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## Kenya: A green growth utopia?

With its national long-term development blueprint, the Kenyan state recognises the overall importance of a secure and affordable supply of energy sources for the country's national development. The central government has formulated ambitious policies to become the forerunner of the East African Community (EAC) concerning climate change objectives. The timing seems right for Kenya to realise its green energy potential; there is strong international support for national economies to decarbonise and Kenya provides a unique case where government and donor priorities concerning renewable energy projects align. Furthermore, the approval of the new constitution of 2010, the peaceful elections of 2013 and the 2016 Climate Change Act provide a new framework of opportunities for Kenya to boost green growth. However, these developments should be placed against a background of suboptimal government capacity, newly found coal and oil reserves, and low electricity access; Kenya's development into a renewable energy frontrunner should not too easily be taken for granted. This policy brief addresses opportunities for green growth and the hurdles that need to be overcome if Kenya is to realise its full potential for renewable energy. It emphasises that access to electricity should be improved to generate more domestic support for green investment choices and for the need to incorporate the private sector in renewable energy development.

### The links between national development, energy security and green growth

In June this year a major power blackout in Kenya left millions of households and businesses without electricity for hours. It was later discovered that it was caused by a trespassing monkey that fell on a transformer of the region's largest hydropower plant, triggering a chain of reactions that led to a temporary loss of 180 megawatts of generating capacity. This event neatly illustrated the insecurity of Kenya's energy infrastructure and its reliance on relatively few energy sources to supply large urban areas, which is not surprising considering the country's rapid development during

the past decade. Kenya has experienced substantial economic growth facilitated by a strong human capital base, a strong private sector, market-friendly economic policies and a relatively stable political climate. Driven by higher investment in infrastructure, fast development of the ICT sector and growth in agricultural export sectors, the country's GDP has grown by 3–9 percent annually to US\$63.4 in 2015.<sup>1</sup> Still the economy depends for nearly half of its GDP on natural resources, agriculture and tourism, making the country highly vulnerable to climate

1 Kenya GDP growth (annual %), World Bank Indicators, 2016, <http://data.worldbank.org/indicator/NY.GDP.MKTP.KD.ZG?locations=KE> (accessed October 2016).

change effects. Economic growth has coincided with socioeconomic developments such as population growth (population size is projected to double to 88 million by 2050), increasing urbanisation (already 82 percent of the population resides in 7 per cent of Kenya's land area)<sup>2</sup> and a rising middle class. These developments exert pressure on Kenya's energy system and will lead to higher peak demand centres. In order to keep up with the country's development, a secure and affordable supply of energy is one of the main priorities for the government. Green energy growth can play a crucial role in this regard while simultaneously reducing reliance on fossil fuel imports and contributing to climate change ambitions. Kenya's goal is to reduce greenhouse gas (GHG) emissions with 30 percent by 2030 compared to its business-as-usual scenario. Considerable gains can be made in the energy sector, which is one of the country's largest sectoral GHG emitters.<sup>3</sup>

### Kenya's energy sector

Primary energy supply in Kenya is currently dominated by biomass sources, accounting for roughly two-thirds of total supply and used for cooking and heating by rural and urban middle- and low-income communities. Given the relatively low prices of biomass energy, it has the potential to significantly contribute to green energy growