Kenya now has one of the most active commercial PV system markets in the developing world, with an installed PV capacity in the range of 4-5 MW. An estimated 200,000 rural households in Kenya have solar home systems and annual PV sales in

22 Geothermal Development Company, 2014.

23 Newell (2014, 18).

24 The 60 MW Kinangop Wind Project had to be abandoned after it faced several community protests based on land compensation and safety (see Gachiri, J. 2016. "Firm pulls the plug on Sh15bn Kinangop wind farm project.").

25 Da Silva. 2015. "The four barriers for the diffusion of solar energy technologies in Africa: trends in Kenya." *Africa Policy Review 2015*.

26 Energy Regulatory Commission. 2016. http://www.erc.go.ke/index.php?option=com_fsf&view=faq&catid=2&Itemid=649 (accessed September 2016).

Kenya are between 25,000–30,000 PV modules. In 2002, total PV sales were estimated to have been 750 kilowatt peak (kwp), which grew by 170 percent in eight years, even without government intervention or policies to promote the uptake of PV technology. Stand-alone PV systems represent the least-cost option for electrifying homes in many rural areas, especially the sparsely populated arid and semi-arid lands. 'Solar home systems' (SHSs) are practical for providing small amounts of electricity to households beyond distribution networks. It is estimated that the initial market demand for PV systems is about 1 megawatt peak (MWp) per year, and this presents a great opportunity not only for inclusiveness and energy security but also for investors in solar equipment (PV panels, charge controllers, inverters and PV batteries) manufacture and distribution. Some of the barriers affecting the exploitation of solar energy resources include high initial capital costs, low awareness of the potential opportunities and economic benefits offered by solar technologies, and a lack of adherence to system standards by suppliers.

Kenya has also established a plan for integrating nuclear power into the electricity mix in a safe and cost-effective manner. The government has established the Kenya Nuclear Electricity Board and is developing the sub-sector in accordance with the International Atomic Energy Agency (IAEA) guidelines.[27] In order to meet all the regulations and ensure safe operation of the nuclear plants, the government will not commission its first 2,000 MW nuclear plant until 2022. According to the GoK *Vision 2030*, coal will also be a key energy source of the future,[28] drawing on domestic reserves such as the recently discovered 400 million-tonne coal mine in the Mui Basin. Today, coal is imported and used only in the cement industry, constituting less than 1 percent of the primary energy mix. The plans to construct a 1,050 MW coal plant in Lamu illustrate Kenya's plans for coal to contribute to energy security.

2.5 Green growth

Kenya has made a commitment to reduce the national GHG emissions by 30 percent compared to the 'business as usual' scenario by 2030 in its Intended Nationally Determined Contribution (INDC) as handed to the UNFCCC before the Paris Agreement.[29] By pursuing a trajectory of green growth, Kenya can protect its natural assets and environmental resources that are needed for the well-being of its citizens

27 Government of Kenya. 2012. *Laws of Kenya - Energy Act*. Nairobi. https://kenya.eregulations.org/media/energy%20act.pdf

28 Government of the Republic of Kenya. 2013. *Second Medium Term Plan, 2013–2017*. Kenya Vision 2030.

29 Ministry of Environment and Natural Resources. 2015. Kenya's Intended Nationally Determined Contribution (INDC). *UNFCCC* 23 July: 2. http://www4.unfccc.int/submissions/INDC/Published%20Documents/Kenya/1/Kenya_INDC_20150723.pdf

while reducing GHG emissions and fostering economic growth. Yet, green growth does not seem to be achievable in the energy sector without significant investment in renewable electricity generation and efficient or clean biomass cook stoves.

In the power sector, studies have shown that wind, nuclear, biomass and solar PV are the most economical and available electricity sources for Kenya. The country is currently creating policies to stimulate industry and to foster the growth of these resources, as laid out in the country's National Energy Policy and others (see 3.2 in Chapter 3). Kenya's recent discovery of petroleum and coal may cause the country to move away from its historically renewable energy mix, towards a more carbon-intensive one but with clean coal technology.[30]

Despite growing support for a green economy through the 'Environment and Sustainable Development' paradigm shift, Kenya is faced with a number of key challenges in effectively implementing a green economy strategy. In recent years, Kenya has made significant discoveries of commercially viable deposits of coal, oil, natural gas and other minerals whose exploitation is expected to have far reaching socio-economic and environmental consequences. Additionally, high levels of urbanisation, rapid infrastructural development and housing construction at national and county levels are expected to exacerbate these impacts if sustainable consumption and production approaches are not embraced to transform towards an economy based on the premises of green growth.

30 In 2012, a US$34 billion mining concession was given to Fenxi Mining Group, and a Chinese consortium was given mining rights to the coal mine in 2015.

3 Government, policy context and the private sector

In Chapter 2, Kenya's current energy situation and ambitions were discussed. This chapter focuses on the larger political and institutional framework embedding Kenya's energy sector. In addition, key policies on energy security and green growth are outlined and the major players in the energy sector are identified.

Kenya became independent from Britain in 1963 as a unitary state with a multi-party system. There have been four presidents in the country since independence (Jomo Kenyatta 1963–78, Daniel Arap Moi 1978–2002, Mwai Kibaki 2002–12 and Uhuru Kenyatta, 2013 to date). The start of Kibaki's second term in office (2007–08) saw violent protests with 1,300 deaths and 500,000 people displaced. This was followed by international diplomatic intervention by former UN Secretary-General Kofi Annan and a power sharing agreement between Kibaki and Odinga; the latter was appointed prime minister, a transitional post created for him.[31] Kenya was unable to address post-conflict prosecutions and they were deferred to the International Criminal Court in The Hague. Odinga was defeated in the 2013 elections, losing to the current President Kenyatta (43.7 percent vs 50.5 percent).[32] A new government structure with a new constitution came into effect following a referendum in 2010 in which 67 percent of Kenyan citizens voted in favour. With the general election of March 2013, the president and legislators at both national and county levels were elected into office according to the new constitution. Formal and informal government structures serve to shape the space in which green growth and energy security policies are made.

3.1 Political-institutional architecture and structural constraints

The idea behind the constitutional reform process was to enhance democratic governance, promoting the rights of communities and enhancing checks and balances.[33] Key changes included reform of the judiciary, a gender equity requirement, a Bill of

31 Cheeseman, N., Lynch, G. and Willis, J. 2014. "Democracy and its discontents: understanding Kenya's 2013 elections." *Journal of Eastern African Studies* 8(1):2-24.

32 Independent Electoral and Boundaries Commission. "General Election Results (2013)." http://www.iebc.or.ke/index.php/election-results (accessed August 2016).

33 The Republic of Kenya. 2010. The Constitution of Kenya. National Council for Law Reporting with the Authority of the Attorney General. See a.o. Art 174 of the Constitution on the objects of devolution.

Rights recognising the environmental and socio-economic rights, among others, of Kenyan citizens, and devolution leading to 47 lower level county governments (see Figure 3). An independent national Land Commission was created to maintain oversight on land issues and improve dispute resolution. The constitution grants every person 'the right to a clean and healthy environment, which includes the right to have the environment protected for the benefit of present and future generations through legislative and other measures'. A brief overview of Kenya's system of governance points towards a number of elements that are crucial to understanding many of the country's policy dilemmas, among them energy security and green growth.

First, one of the central features of the Kenyan political system is its winner-takes-all principle in single-member constituencies, a legacy from the British colonial era. Each voter is allowed to vote only for one candidate, and the candidate who polls more votes (plurality) than any other candidate is elected. This system is used to elect members of the legislative assembly and county governors and representatives. Kenyan counties tend to be ethnically (and thus politically) homogeneous. Some minority groups will have little chance of ever electing representatives to the Kenyan Parliament. This is described by Booth and colleagues (2014: 12) as having the effect of a 'virtual certainty that the winning coalition will exclude at least one substantial ethno-regional group from direct participation in government'. There are over 70 distinct ethnic groups in Kenya, ranging in size from about seven million Kikuyu to about 500 El Molo, who live on the shore of Lake Turkana.[34] The largest ethnic group, the Kikuyu, makes up only 22 percent of the nation's total population. The five largest groups – Kikuyu, Luo, Luhya, Kamba and Kalenjin – account for 70 percent.[35] While a recognised asset, Kenya's ethnic diversity has also led to disputes.

Second, political and economic power is often intermingled in Kenya, which is one of the factors fuelling the high corruption reported at all government levels.[36] This has impacted on all types of investment in all sectors of the economy, including the energy sector. With regard to Transparency International's Corruption Perceptions Index, Kenya scores poorly and was placed at 139th position out of 168 countries in 2015.[37] Kenya's relatively weak governance scores are mainly the result of the previous constitution but

34 East Africa Living Encyclopedia. "Kenya – Ethnic Groups." http://www.africa.upenn.edu/NEH/kethnic.htm (accessed 10 August 2016).

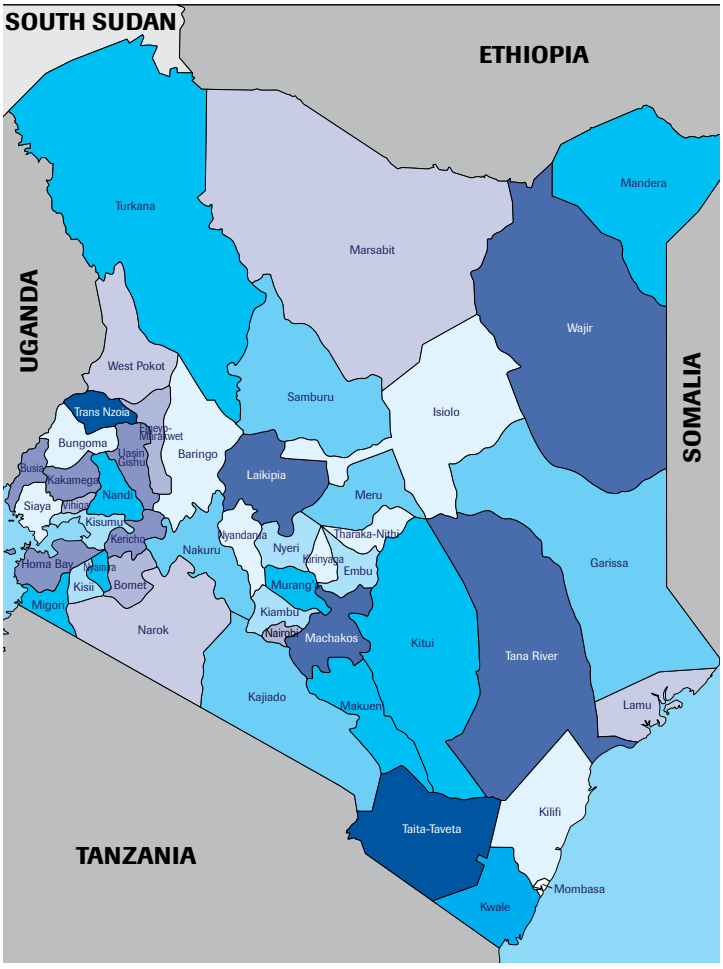
35 Central Intelligence Agency. 2016a. "The World Factbook: Ethnic Groups(%)." https://www.cia.gov/library/publications/the-world-factbook/fields/2075.html (accessed August 2016).

36 Booth, D., Cooksey, B., Golooba-Mutebi, F., & Kanyinga, K. 2014. *East African Prospects: An Update on the Political Economy of Kenya, Rwanda, Tanzania and Uganda*. Overseas Development Institute.

37 Transparency International. 2016. "Corruption Perceptions Index 2015." http://www.transparency.org/cpi2015#results-table (accessed August 2016).

are also part of a general process of political liberalisation and state informalization.[38] Institutionalised political parties play an insignificant role in politics in Kenya and most of the political power is centred around individuals.[39]

Figure 2 Map of Kenya showing the 47 counties



Source: Commission on Revenue Allocation, GoK

38 Branch, D. and Cheeseman, N. 2009. "Democratization, sequencing, and state failure in Africa: Lessons from Kenya." *African Affairs* 108(430):3.

39 Booth, D., Cooksey, B., Golooba-Mutebi, F., & Kanyinga, K. 2014. *East African Prospects: An Update on the Political Economy of Kenya, Rwanda, Tanzania and Uganda*. Overseas Development Institute: 32.

Third, while there is much popular support for the devolution measures, it is not clear that implementation has sufficient champions and funding. The political class does not always support effective implementation, as many MPs are either not familiar with many issues in the constitution or are deliberately misinterpreting some clauses to serve their own political and related partisan or sectarian interests. This is 'trickling down to the masses' according to Sihanya (2012:29).[40] In Kenya, land rights and ownership are emotional issues and, together with the politics, have merged to work for or against energy sector projects. For example, the 60 MW Kinangop Wind Power Project has recently been rejected by the same communities that had already accepted 5-year land lease payments, mostly as a result of local political interference. As Newell (2014: 25) already stated, energy planning has been placed 'at the heart of the devolution debate'.

3.2 Policy framework on energy and climate

The key aspects of the national and international energy and climate change policy framework for Kenya are discussed below. One of the major challenges for Kenya is to move from strategy and policy formulation to real and effective implementation based on feasible objectives.

National

Kenya Vision 2030
In July 2008, Kenya launched *Vision 2030*, its national long-term development blueprint. *Vision 2030* is implemented in successive five-year Medium-Term Plans (MTPs), through a number of flagship projects. Energy is recognised as the driver in all development activities in the country and *Vision 2030* opts for the cheapest and most widely available energy sources.[41]

Energy Policy 2014
Kenya's National Energy Policy 2014 encourages diversification of electricity sources. The policy states the government's intention to increase electricity generation capacity by an additional 5,000 MW by 2017 (in 40 months) from the 1,664 MW in 2014. The new capacity will mainly be developed from 1,646 MW of geothermal, 1,050 MW of natural gas, 630 MW of wind and 1,920 MW of coal. The programme also involves putting in place associated transmission facilities to address the distribution of the generated power. By the end of 2015, Kenya's total installed dispatchable power capacity stood at

40 Sihanya, B. 2012. "Constitutional implementation in Kenya, 2010-2015: Challenges and prospects." *FES Kenya Occasional Paper* (5)2.

41 Newell, P., Phillips, J., Pueyo, A., Kirumba, E., Ozor, N., & Urama, K. 2014. "The political economy of low carbon energy in Kenya." IDS Working Papers 2014 (445): 20.

2,299 MW. By October 2016, Lake Turkana Wind had installed an additional 200 MW capacity but the distribution infrastructure, which should have been ready according to plan, is yet to be completed.

National Climate Change Response Strategy and National Climate Change Action Plan
In 2010, the then Ministry of Environment and Mineral Resources launched the National Climate Change Response Strategy (NCCRS), complemented by the 2013–17 Climate Change Action Plan (KNCCAP). The strategy identifies and recommends specific measures that include suggestions on carbon markets, green energy development, research and development, and institutional framework for climate governance.

Green Economy Strategy and Implementation Plan (GESIP)
The Green Economy Strategy and Implementation Plan (GESIP) aims to establish a low carbon, resource efficient, equitable and inclusive socio-economic transformation. GESIP targets multiple challenges including infrastructure gaps and food insecurity, environmental degradation, climate change and variability, poverty and inequality, and unemployment.[42]

National Environment Policy and Climate Change Act
The government has also promoted a new and comprehensive climate law, the Climate Change Act. The Act aims to coordinate climate change-related activities through the establishment of a National Climate Change Council, chaired by the President, and a Climate Change Directorate as lead agency of the government. The Act also establishes the Climate Change Fund. It is possible that this fund could support some small-scale energy initiatives in future. This Act also provides for unprecedented means of exercising the environmental rights of the citizenry.

Other government programmes
In addition to the above policies, the government has a number of programmes and projects aimed at universal power access by 2020. The government is already racing to meet the two ambitious plans of connecting 70 percent of households to the main grid and adding 5,000 MW of installed capacity to the system by 2017. Kenya Power has reported that through the Last Mile Connectivity programme, 55 percent of households had been connected to the main grid by the last quarter of 2016. The race is on, with 22,245 schools connected to power with another 1,000 to be connected in the next few months; 35 towns and urban centres in 27 counties have been lit since 2013 under the street lighting programme, which targets 65 major urban centres across the country.

42 Government of the Republic of Kenya. 2015a. *Green Economy Strategy and Implementation Plan (GESIP)*. Maanzoni-1 Draft. May 2015. http://www.environment.go.ke/wp-content/uploads/2015/05/Kenya-Green-Economy-Strategy-and-Implementation-Plan-GESIP-.pdf (accessed August 2016).

International

In 2015 the **Paris Agreement** was adopted and is to be ratified by all its Member States in 2016, with the aim to come into effect by 2020. Kenya has put forward an ambitious Intended Nationally Determined Contribution (INDC) to the international UNFCCC process. Kenya's INDC builds on a 'participatory multi-stakeholder and cross-sectoral consultative process' already put in place in the NCCAP.[43]

Kenya also participates in the **Sustainable Energy for All (SE4ALL)** multi-stakeholder partnership programme. The programme has specific targets on energy efficiency, the renewable component of the energy mix and access to modern energy. Currently, participating countries, such as Kenya, are to develop a SE4ALL Action Agenda. The agenda developed for Kenya will be based on existing policies, while the SE4ALL targets are likely to influence how the energy and environmental policies are implemented.

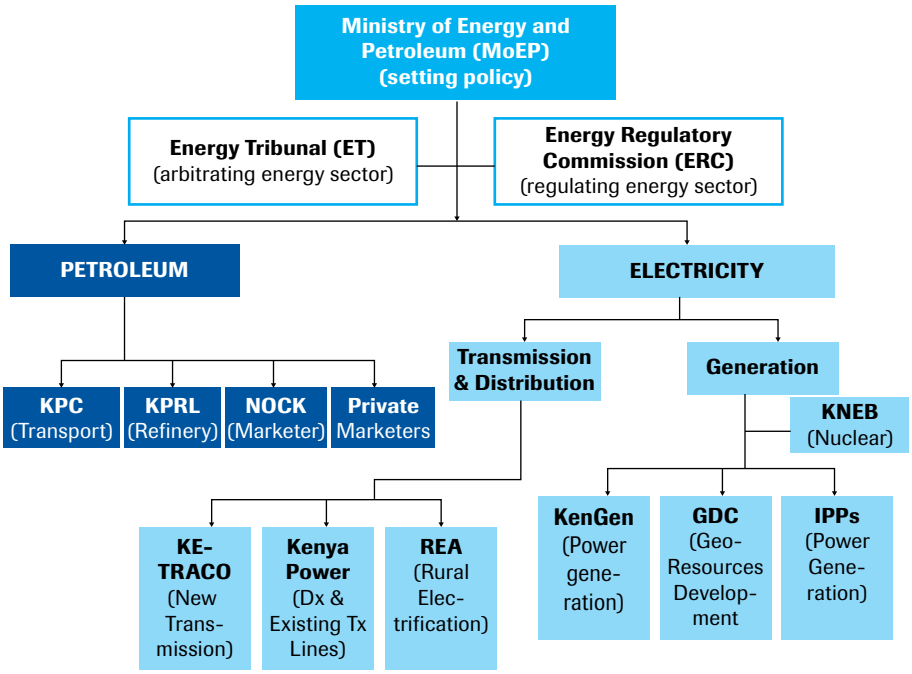
Furthermore, the Kenyan government seems willing to give the **Sustainable Development Goals (SDGs)** of the UN Agenda 2030 (2016–2030) a large role, but the implementation phase was still ongoing at the time of writing this publication. As regards energy security, especially SDG 7 (energy), SDG 3 (health/air pollution), SDG 8 (economic growth including resource efficiency), SDG 9 (industrialisation, including infrastructure), SDG 11 (urban development), SDG 12 (sustainable consumption and production) and SDG 13 (climate change, including resource mobilisation) seem relevant.

3.3 Role of public and private sector

The Ministry of Energy and Petroleum (MoEP) is in charge of policies to create an enabling environment for the efficient operation and growth of the energy sector in Kenya. It sets the strategic direction for the growth of the sector and provides a long-term vision for all sector players.

43 Ministry of Environment and Natural Resources. 2015. Kenya's Intended Nationally Determined Contribution (INDC). UNFCCC. 23 July: 1. http://www4.unfccc.int/submissions/INDC/Published%20Documents/Kenya/1/Kenya_INDC_20150723.pdf

Figure 3 Structure of the energy sector in Kenya



KETRACO - Kenya Electricity Transmission Company Ltd.
REA - Rural Electrification Authority
KPLC - Kenya Power & Lighting Company Ltd
GDC - Geothermal Development Company Ltd
IPPs - Independent Power Producers
KPC - Kenya Pipeline Company Ltd
KPRL - Kenya Petroleum Refinery Ltd
NOCK - National Oil Company of Kenya
KNEB - Kenya Nuclear Electricity Board

Source: Ministry of Energy and Petroleum, GoK

As well as the MoEP, the following actors are key players in Kenya's energy sector:

- Energy Regulatory Commission (ERC) is mandated to regulate the energy sector and protect the interests of the energy stakeholders.
- Kenya Electricity Generating Company (KenGen) is the largest electricity generating company in Kenya.
- Kenya Power is responsible for the transmission, distribution and retailing of electricity to customers throughout Kenya. It is also responsible for ensuring that

there is adequate line capacity to maintain power supply and quality over the Kenyan electricity network, covering approximately 41,486 kilometres. It is publicly owned, with GoK as the majority shareholder.

- Rural Electrification Authority (REA) has a mandate is to extend electricity supply to rural areas, manage the rural electrification fund, mobilise resources for rural electrification and promote the development and use of renewable energy.
- Kenya Electricity Transmission Company (KETRACO) is a state corporation established in 2008 to develop new high voltage electricity transmission infrastructure. It is the Kenyan national grid operator and its main business is to plan, design, build, operate and maintain new electricity transmission lines and associated substations.
- Geothermal Development Company (GDC) is a state corporation with a mandate to accelerate the development of geothermal energy resources for Kenya.
- Kenya Nuclear Electricity Board (KNEB) is a state corporation mandated to fast track the development of nuclear electricity generation in Kenya.
- Kenya Pipeline Company (KPC) is a state corporation established in 1973 to provide pipeline services as an effective means of transporting petroleum products from Mombasa to the hinterland.
- National Oil Corporation of Kenya (NOCK) is a fully integrated state corporation involved in all aspects of the petroleum supply, from exploration to retail.

The institutional actors in the energy and climate policy framework as mentioned above differ in terms of public/private ownership. The energy sector in Kenya appears to be over-established with too many (semi-) public actors, some of which have performed poorly. Kenya Power continues to own and operate some transmission lines, a role that is supposed to be carried out by KETRACO. In a similar manner, there is an overlap of Kenya Renewable Energy Association's (KEREA) role in rural electrification, KETRACO's role in transmission distribution and Kenya Power's role as the retailer and distributor. While KEREA has not been able to deliver on its mandate to promote renewable energy, the Ministry of Energy and Petroleum has a directorate of Renewable Energy with the same mandate, and has demonstrated substantial efforts to deliver on the role. One apparent contradiction that the GoK needs to resolve, preferably at policy level, is its policy of attracting private capital on the one hand and, on the other, the policy to drive energy prices as low as possible. The number of independent power producers (IPPs) interested in investing is low and those that indicate interest demand high generation tariffs, government guarantees and letters of credit covering several months of payment for both capital and energy charges,[44] implying a general perception of a mismatch

44 Miles, J., Desai, N., and Mukkam-Owuor, R. 2016. *Kenya Energy 2017*. 5th ed. Global Legal Insights. https://www.globallegalinsights.com/practice-areas/energy/global-legal-insights---energy-5th-ed./kenya (accessed October 2016).

between risk and returns. Despite low IPP low interest, the cost of energy in Kenya is high at US$0.150 per kWh, almost four times the cost of energy in South Africa (US$0.040).[45]

Feed-in tariffs

Transitioning to a green economy requires a significant amount of financing at the initial phase of transformation, particularly in the energy sector where upfront costs for clean technologies are high. Attracting increasing controversy is the use of feed-in-tariffs from 2008 to 2010 to stimulate growth in the renewable energy sector and in doing so reduce the role of fossil fuels in the energy mix, such that mitigation goals can be more readily achieved. The feed-in-tariff (FiT) covers electricity generation from wind, biomass, small-hydro, geothermal, biogas and solar resources, with two tariffs (up to and above 10 MW) and a standardised Power Purchase Agreement for up to 10 MW capacity. The tariff states that '*potential developers of biomass and biogas-generated electricity have shown interest in developing generation projects. However, the tariffs have not been attractive enough to progress these potential projects to PPA negotiation stage and funding. The lower capacity limit for biogas plants necessitated review to accommodate smaller biogas plants*.' It is not evident that the latest tariff updates have created any additional incentives for IPPs. While FiT policy has increased investor confidence to some extent (at least six IPPs are already licensed and another three are in the queue to obtain licences), there is a general view that rates have not yet reached a cost-reflecting level. For instance, developers of two of the three large wind projects in the country contend that the wind energy tariff would be viable only on sites with constant high wind speeds and solar tariffs are too low to attract financing. Recently, the GoK announced plans to replace the FiT with a system involving the auction of energy generation contracts.

While electricity generation in Kenya is still almost entirely operated by state-owned companies or companies in which the government is the principal shareholder, the participation of independent power producers (IPPs) is growing. There are approximately ten IPPs in operation and they account for about 24 percent of the country's installed capacity, up from 11 percent in 2008.[46] The cost of the current plan of electrification is estimated at US$1.3 billion over the next three to four years, highlighting the need for private investors in the sector. One of the key components of the Kenyan government's energy strategy is a strong emphasis on the participation of private investors in the development of the electricity sector, so the current trend is likely to continue, at least in the medium term. The role of the private sector in Kenya's energy security is exemplified by the 300 MW Lake Turkana Wind Park project, the largest foreign direct investment (FDI) project in the country. Donor involvement is also

45 Institute of Economic Affairs. 2015. *Situational Analysis of Energy Industry, Policy and Strategy for Kenya*. Nairobi: Institute of Economic Affairs.

46 Energy Regulatory Commission. 2015. *Annual Report*. Nairobi: ERC.

considered important. The US$690 million wind project is funded and implemented by a consortium of private organisations. The power produced will be bought at a fixed price by Kenya Power (KPLC) over a 20-year period in accordance with the Power Purchase Agreement. Kenya is already a 'donor favourite', particularly in energy.[47] Many of them invest in renewable energy but there are also examples of donors investing in less clean fuels such as coal (China) and more controversial fuels such as nuclear (China, Russia and South Korea), and many donors and private sector actors explore the possibilities of oil and gas exploration in the country. Donors include countries and their agencies as well as development banks and investment banks. Not every donor is part of the regular donor dialogues.

47 Newell, P., Phillips, J., Pueyo, A., Kirumba, E., Ozor, N., & Urama, K. 2014. "The political economy of low carbon energy in Kenya." IDS Working Papers 2014 (445): 28.

4 Key drivers of development and politics

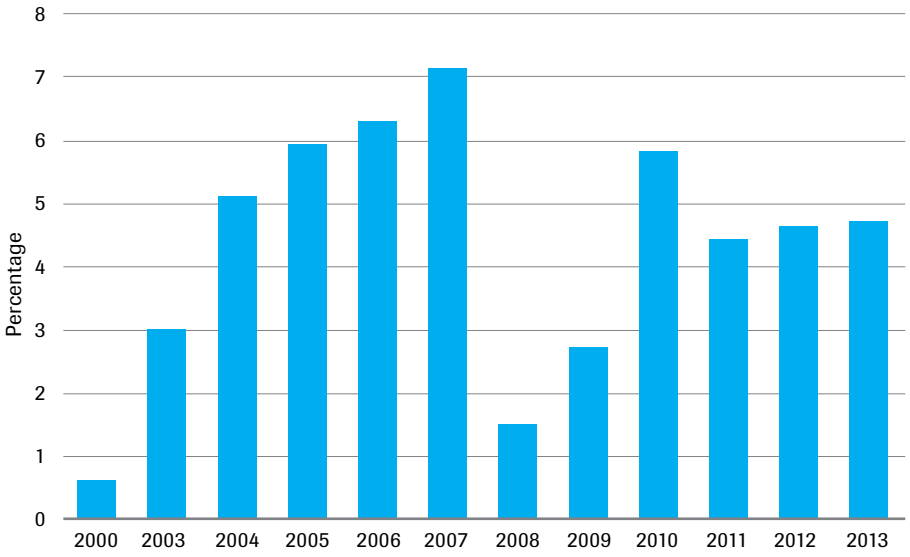
Earlier chapters have focused on Kenya's energy sector and the political-institutional framework in which it is embedded. This chapter outlines four development drivers that stand at the heart of current policy making and political mobilisation in Kenya, and which encapsulate to a greater or lesser degree the tensions in the development process as described before. Although these issues may not always feature green growth or energy concerns in the foreground, the way they are addressed has overriding importance for the future of green growth and energy security. The subsequent findings, as well as those of the earlier chapters, will eventually converge in the PEA section in Chapter 5.

4.1 Economic model and public finances

Kenya is a lower middle-income country[48] with an estimated national GDP of US$60.9 billion. The initial period of rapid growth to the mid-1970s was followed by a period of stagnation until 2000, with modest growth over the last decade. Figure 3 gives a visualisation of Kenya's GDP trend from 2000 to 2013, demonstrating that Kenya's economic performance has varied. In 2014, Kenya had a population of about 47 million, which is projected to double by 2050.

48 Kenya became a low-middle-income country in 2015. The World Bank. 2015. "WB Update Says 10 Countries Move up in Income Bracket." July 1. http://www.worldbank.org/en/news/press-release/2015/07/01/new-world-bank-update-shows-bangladesh-kenya-myanmar-and-tajikistan-as-middle-income-while-south-sudan-falls-back-to-low-income (accessed September 2016).

Figure 4 National GDP growth rates



Source: Derived from the Kenya National Bureau of Statistics data (Data for 2001 and 2002 not available)

Kenya acts as a hub for trade, communication, finance and transportation across the region, including neighbouring Somalia, Ethiopia, South Sudan, Uganda and Tanzania. Kenya's prospects for success are promising: the country has the largest economy in the East African Community (EAC), with a significant potential to further capitalise on regional markets and strengthen its position as the region's economic powerhouse. The country is also well known for its pioneering entrepreneurial activities, for example in its internationally admired mobile phone platform, M-Pesa, as well as for building capitalist economic enterprises with significant local ownership and management stake.[49] Also, Kenya is now implementing a devolved system of governance, which offers an opportunity to reach out to the people and promote a more balanced socio-economic development.

Despite these promises, Kenya still faces some threats to its economic model and public finances. About 42 percent of Kenya's GDP and 70 percent of overall employment is derived from natural resource-related sectors, including agriculture, mining, forestry,

49 Carbone, G. 2015. "The End of "Emerging Africa"? Prospects for Sub-Saharan Frontier Markets' in Africa: still rising?." *Italian Institute for International Political Studies (ISPI)*: 129.

fishing, tourism and wildlife, water supply and energy supply, which are all vulnerable to climate change.[50] In addition to these concerns, the labour market is beset with underemployment. In 2013, Kenya's unemployment was estimated at 36 percent, with 61 percent of young people (15–25 years) being unemployed.[51] Moreover, the public debt in Kenya has been rising steeply, mainly as a result of heavy government borrowing to finance major infrastructure projects.[52]

The shaky state of public finances in Kenya is problematic from an energy security and green growth perspective. There is growing academic recognition of the role of the state in governing economic and environmental affairs.[53] Also international bodies such as the United Nations Environment Programme (UNEP) promote greater public regulation in the (green) economy.[54] Kenya's economic model seems nevertheless specifically focused on continuing to let the private sector flourish by attracting foreign direct investment alongside significant investments from large international donors. Although the National Environment Management Authority (NEMA) or ERC licences have been made mandatory by the GoK for any energy project, deep-rooted corruption hampers the ability of the state to effectively regulate or control economic, energy and environmental affairs. Controversial projects (such as the Lamu Coal Plant) have been licensed while some clean energy projects have been delayed. According to the National Energy and Petroleum Policy,[55] the GoK plans to achieve energy security through public private partnership projects, as appropriate. In the policy, the government proposes to create more competitive market structures with clear delineation of roles for public and private sector players in generation, transmission, distribution and retail functions in the electricity sector. A key objective of *Vision 2030* is to increase national power generation, provide the energy required to accelerate growth and mobilise private sector capital for generation of electricity from renewable energy.

50 See page 2, UNEP. 2014. *Green Economy Assessment Report – Kenya*. http://www.greengrowthknowledge.org/sites/default/files/downloads/resource/KenyaGEassessment_UNEP.pdf

51 Roopanarine, Les. 2013. "Africa's rising population and youth unemployment challenge." *The Guardian*, 11 July. https://www.theguardian.com/global-development-professionals-network/2013/jul/11/africa-kenya-population-youth-unemployment (accessed September 2016).

52 MyGov. 2015. "High public debt attributed to borrowing to fund major projects." 7 July. http://www.mygov.go.ke/?p=3504 (accessed September 2016).

53 Brockington, D. and Ponte, S. 2015. "The Green Economy in the Global South: Experiences, Redistributions and Resistance." *Third World Quarterly* 36(12):2200.

54 See page 15, UNEP. 2011. *Towards a Green Economy: Pathways to Sustainable Development and Poverty Eradication*. http://web.unep.org/greeneconomy/sites/unep.org.greeneconomy/files/field/image/green_economyreport_final_dec2011.pdf (accessed September 2016).

55 Ministry of Energy and Petroleum (GoK). Draft National Energy and Petroleum Policy. 16 June. http://www.erc.go.ke/images/docs/National_Energy_Petroleum_Policy_August_2015.pdf

4.2 Domestic stability: extremism, ethnic politics and civil action

Kenya's political and development context has been heavily shaped by historical domestic ethnic tensions and post-election violence, contestation associated with centralisation and abuse of power, high levels of corruption, and a constitutional review process that lasted more than two decades. The contested election of 2007 led to severe ethnic strife that tested the country's political stability, leading to the adoption of a new constitution in 2010 and International Criminal Court indictments.[56] The approval of the new constitution in 2010 and relatively peaceful elections in March 2013 are milestones constituting steps forward in Kenya's transition from political crisis. Significant political freedom and devolution of power have been realised as democracy takes root in the country. The freedoms, together with the exercise of rights enshrined in the new constitution, have led to civil and legal action resulting in the slowing down or cancellation of some renewable energy projects. Nevertheless, as has been noted in many interviews, campaigns for general and county elections are already underway a year ahead of the 2017/18 elections as the stakes are high for the ethno-regional groups involved. The winner-takes-all political system thereby further lowers the credibility of commitments to the nation as a whole.

Kenya also faces security challenges arising from political instability in neighbouring South Sudan and Somalia. In particular, terrorist activities carried out by groups such as Al-Shabaab lead to fear and instability. The Westgate Shopping Mall attack in Nairobi (2013) and the mass killing at Garissa University College (2015) are among the most severe recent attacks attributed to Al-Shabaab. The recruitment of young Kenyans into terrorist groups arises primarily from limited economic opportunities and unemployment. Over the last year, the GoK has managed to prevent such attacks in the country, although the threat still exists. Both ethnic tensions and terrorist attacks affect public and foreign confidence, with negative impacts on private investment.

Another factor that tends to impact domestic stability is land ownership and land use, which are in most cases, historical. Some of the ethnic tensions previously experienced were triggered by disputes over land ownership. In certain instances, land-related protests have been the result of personal interests and/or politically motivated incitement by community leaders, national politicians or large civil society organisations (CSOs). Such public protests have had, and will continue to have, negative impacts on some (renewable) energy projects. Recently the large Kinangop wind project was halted because of local land protests.[57]

56 Cheeseman, N., Lynch, G. and Willis, J. 2014. "Democracy and its discontents: understanding Kenya's 2013 elections." *Journal of Eastern African Studies* 8(1):2–24.

57 Herbling, David. 2015. "Sh15bn Kinangop wind park halted as land protests swirl." *Business Daily*, 16 September. http://www.businessdailyafrica.com/Sh15bn-Kinangop-wind-park-halted-as-land-protests-swirl/-/539552/2872072/-/l4s2qsz/-/index.html (accessed October 2016).

4.3 Projected growth, urbanisation and the pitfalls of development

Kenya, East African Community's largest and most diversified economy, anticipates a GDP growth of 10 percent for the next 20 years. This projection is highly ambitious considering the widespread corruption and insecurity in the country, which has affected important parts of the economy such as the tourism sector. In addition, this projection will require energy production to be six times higher by 2030,[58] as well as a significant but sustainable reduction in energy costs in the near future.

Even though economic growth in the past decades has contributed to a growing middle class, poverty is still a major issue in Kenya. In rural areas 43.4 percent of the population lives below the poverty line and despite government efforts to reverse the poverty situation, Kenyans living below poverty levels continue to be significant in number.[59] Environmental concerns exacerbate this situation as increasing water scarcity, declining food production and low resilience to climate change combine with rapid population growth to increase food insecurity and environmental degradation. Women are particularly vulnerable in rural areas, where they cook on traditional biomass stoves, which not only result in poor indoor air quality and upper respiratory illnesses but also cause significant deforestation. Poverty affects not only the communities' adaptive capacities and resilience to climate change, but also their ability to afford modern energy and attain energy security, even with adequate and reliable grid electricity on their door steps. Addressing poverty in the country is therefore an integral part of achieving energy security and implementing green growth.

On the other hand, fast-growing urban centres such as Nairobi (3.3 million) and Mombasa (1.2 million) have become economic powerhouses,[60] driven by entrepreneurial and relatively well-educated young people, including women, who are active in these areas. The attractiveness of urban centres has created an upward cycle of urbanisation and currently 82 percent of the population resides in 7 percent of Kenya's land area,[61] with 30 percent living in cities (Figure 2). This has increased inequality not only between rural and urban areas, but also within urban centres as urbanisation rates exceed the capacity of cities to provide new job opportunities.

58 Government of the Republic of Kenya. 2013. Second Medium Term Plan, 2013–2017. Kenya Vision 2030. http://www.vision2030.go.ke/lib.php?f=second-medium-term-plan-2013-2017

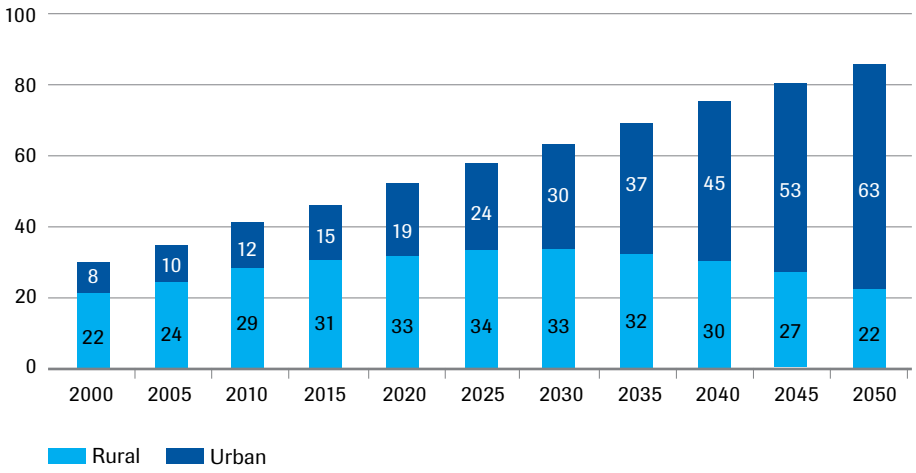
59 Central Intelligence Agency. 2012. "The World Factbook: Population below poverty line." https://www.cia.gov/library/publications/the-world-factbook/fields/2046.html (accessed September 2016).

60 Central Intelligence Agency. 2016b. "The World Factbook: Kenya." https://www.cia.gov/library/publications/the-world-factbook/geos/ke.html (accessed August 2016).

61 Newell, P., Phillips, J., Pueyo, A., Kirumba, E., Ozor, N., & Urama, K. 2014. "The political economy of low carbon energy in Kenya." IDS Working Papers 2014 (445): 14.

As shown in Figure 2, most of Kenya's population growth will be in urban areas; by 2033, half of the population will live in urban areas. This trend will put further pressure on transport and resource use, leading to higher energy demand per capita in urban areas, especially if it is coupled with sustained economic development and the growth of a new consumer class in the country. Despite rapid urbanisation, there are still opportunities to build green transport in Kenya's big cities. These investments should be made before continuous growth and fossil fuel-based transport use leads to a lock-in that is difficult and more expensive to overcome.

Figure 5 Kenya's population growth (urban versus rural)



4.4 International projection

Kenya's foreign policy is driven by economic interests focused on the maintenance of close relations with key donors and the advancement of regional integration within the East African Community (EAC). Kenya will also maintain close ties (including military cooperation) with the US and with important emerging countries such as China and India. Kenya will remain deeply engaged in Somalia (as part of the African Union peacekeeping force, AMISOM), although there is little immediate prospect of an end to Somalia's long-running war.[62] As compared to many of the countries in its neighbourhood, Kenya is perceived by the business community as having a more 'business-friendly environment' more independent of politics than other countries in

62 See page 4, Economist Intelligence Unit. 2016. *Kenya Country Report.*

the region, such as Ethiopia and Rwanda.[63] This is evidenced by the fact that in 2015, and despite its poor Corruption Perception Index score, Kenya recorded the fastest rise in foreign direct investments (FDI) in Africa and the Middle East, at 47 percent, which saw 84 projects in diverse sectors initiated.[64] Kenya is also presenting itself to the global (diplomatic) community by hosting several recent events, for example the WTO Forum (2015), the Pope's visit (2015), President Obama's visit (2015), the UNCTAD session (2016), the high-level meeting of the Global Partnership for Effective Development Cooperation (2016) and most recently, the first Tokyo International Conference on Africa Development (Ticad) outside Japan.

Although the government has prioritised trade liberalisation and closer integration within the EAC, as part of the drive to create a single regional market, two recent developments seem to have reversed some of the economic and energy sector gains made by Kenya towards this end. First, the Uganda government backtracked from an earlier agreement to use the proposed pipeline through Kenya and instead opted for one through Tanzania to export its oil. Second, and in a similar move, Rwanda opted out of using the standard gauge railway through Kenya and went for one through Tanzania. These two cases could effectively render both the proposed oil pipeline and the railway line projects financially infeasible.

Kenya has plans to import energy from Ethiopia and to provide pipeline services to South Sudan. Kenya's energy security in the future will be impacted by how successful the Ethiopian energy import arrangements work out.[65] Kenya has also signed technical support agreements with China, South Korea and Russia on nuclear technology. President Kenyatta is taking energy security seriously on trade missions and several energy deals were made during the UNFCCC COP21.[66]

On the international climate policy side, Kenya seeks to play a leadership role in (Eastern) Africa, and has undertaken ambitious mitigation activities since the Paris Agreement. However, these are 'subject to international support in the form of finance,

63 Booth, D., Cooksey, B., Golooba-Mutebi, F., & Kanyinga, K. 2014. *East African Prospects: An Update on the Political Economy of Kenya, Rwanda, Tanzania and Uganda*. Overseas Development Institute.

64 FDI Intelligence. 2016. *The FDI Report 2016: Global greenfield investment trends*. http://forms.fdiintelligence.com/report2016/files/The_fDi_Report_2016.pdf

65 Vidal, John. 2015. "Ethiopia dam will turn Lake Turkana into 'endless battlefield', locals warn." *The Guardian*, 13 January. https://www.theguardian.com/global-development/2015/jan/13/ethiopia-gibe-iii-dam-kenya (accessed September 2016).

66 UNFCCC. 2015. "Renewable Energy and Energy Efficiency Can Unlock Climate Solution." *Newsroom, press release*. December. http://newsroom.unfccc.int/lpaa/renewable-energy/press-release-lpaa-energy-renewable-energy-and-energy-efficiency-can-unlock-climate-solution/ (accessed September 2016).

investment, technology development and transfer, and capacity building'.[67] The Paris Agreement and the recently adopted Sustainable Development Goals (SDGs, 2015–2030) might be positive for Kenya's greenness of growth as they have the potential to become part of the country's constitution.

67 Ministry of Environment and Natural Resources. 2015. Kenya's Intended Nationally Determined Contribution (INDC). UNFCCC. 23 July: 2. http://www4.unfccc.int/submissions/INDC/Published%20Documents/Kenya/1/Kenya_INDC_20150723.pdf

5 Political economy: interest groups and modes of influence

The above chapters have addressed Kenya's energy situation, the larger political-institutional framework, and the drivers and issues of national development. It has become clear that Kenya is at a critical crossroads with respect to defining its energy for the years to come. This chapter aims to integrate earlier findings and throw light on the underlying interests, influences and power relations that steer the country's potential for green growth. In order to do so, the next sections outline the public perceptions of green growth and the stakeholders that are involved in energy security and green growth objectives in Kenya. Subsequently, sections 5.3 and 5.4 analyse the obstacles, opportunities and alliances for the country's green growth potential.

5.1 Public awareness and framing

The population of Kenya is relatively well educated compared to neighbouring countries and public awareness of climate change is high, even among the uneducated. However, most of the public discourse on climate change is framed around the effects of climate change and not on mitigation. There is public scepticism of distributed renewable energy solutions, such as solar lanterns, which offer potentially affordable electricity to rural communities, but which have sometimes turned out to be of poor and unreliable quality. The public discourse around green growth has therefore focused more on adaptive capacity and resilience, while energy security discourse has leaned towards affordability and reliability of the available optional solutions. There is a general perception that with the new Constitution and the Bill of Rights, Kenyans are increasingly becoming aware of their rights and ready to claim those rights when infringed.[68] Most of the environmental, and even land, rights awareness has been created by local civil society organisations and some politicians, with a number of local communities already raising objections to energy projects such as coal plants and even wind energy projects, which

68 Reuters. 2016. "Kenyan wind power project cancelled due to land disputes." 23 February. http://www.reuters.com/article/kenya-electricity-idUSL8N1620QG (accessed October 2016).

have been perceived as infringing on community rights.[69, 70] Nuclear energy is expected to face strong opposition and legal action following enactment of the Climate Change Act 2016.[71] Such objections are likely to significantly impact the implementation of both renewable and non-renewable energy projects and the energy security situation in Kenya.

Also, a more deliberate process of involving women is to be expected with the new constitution. To more effectively reduce poverty across the country, Kenya must generate economic growth that is more inclusive. It would also be helpful if the energy debate was framed at the rural household level, targeted especially at women as they are the most affected by climate change and energy insecurity. Women's health is at risk by cooking with biomass in traditional cook stoves and lighting with kerosene lamps. Unfortunately, to date, rural poor, including women, have not been able to participate effectively in the discourse on, and influence, energy security and green growth-related policies in Kenya.

5.2 Key stakeholders and interests

The political economy of Kenya with regard to energy security has to be seen in the context of the future energy mix, which is projected to significantly change in the medium and long term. The most significant stakeholders in the area of green growth are not necessarily the most well represented, nor do they automatically have a voice in deciding upon policies or the ways these policies are implemented. This political economy analysis reveals at least eight important stakeholder groups.

The first important player on matters that influence energy security is the **central government**, which, based on the ruling party's manifesto, draws new policies on green growth and energy security, and even amends existing ones. The energy planning process is the responsibility of the Ministry of Energy and Petroleum, which is considered to be a powerful player in this debate and a major determinant of not only

69 See UNEP. 2011. Towards a Green Economy: Pathways to Sustainable Development and Poverty Eradication & Sunday, Frankline. 2016. "Lamu coal plant fuels fierce clash of interests." *Standard Digital*, 6 September. http://www.standardmedia.co.ke/business/article/2000214823/lamu-coal-plant-fuels-fierce-clash-of-interests (accessed November 2016).

70 Langat, Anthony. 2016. "Locals oppose plans to build first coal-fired power plant in Kenya." *The Guardian*, 3 March. https://www.theguardian.com/global-development-professionals-network/2016/mar/03/locals-oppose-plans-to-build-first-coal-fired-power-plant-in-kenya (accessed October 2016).

71 Kelley, Kevin J. 2016. "US advises Kenya to proceed cautiously on nuclear power." *Daily Nation*, 18 June. http://www.nation.co.ke/news/US-advises-Kenya-to-proceed-cautiously-on-nuclear-power/1056-3255298-5urwxy/index.html (accessed November 2016).

the policy direction but also its implementation strategies, together with priorities. Also, the *Ministry of Finance (National Treasury)*, the *Office of the President* and the *Ministry of Environment and Natural Resources*, with its environmental compliance mechanisms implemented through the *National Environment Management Authority (NEMA)* and *Climate Change Directorate*, are all key players.[72] Within government, and specifically in the *Ministry of Energy and Petroleum*, it seems to make a lot of difference which *cabinet secretary* and *principle secretary* are responsible. Through the ERC and NEMA, the central government has an effective mechanism for licensing projects, and even determining which projects proceed to implementation.[73] Kenya's growing population, expanding economy and changing lifestyles are all raising the demand for electricity. Central government, as the key policy maker, will therefore have to be more strategic in determining which sources fit projected demand at the least cost to keep electricity accessible and affordable. The government is already in a tight race to meet the two ambitious plans by mid-2017 of connecting 70 percent of households to the main grid and adding 5,000 MW of installed capacity to the system. Central government will continue to influence which *Vision 2030* and other development projects are prioritised for implementation and this will affect future electricity demand. At the same time, central government will continue to have influence over which energy policies and projects will ensure that demand is met.

Second, associated **parastatals** responsible for the energy infrastructure such as *Kenya Power (KP), Kenya Electricity Generating Company (KenGen), KETRACO, REA and GDC* are important for the energy security and green growth debate. As was shown in Chapter 3, Kenya has a list of devolved stakeholders responsible for the development of policies and partially responsible for their implementation. These parastatals are primarily, but certainly not 100 percent, owned by central government. The role and interests of KP and KenGen are further elaborated below.

KP, a limited liability company that transmits, distributes and retails electricity to customers throughout Kenya was rebranded from Kenya Power and Lighting Company Limited (KPLC) to Kenya Power in 2011. Historically and for a very long time, KP,[74] besides central government, was the only player in the electricity sector in Kenya.[75] KP's behaviour in the market was therefore influenced by monopolistic tendencies and self-preservation, with inefficiencies and even bad investment decisions, often financed

72 The ERC is not supposed to license any major project without NEMA's environmental performance approval (Environmental Impact Assessment Licence).

73 Already, there are reports (from the stakeholder consultation workshop) that there are both fast-tracked and normal slow processes for the approval and licensing of energy projects by the ERC.

74 Then Kenya Power and Lighting Company Limited (KPLC).

75 Later in 2008, transmission was separated from distribution with the creation of the Kenya Electricity Transmission Company (KETRACO), leaving KPLC with the distribution function only.

through tariff increments to the consumer.[76] Kenya therefore ended up with low national connectivity, one of the highest tariffs in the region (US$0.23 per kWh by 2013)[77] and an old inefficient transmission and distribution system. Through central government goals and various initiatives pushed by the Ministry of Energy and Petroleum, the company has been able to increase national connectivity from 27 percent in early 2013 to 55 percent by mid-2016. In the same period, the company reported a reduction in average retail tariffs (domestic and industrial customers) from US$0.23 to US$0.137 per kWh, while the fuel cost surcharge has gone down —from US$0.072 to US$0.023 per kWh. All these cost reductions and increased connectivity have been achieved under tremendous government pressure and KP's push for tariff increases, which were rejected by both the Ministry of Energy and Petroleum and the ERC, forcing KP to use efficiency improvements and greater connectivity as the strategy for revenue increase.[78, 79, 80] It has also been reported that the process of negotiating PPAs with KPLC is very lengthy and often requires specially qualified lawyers, of which there are only a few in Kenya. KP also lacks the capacity to drive these negotiations and, in some cases, developers have had to bear the cost of hiring qualified international lawyers to represent KP in the negotiation, hence negating the principle of impartiality.

KenGen is responsible for the development and management of all public power generation facilities in the country (large and small hydropower, geothermal, diesel-grid connected or off-grid). KenGen has been innovative and commercial in approach and has spearheaded hydro and geothermal energy development for many years. KenGen has also benefitted from substantial low-interest loans and grants from development partners despite its proven ability to mobilise project financing through various innovative approaches. To support government policy of affordable electricity, KenGen is currently considering the development of coal generation plants and has already raised funds for such a project. A study carried out by CPCS on appropriate types of electricity

76 Before the reforms in the energy sector, starting in 1997 when generation was separated from transmission and distribution to create the Kenya Electricity Generating Company (KenGen) and Kenya Power and Lighting Company (KPLC), KPLC was responsible for both generation, transmission and distribution of energy.

77 Kant, A., Harrison, M. and Veenstra, E. 2014. Market Study to Strengthen Economic Cooperation in the Energy Sector. Rotterdam: TripleE. http://trinomics.eu/wpcontent/uploads/2015/05/Market-study-to-strenghten-economic.pdf

78 Odhiambo, Allan. 2013. "Ruto stops Kenya Power from raising electricity costs." *Business Daily*, 9 May. http://www.businessdailyafrica.com/Ruto-stops-Kenya-Power-from-raising-electricity-costs/-/539546/1847784/-/1517y40z/-/index.html (accessed September 2016).

79 Juma, Victor. 2013. "Kenya Power sees fall in profit ahead of tariffs increase." *The Guardian*, 21 February. http://www.businessdailyafrica.com/Corporate-News/Kenya-Power-sees-fall-in-profit-ahead-of-tariffs-increase/-/539550/1701038/-/15rfmq6/-/index.html (accessed September 2016).

80 ESI-Africa. 2013. "Kenya looking at large power tariff increases." 23 February. https://www.esi-africa.com/news/kenya-looking-at-large-power-tariff-increases/ (accessed September 2016).

market models proposed a hybrid solution focusing on regulating KenGen's prices and limiting their development to areas where they have expertise (hydro and some geothermal); the maximum new capacity should be tendered to IPPs, while at the same time a competitive wholesale and retail market should be created.[81] Such a solution would substantially reduce KenGen's market dominance and would substantially ease government funding obligations to the electricity sector, but would still allow KenGen the opportunity to expand in the future, albeit at a slower pace than currently planned. It is not yet clear how KenGen will take the proposed new developments, which seem to be at an advanced stage, as the Ministry of Energy and Petroleum recently announced it will soon tender for power generation licenses.

Third, **supervisory bodies** are increasingly influential in Kenya's energy sector. Through the *Energy Regulatory Commission (ERC)*, the government has control of which energy projects are licensed for implementation. As laid out in the Energy Act 2006, the *Rural Electrification Authority (REA)* and the *Rural Electrification Fund (REF)* have been established to set the stage for accelerated rural electrification. The REA is mandated with facilitating access to electricity in rural areas, promoting development of rural electrification and levying fees on all electricity sold for the REF. However, there is a general view among stakeholders that these goals have not been achieved by the agency, as there appears to be some detachment from their role with no clear strategy of leveraging private sector involvement. While REA has a real opportunity to impact energy security, and even green growth, among off-grid communities, it does not seem to have an effective strategy and means of delivering on these opportunities. At last, *The National Land Commission* is set up as an independent commission advising the government at county and at national level on land disputes and settlements, which are becoming increasing sources of tension for the realisation of energy projects in Kenya.

A key fourth stakeholder expected to benefit from green growth and energy security is the **consumer**, made up of several categories including a growing middle class with changing lifestyles and the **(urban and rural) poor**. Unfortunately, the (urban and rural) poor have not only been neglected in the discourse but have also not been considered in the design of the relevant policies. Most of the rural poor cannot be economically served through grid electricity, mainly because of the dispersed settlement patterns in rural Kenya. But even if electricity was to be made available to these people, most of them would not be able to afford it. They are represented by **civil society organisations (CSOs)** which are, because of funding and different interests, not to be considered as a coherent set of organisations. However, this group is expected to create

81 CPCS. 2013. "Consultancy Services for the Study on Options for the Development of a Power Market in Kenya." August 2013.

significant barriers to some of the proposed energy projects where they believe local community interests have not been considered.[82]

As fifth important category of stakeholders, the funding **'donor' partners** (mainly developed countries and bilateral and multilateral organisations) generally support the development of geothermal and other renewables while being passively against coal and nuclear electricity generation. However, some potential funders, such as Russia, South Korea and China, have supported nuclear energy development and have already signed collaboration agreements with Kenya on the same.

Sixth, **county governments and their governors** are considered to be important stakeholders, although their actual power needs are to be evaluated in the longer run. The role of counties has become institutionalised in legislation through decentralisation efforts, although mandates and practices are unclear. There is a general fear that involvement of the counties can only make the already lengthy procedures longer.

The **private sector** is considered an important stakeholder, although it does not comprise a coherent set of actors but rather small innovative technology incubators and large multinational corporations. Private sector investors set their preferences based on the perceived projects' and country risk profiles vis-à-vis the returns. Recently during an energy conference in Nairobi, investors from both Italy and Germany, citing various reasons, advised Kenya to drop plans to build nuclear power plants and instead harness its vast renewable energy resources for power generation. However, the Kenya Nuclear Electricity Board (KNEB) is adamant that Kenya needs adequate, reliable and affordable electricity, which can only come from coal and nuclear as the base loads. In general, private sector investor interests will not necessarily be aligned with those of the government, and with the government's stated approach of requiring significant private sector participation in energy investments, the divergent interests will have to be reconciled to realise the energy security objectives.

And last, **neighbouring countries** are relevant stakeholders. Kenya is considered the regional economic powerhouse within the East African Community. Nevertheless, the governments of many centralised neighbouring states are subsidising energy sources, for example cheap hydropower from Ethiopia. Also energy planning in both Uganda and Tanzania is very centralised. The way in which these countries develop and discuss

82 Tullow Oil and partner Africa Oil Corp. for instance had to briefly shut down drilling operations at two blocks (13T and 10BB) in October 2013 due to demonstrations by local communities demanding more employment opportunities for local people.

issues in, for example, the Eastern Africa Power Pool (EAPP), is also relevant for Kenya's green growth and energy security path.[83]

5.3 Obstacles and opportunities

In order to analyse the obstacles, opportunities and (potential) alliances for green growth in Kenya from a political economy perspective it is essential to conceptualise the forces at play. This can be done by focusing on the national, subnational, and international political spheres. Actors on each level compete or align to pursue their (energy) interests and are constrained or enabled in their efforts by the (competing) interests and power of actors operating or exerting influence on any level. Consequently, actor links influencing green growth potential in Kenya are both horizontal and vertical. Ministries, agencies and elites on the national level (compete or align to) influence and shape policy relating to energy security and green growth. On the one hand, this sphere's influence is constrained by subnational politics, amplified by devolution measures as a result of constitutional reform and increased communal participatory politics as enabled by the Climate Change Act (2016). On the other hand, international stakeholders such as international energy companies, finance development institutes (FDIs) and donor countries influence the national energy agenda by their financing of either grey or green energy initiatives, thereby constraining both national and subnational politics. The latter sphere, in this regard, is constrained not only by those actors having more influence on national policy but also by limited fiscal decentralisation, resulting in continuous reliance on the national budget to implement policies at county level. This conceptualisation serves as a starting point for the sections that follow.

5.3.1 Obstacles

The infrastructure – costs – access nexus

One of the major impediments to energy security in Kenya is the country's weak energy infrastructure. As explained earlier, this has caused frequent blackouts, inefficient transmission and inefficient distribution of electricity, whereas national coverage is still low, with just 55 percent of the population having access to the grid. The objective of delivering reliable electricity will not be easily realised until most of the old transmission and distribution infrastructure is upgraded or refurbished, and with increasing loading levels pressure on the electricity grid will become higher. Regarding green growth, the failing electricity grid makes it difficult to connect newly installed generation capacity

83 The EAPP aims "to foster power system interconnectivity by the heads of states of the Common Market for Eastern and Southern Africa (COMESA) region." It was established in 2005 and consists of seven East African states: Burundi, Congo, Egypt, Ethiopia, Kenya, Rwanda and Sudan. See EEAP, http://eappool.org/.

with consumers, especially for large-scale renewable energy projects that lie further from the national grid. Currently, this has led to a situation of moderate oversupply of renewable generation capacity, which increases idle capacity costs. Again, the Lake Turkana Wind Park (LTWP) is a good illustration for this point; new turbines cannot yet provide electricity to the peak demand centre in Nairobi, as the government has not finalised the construction of power transmission lines. As a result, LTWP is going to charge the government from January 2017 onwards to cover idle costs. The Kenyan government now faces a troubling situation where it can decline to pay LTWP (it is already appealing to a *force majeure*) and see potential future investors turning away or agree to pay LWTP and see electricity prices going up (in an election year). As energy costs in Kenya are already the region's highest and the energy sector needs more private sector investment, neither choice seems tenable. Consequently, as energy infrastructure fails, energy costs rise and energy access is constrained. This also affects Kenya's domestic manufacture sector, as unreliable electricity supply drives up production costs and makes Kenyan goods less competitive in regional and international markets. Most power consumers perceive this as a Kenya Power problem that can only be resolved through full liberalisation of power distribution. Either way, in order to break this cycle, investment in energy infrastructure should be prioritised. Yet when doing so, other stakeholders, interests and obstacles arise.

The issue of land

A major obstacle to both energy projects and energy infrastructure development in Kenya is posed by land conflicts, which date back to the colonial and post-independence periods. To address these long-standing problems, constitutional reform has paved the way for the establishment of the National Land Commission, whose task is to manage public land, investigate land injustices and settle disputes. Although this is a generally positive development, complicated land acquisition and compensation issues have also caused delays for major energy (infrastructure) projects while others have been cancelled due to protests by local landowners – for example, the Kinangop Wind Park.[84] In most instances, landowners and pastoralists have enjoyed the support of local elected leaders and some civil society organisations in their resistance to energy (infrastructure) projects and in voicing their demands. As a result of devolution measures, national energy projects must deal more often with subnational actors who can constrain central government implementation efforts when they believe their rights (or interests) are being infringed. As land is becoming more scarce, and land availability is a precondition for energy infrastructure and RE development, the cost of land will become an increasing proportion of project costs. At the same time, the National Land Commission will become a more important stakeholder for energy security and green

84 The Kinangop Wind Park was initially cancelled but resumed after prolonged negotiations. See Kibet, Patrick. 2015. "Court allows works at 60MW wind project." *Standard Digital*, 17 April. http://www.standardmedia.co.ke/article/2000158617/court-allows-works-at-60mw-wind-project (accessed July 2016).

growth objectives in the coming years as an authoritative body advising government on how to resolve energy-related land disputes. The challenge for central government lies in anticipating local grievances in order to ensure smooth project development and a stable investment climate for IPPs or large private energy companies while finding a balance between justified and inflated local demands.

The issues of finance and investment

Lack of sufficient capital poses another obstacle to green growth implementation in Kenya. So far the country has been highly reliant on foreign donor partners for financing domestic renewable energy projects. Although cooperation between the GoK and donor agencies has significantly contributed to the country's electricity supply, diversion of financial resources is needed to reduce dependency on foreign actors, attract more capital and meet electrification targets (universal access by 2020), and also to create an energy sector that is sufficiently profitable to become financially sustainable. This would, in turn, provide a better guarantee of long-term growth in the sector. One obvious need hereof is a sufficiently high return on investment. Yet, project delays and high energy costs send negative signals to potential investors (while more investment can make energy more affordable), especially in combination with tariff reduction. The REA and REF can play important roles here, although these bodies lack sufficient leverage to involve the private sector. The lack of an enabling environment for renewable energy suppliers is thought to be one of the main barriers for effective implementation of green growth strategies.[85] Domestic financing of RE projects in Kenya is also viewed by many as a major hurdle, as finding long-term financing at favourable interest rates is difficult.[86] Local financing institutions lack knowledge of the sector and as such view RE as a high-risk sector compared to their traditional customer base (e.g., construction). Only two local banks have so far shown interest in the sector, and these are biased against smaller projects. Consequently, shortage of capital at subnational level and the failure to attract more capital from private investors on the international level constrain green growth implementation efforts. It is for this reason that the success of LTWP, the single largest private investment in Kenya, is essential to attract more investors from both within and outside Kenya to support renewable energy projects. Also, the recent issuing of green bonds in Kenya may prove to be a promising tool to increase private investment in the coming years.

Lack of effective energy demand

With increasing urbanisation, a growing middle class and a rapidly growing population, pressure on energy demand in Kenya is rising. Currently, however, Kenya's energy situation is characterised by moderate oversupply of electricity sources. Improving

85 Da Silva. 2015. "The four barriers for the diffusion of solar energy technologies in Africa: trends in Kenya." *Africa Policy Review 2015*.

86 KEREA, interview.

grid connection could directly divert this surplus generation capacity to peak demand centres and industries. Yet, the objective of universal electricity access by the year 2020 involves different obstacles. As outlined earlier, poverty is still a major issue in Kenya and most of the rural and urban poor cannot afford electricity. The challenge for stakeholders in the Kenyan energy sector is to transform the country's high latent demand into effective energy demand, which means coupling poverty mitigation efforts with green growth strategies. At the same time, it means mitigating mistrust towards RE options among consumers. According to the KEREA, lack of standardisation in the RE sector is a gap requiring immediate attention in order to limit the flow of non-standard RE technologies in the market that not only inhibit market penetration of quality products but also erode consumer confidence in RE. The association has been working closely with the ERC to develop these standards for solar energy, even though testing and certification would require a well-equipped laboratory, which Kenya currently does not have.

Intermingling interests

Another issue affecting Kenya's energy system and potential for green growth pertains to the way energy policies are formulated and executed, constraining the effectiveness of all domestic political spheres involved. The intermingling of private and business interests continues to impede renewable energy development and efficiency gains in the energy sector, which has resulted in inflated project costs, general lack of accountability and overall poor performance by the government in regulating green growth trajectories. In many cases, government officials have access to ownership and indulgence in private property and business without any due consideration to conflicts of interest or commitment to public duty. The recent expansion of geothermal energy capacity illustrates this point: political elites and public servants rushed to get blocks for exploration, and those officials with an interest in the sector acquired the blocks of land then sold the exploration rights to companies contracted to develop geothermal energy. Despite recent efforts to control land injustice in Kenya, corruption has mostly been centred around these issues and the same rent-seeking behaviour is currently being repeated on wayleave payments for power transmission lines. This system has been termed 'competitive clientalism' elsewhere, pointing to the 'fierce electoral competition enmeshed in systems of political patronage with strong ethnic dimensions where the political elite have been able to capture public institutions and resources to serve their private interests'.[87]

87 Newell, P., & Phillips, J. 2016. "Neoliberal energy transitions in the South: Kenyan experiences." *Geoforum* (74): 41.

Politicised growth projections

In the policy sphere, there is a tendency in certain government agencies to formulate highly ambitious or optimistic policies that do not necessarily reflect realistic short- or medium-term goals. Economic growth projections of 10 percent annual growth over the next two decades are not likely to be met considering the country's past growth rates and current suboptimal economic growth conditions (see Chapter 4). Nonetheless, when increases in energy supply are based on economic growth projections that prove too ambitious, the gap between supply and demand may widen, thereby increasing idle capacity costs. This would pose a very detrimental situation to Kenya's green growth objectives as high energy costs are already constraining affordability and private investment in the sector. Regarding energy policy, the stated objective to increase electricity generation capacity by 5,000 MW by 2017 (Section 3.2) has been more the result of political influence than of a technical energy planning process. Even though this does not have to be an issue for energy security, as ambitious policy goals can have a stimulating effect on both public and private stakeholders, it does raise questions about its feasibility. When politicised projections are not backed up with sufficient on-the-ground implementation or realisation, trust in Kenya's political institutions and support of the government may decline in the long term. At the same time, as more than half of the 5GW in additional generation capacity is coming from fossil fuel resources, the stated energy goal conflicts with national climate change policy and the goal to reduce GHG by 30 percent by 2030 compared to the BAU scenario. Section 5.4 returns to this issue.

5.3.2 Opportunities

Despite the obstacles to green growth outlined in Section 5.3.1, there is reason for optimism. Kenya represents a relatively rare case where energy security and green growth objectives align, as renewable-generated electricity provides similar or cheaper options than their fossil counterparts (in the form of wind and geothermal sources as well as imported hydropower from neighbouring Ethiopia). At the same time, economic vulnerabilities such as volatile exchange rates resulting from fluctuating international oil prices incentivise further expansion of renewable energy development in the country.

Decentral energy growth

Renewable energy development in Kenya has mostly focused on large-scale geothermal, hydro power and wind power projects. Grid-connected solar energy has been a costlier option and has therefore received less attention. However, Kenya's energy grid constraints provide new opportunities for decentral energy growth, as large investments in energy infrastructure to connect off-grid areas are either too expensive or time consuming. Off-grid solutions can serve the dual purpose of increasing energy access (especially for the rural or urban poor) while stimulating the domestic market. As mentioned in Section 2.4, Kenya's solar PV market is growing rapidly due to the practical and cost-efficient option of electrifying rural households with solar home systems (which is partly the result of donor support of earlier experimentation that

covered commercial risks for private actors). New initiatives are currently emerging to supply more densely populated off-grid areas by means of solar micro-grids, which have the additional advantage to being able to sustain more energy consuming appliances. Currently, US-based Powerhive provides electricity to over 1,500 people in four villages by means of smart micro-grids with storage facilities, which provide on-demand electricity with remote payment software using M-pesa and a credit system that automatically cuts off power when credit has been used up.[88] This system couples socioeconomic inclusiveness with green energy growth and solves some of the key issues that have impeded rural electrification efforts so far. Italy-based Enel Green Power is currently cooperating with Powerhive to expand this system to a total of 100 villages, giving 90,000 people access to electricity.[89] These opportunities are not seized upon solely by foreign energy companies; the Nairobi-based renewable energy firm PowerGen is seeking approval from the ERC to generate, supply and sell electricity by means of solar micro-grids.[90] Interestingly, these sociotechnical and market innovations challenge existing market and power structures: KP's monopoly position is circumvented while the need for KETRACO's 'backbone' transmission lines decreases in newly connected micro-grid areas.

Liberalisation efforts

Since the 1990s, Kenya's electricity sector has experienced step-by-step liberalisation efforts. The Electric Act 1997 allowed IPPs in the sector, which now account for nearly a quarter of total installed capacity, yet left distribution and transmission under KPLC monopoly. The Energy Act 2006 paved the way for more competition in the end-use sector, but the government remained highly protective of KP's monopoly position (as it was also the company's major shareholder). This is currently changing as liberalisation efforts are taking a sharper turn. The Energy Bill 2015, sponsored by the MoEP and ERC, allows the entrance of energy distributors and retailers into the electricity sector, thereby effectively ending KP's monopoly.[91] If the Bill is approved by Parliament, it will become much easier for decentral renewable energy initiatives to succeed, and national grid-connected areas will open up to new innovative energy solutions offered by new distributors. That government protection of KP is fading away is also reflected by the

88 Harrington, Kent. 2016. "New Smart Solar Microgrids Speed up Rural Electrification in Kenya. *AIChE*, 2 March. http://www.aiche.org/chenected/2016/02/new-smart-solar-microgrids-speed-rural-electrification-kenya (accessed November 2016).

89 Ibid.

90 Otuki, Neville. 2016. "Kenya: Solar Firm Seeks Nod to Challenge Kenya Power Monopoly. *allAfrica*, 26 May. http://allafrica.com/stories/201605260992.html (accessed November 2016).

91 Government of the Republic of Kenya. 2015b. *The Energy Bill, 2015*. http://www.erc.go.ke/images/docs/Energy_Bill_Final_3rd_August_2015.pdf

former's decline to increase tariff rates as requested by the latter;[92, 93] such an increase would have impeded energy access goals and reduced the competitiveness of domestic industries. Increasing competition in Kenya's electricity sector may well lead to higher distribution efficiency and lower energy prices while creating a market that is more responsive to consumer demand, thereby contributing to energy security and green growth implementation efforts.

Lack of major opposition to green energy

Kenya's support for specific energy technologies and on-grid solutions are, among others, a result of the degree to which they offer the political centre control and reward. In this way, the GoK has mostly supported large-scale renewable energy projects (geothermal and wind power) and has not ruled out a substantial proportional increase of fossil fuel resources in the energy mix. Despite certain political preferences and interests that shape choices and policy in Kenya's renewable energy development, there is no strong or organised opposition to green energy growth in general. Many stakeholders seem to win from renewable energy development and Kenya presents a relatively rare case where energy security and green growth objectives align – particularly in the form of (domestic) geothermal energy, which provides a least-cost and low-carbon option to provide base-load electricity supply. The lack of major opposition to RE allows the GoK to focus more on the obstacles mentioned earlier and improve the market conditions in which they can flourish.

Business-friendly environment

Although obstacles to investment and shortage of capital constrains Kenya's energy sector, the country is also known for its business-friendly environment. Due to Kenya's market-oriented policies and focus on the private sector, it has become one of the leading investment destinations in Africa. There is a general acceptance of Eastern Africa in general, and Kenya in particular, as offering a great international investment destination.[94] Acquiring sufficient investment for a prolonged green growth strategy is achievable if the GoK can ensure domestic stability, address corruption and create investor-friendly policies while continuing to ensure donor support. With Kenya's INDC and SE4All strategy, it seems the latter objective will not be too difficult to realise.

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92 Otuki, Neville. 2016. "ERC rejects Kenya Power's bid to raise electricity tariffs." *Business Daily*, 12 June. http://www.businessdailyafrica.com/ERC-rejects-Kenya-Power-s-bid-to-raise-electricity-tariffs/539546-3246534-cvany6z/index.html (accessed November 2016).

93 Citizen Digital. 2016. "Kenya Power revives talks with ERC for tariff hike." 15 June. https://citizentv.co.ke/business/kenya-power-revives-talks-with-erc-for-tariff-hike-130450/ (accessed September 2016).

94 *Fortune magazine* has christened the Kenyan economy as one of the most attractive investment destinations in Africa based on infrastructure investments, newly discovered oil reserves, a sizeable middle class and a fast-growing services sector. See Bremmer, Ian. 2015. "The new world of business." *Fortune magazine*, 22 January. http://fortune.com/2015/01/22/the-new-world-of-business/ (accessed September 2016).

5.4 Alliances, divergences and modes of influence

When taking Kenya's economy, political-institutional structure, energy policies, obstacles and opportunities to green growth into account, alliances and divergences between and within the three political spheres become visible.

Constitutional reform and devolution

At subnational level, devolution brings both opportunities and obstacles to Kenya's green growth potential. There are more opportunities for green growth and energy security as elected representatives become more accountable and people feel more represented. The Climate Change Act 2016, for instance, allows third parties to claim the environmental rights of the poor if those are infringed, as the Act does not require a claimant to demonstrate direct injury by an infringement. These rights are already being claimed —for example, local community groups in Lamu have gone to court to stop the construction of a 1,050 MW coal plant. Despite the fact that a construction company had been contracted, the project now faces long delays at best. However, as pointed out earlier, improved communal rights are also used against RE projects. While the Constitution and Bill of Rights were originally intended to ensure more public participation, their provisions have also been taken up by people who want more compensation, and the resulting delays pose a serious constraint to green growth implementation efforts. As well as increasing pressure from the public, devolution has created new loci of political contest within the state. Conflicts have emerged between counties and the centralised MoEP over control of energy resources and authority over the energy grid.[95] In addition, distribution of power and resources has created a new bureaucracy that is very expensive to run. As a result of both, devolved funds are under increasing pressure and scrutiny from central government.[96]

A win-win for climate and development?

The Kenyan economy has been able to grow and develop without domestic oil and gas exploitation by relying on a largely renewable-driven electricity sector. This apparent win-win for climate and development must be set, however, against news of recent oil and gas discoveries that have generated excitement in the country. In the National Energy Policy, fossil fuels are given a prominent role in the country's energy matrix, and the policy reveals the 'excitement' and the subsequent need 'to develop adequate petroleum production capacity in the country'. Coal too is defined as having 'the potential to become the most reliable and easily accessible energy source for electricity

95 Newell, P., & Phillips, J. 2016. "Neoliberal energy transitions in the South: Kenyan experiences." *Geoforum* (74): 46.

96 Mutuku, Leo. 2016. "Is Treasury undermining devolution with new rules?" *The Star*, 19 April. http://www.the-star.co.ke/news/2016/04/19/is-treasury-undermining-devolution-with-new-rules_c1334803 (accessed November 2016).

generation'. Renewable energies are seen as important as far as they can complement the country's energy portfolio and provide energy security. This provides a stark contrast with Kenya's so-called 'green' policies as laid out in Chapter 3. Inconsistencies at national level between Kenya's green growth, climate change and energy security goals reflect the accommodation and deal-brokering of various and sometimes competing interests of actors who have a stake in Kenya's energy sector and development.

Contestation at international level

Some of these inconsistencies can be explained by contesting interests at international level. Kenya is still highly reliant on international financial institutions and bilateral development agreements to finance its energy projects. Traditionally, donors have promoted market reforms in Kenya's energy sector (thereby opening it up for transnational capital), where the World Bank and Western funding countries have specifically emphasised the need to couple market reform and energy security goals with climate change objectives. This has led to the incentive for Kenyan politicians to integrate climate change goals into national policy in order to accommodate international (donor) interests and secure international financial resources. Exaggeration of realistic energy goals has been one potential result. On the other hand, South Korean, Japanese and Chinese investments have also embraced Kenya's fossil fuel reserves. Chinese finance is especially seen as a contestation of Western influence. These investments aim to support Chinese overseas export, and if coming from Chinese state-led financial institutions they are based mostly on an energy security and geopolitical logic. This is not surprising considering China's huge energy demand and the relatively easy option that Chinese finance offers Kenya to add large generation capacity to its grid by exploiting its domestic fossil fuel reserves. Divergences between international funding partners and the willingness of the Kenyan government to decouple energy security with green growth objectives reflects the different priorities that are at stake. Contesting forces at international level, therefore, do affect Kenya's green growth trajectory and capacity to meet its climate objectives.

Turf wars within central government

Divergences between stakeholders influencing Kenya's energy trajectory have not been limited to the subnational and international spheres; a number of turf wars over authority and resources between different parts of central government have taken place. Climate change finance has led to competition between the Deputy President's Office and the Ministry of Environment and Natural Resources, who both insist that climate resources should be under their control. The former argues that it is a development issue, the latter contends it is an environmental matter. Whereas the Deputy President's Office initially appointed the National Focal Point for Climate Change to handle the inflow of UNFCCC funds, the Ministry cancelled this appointment and maintains it should oversee the

funding.[97] The same issue arose during the development of the Climate Change Act 2016. The Deputy President's office and the Ministry of Environment both wanted the Climate Change Fund under their dockets, whereas it was eventually placed under the Council of the President's Office. Climate change has always been seen as a peripheral issue by the Ministry of Energy and Petroleum and has historically been left to the Ministry of Environment to deal with. But as the subject becomes more important and more resources get allocated to it, mainstream ministries, especially the Treasury, Energy and Petroleum, as well as Agriculture, will want to get some access and control of the funds. This might lead to more frequent turf wars between different parts of the government.

Alliances for green growth

Donor partners from developed countries have been very active in the area of energy security and green growth and there is ample interest in investing in Kenya's development. As Newell (2014: 28) puts it, donors are 'heavily involved' in the Kenyan energy sector and Kenya is a 'donor favourite' on energy, especially geothermal. Donor and government priorities align not only in their emphasis on large generation projects, which are driven on (economic) impact, but also on the need to stimulate private sector involvement to create a financially sustainable energy sector. At the same time, there has been little room for discussion of smaller pro-poor energy projects. Some stakeholders have criticised the 'box-ticking' approaches that do not seem to take country-specific factors into account. With the new Energy Bill and the allowance of multiple electricity distributors in addition to KP, it will become easier for small (and decentral) projects to get access to financial resources. At regional level, cancellation of the Uganda–Kenya Crude Oil Pipeline and the security risk on Kenya's northern border with Somalia might provide additional incentives for Kenya's stakeholders to support green energy growth, as it provides a less geopolitical sensitive alternative and contributes to energy independency at the same time.

Although Kenya has envisaged a greater role for coal and oil in its energy mix, national stakeholders are also moving towards the implementation of more green growth projects. Promising alliances are emerging. This is illustrated by the so-called 'multi-stakeholder' meetings as proposed by Kenya's INDC[98] and materialised in, for example, the Kenya Climate Change Working Group. Powerful ministries such as Energy and Petroleum and the National Treasury seem aligned, and the President's Office is also committed to (large) renewable energy projects. The challenge lies in increasing the

97 Munuhe, Mwaniki. 2014. "Ministry fights to control Sh193 billion climate change cash from UN." *Standard Digital*, 28 July. http://www.standardmedia.co.ke/lifestyle/article/2000129692/ministry-fights-to-control-sh193-billion-climate-change-cash (accessed November 2016).

98 Ministry of Environment and Natural Resources. 2015. Kenya's Intended Nationally Determined Contribution (INDC). UNFCCC. 23 July: 2. http://www4.unfccc.int/submissions/INDC/Published%20Documents/Kenya/1/Kenya_INDC_20150723.pdf

future share of REs in Kenya's energy mix and preventing fossil fuel lock-ins from dominating the energy structure in the years to come. That can occur when investments in coal and oil extraction, infrastructure, and possibly refineries, create a new market that the government is likely to protect because of its economic and strategic importance. In turn, new powerful players would be created who would oppose future green growth efforts. Kenya is currently at a crossroads, and decisions taken today will influence its energy trajectory for the next decades.

Two prerequisites appear to be necessary for a successful green growth and energy security partnership.

First, *resource mobilisation* is needed, as significant investment finance will be required to create an affordable generation capacity and mix, with the necessary transmission and distribution infrastructure. The interests of central and county governments, development partners and the private sector need to converge for the required funds to be successfully mobilised. It seems desirable for the government to adjust its policies to improve private sector (financial) involvement in renewable energy and green growth programmes. There is a need for greater return on green investments. As a starting point, the GoK should focus on reducing costs and improving a stable investment climate by addressing grid inefficiencies and project delays while upholding contractual agreements with private actors so as to ensure investor confidence. Also, Kenyan authorities might consider enlarging the Special Economic Zones to incorporate the renewable energy sector, which would make investment more attractive. Oil, gas and coal exploitation will not qualify for green growth, although (part of) the revenues of these energy sources could be redirected via sovereign wealth funds if Kenya were to follow up on its commitments to build a fossil fuel industry. The financial resources could be invested in sustainable development (economic, social and environmental) projects, as has been put into practice by developed, and some developing, countries.[99]

Second, as required by the new constitution, the *public and civil society must be involved* in the discourse and the development of green growth initiatives and energy security programmes for support and on-the-ground implementation. As has become clear, devolution presents both obstacles and opportunities to green energy growth. Either way, it does open up the decision-making process to a more bottom-up approach. Hence, the need arises to incorporate local grievances and combine green growth with socioeconomic inclusion and poverty reduction, thereby stimulating local support and mitigating resistance. This may require a more balanced view by central government and donor countries on grid versus distributed energy solutions, as well as on what is perceived as equitable economic and social programmes. Religious leaders, musicians

99 Van der Ploeg, F. and Poelhekke, S. 2009. "Volatility and the natural resource curse." *Oxford economic papers* (gpp027).

and sports players can be important climate champions considering the role models they represent in society.

All in all, transitioning to a green economy requires a significant amount of financing at the initial phase of transformation, particularly in the energy sector where upfront costs for clean technologies are high. In order to mobilise domestic funds, there is a need to address current disincentives. Local communities and civil society are likely to exert pressure on the government as they lobby for energy security (and electricity access) – and with increased urbanisation, their voices could get louder. At the same time, the government may lose support from all stakeholders if it does not properly address the issue of escalating project costs, poor implementation and related corruption issues.

6 Conclusion and recommendations

Recent years have seen many more national visions and strategies in Kenya focusing on climate change, green growth and energy security. International efforts such as the Paris Agreement, Sustainable Development Goals and the Sustainable Energy 4 All initiative reflect a momentum in which Kenya is presenting itself as a forerunner in (Eastern) Africa concerning these issues. However, moving from strategies and policy formulation to real and effective implementation is one of the big challenges currently facing the country. By using a political economy analysis, this report has identified constraints and enablers of green energy growth, and the potential for improvements.

Kenya's high vulnerability to the impacts of climate change – such as floods and droughts –, its reliance on hydropower for a major part of its electricity supply, its potential for using 'green' resources and its exposure to variability in the price of (imported) oil are strong reasons for the state to support green growth. This apparent win-win for climate and development has to be set, however, against news of recent oil and gas discoveries that have generated excitement in the country. It is now up to Kenya and its citizens to decide whether to live up to its climate pledges and embark on a trajectory of green growth or to become more reliant on a fossil fuel industry, with the potential risk of a long-term lock-in.

Transnational capital has financed the development of both 'green' and 'grey' energy projects in Kenya, and the actors behind it have been influential to some degree in shaping the country's energy direction. In some cases this has led to contradictory objectives as ambitious climate and green energy goals coexist with the national vision to build a thriving fossil industry.

Despite these risks and challenges the forces arrayed against green energy growth in Kenya are not dominant or well organised. This reflects a general consensus in Kenya that green energy options can play an important role in the country's (socio)economic development as long as they contribute to a reliable and affordable electricity supply; Kenya presents a fascinating case where energy security and green growth objectives can align. This is reflected by the country's power sector, which currently has sufficient capacity to meet effective electricity demand with nearly two-thirds of power generation being derived from renewables. Lack of major opposition also gives more leeway to the GoK and its parastatals to address the dominant obstacles impeding the realisation of (green) energy goals. One of these obstacles is the country's inefficient and failing energy infrastructure, which pertains to many of Kenya's issues in the energy sector,

such as unreliable supply, high costs, high prices, low investment (return) and low access in face of rising energy demand and a growing consumer class. The intermingling of private and public interests exacerbates this situation with project delays and rent-seeking behaviour of certain senior government officials seeking to maximise individual gain. Especially, issues around land ownership and rights are sensitive and can pose a challenge to green growth projects in the energy sector.

Constitutional reform and devolution since 2010 have had a mixed effect on green energy growth in Kenya until now. More autonomy for 47 county governments and a Bill of Rights have given citizens the right to a clean, safe and healthy environment and empowered their voice. While this has resulted in more opposition to fossil fuel projects, it has also been used by landowners or pastoralists who seek more compensation when renewable energy projects or infrastructure cross their lands. The ensuing protests and project delays have driven up costs and send negative signals to potential investors. Devolution has furthermore increased contestation between the county and central government level over resources and authority in the energy sector, which may hamper an efficient energy planning process. Still, reform has opened up political decision-making to a more bottom-up approach, and when local grievances are incorporated successfully, renewable energy projects can count on much broader support and less resistance.

Notwithstanding the challenges facing Kenya's energy sector, the opportunities for green growth and energy security are strong. Liberalisation efforts are addressing some of the underlying inefficiency issues affecting Kenya's energy security and if the new Energy Bill is approved, there is great potential for better grid connections and a likely overall increase of investment in the power sectors. Moreover, the new bill paves the way for decentral renewable energy solutions to couple economic inclusion with green growth efforts. In the end broader economic prosperity can strengthen any long-term green growth strategy and increase the chance it will succeed. Other opportunities can be found in Kenya's broad renewable energy alliance, supported by both government and a range of international donors. To unlock Kenya's green growth potential, it is essential that more resources are mobilised to build the necessary energy capacities and that people feel ownership and are represented. Kenya may well use its business-friendly image and the opportunities of constitutional reform. At the same time, it is essential that the divergences identified in this report are addressed. How these factors interact and come into play will determine Kenya's energy trajectory and the degree to which the country is able to live up to its international image as a regional forerunner in climate change mitigation and renewable energy development.

List of interviewed people in Kenya

- Peter Odhengo, Senior Policy Analyst/Climate Change Expert (Climate Change Fund, the National Treasury)
- Dr Pacifica Ogola; Director Climate Change Secretariat, Ministry of the Environment and Natural Resources
- Sanne Willems; Programme manager Infrastructure and Energy, EU delegation to the Republic of Kenya
- Jean-Marc Sika, Hivos East Africa
- John Kioli, Executive Director, Green Africa Foundation
- Johni Kjelsgaard; Founder and CEO Growth Africa
- Robert van der Hum; First Economic Secretary Dutch Embassy to the Republic of Kenya
- Professor Dr Izael Da Silva, Strathmore University
- Ernest Chitechi, Kenya Climate Innovation Center (KCIC)
- Dr Frederick Nyang, Ag Director General, Energy Regulatory Commission (ERC)
- David Kibe Kariuki, Energy Regulatory Commission (ERC)
- Rhoda Whacira, UNEP Green Growth Initiative, SWITCH Africa
- The Honourable Wilberforce Ottichilo, Member of Parliament, Emuhaya Constituency
- Laurencia Njagi, Senior Energy Specialist, World Bank
- Ruth Kiiru, Ministry of Devolution and Planning
- Harun Maina Wairi, National Climate Resource Centre
- Joshua Were and Joyce Waweru, KenGen
- Inge van den Berg, Oil and Gas, World Bank
- Gabriel Negatu, RRC director, African Development Bank
- Carlo van Wageningen, Lake Turkana Wind park

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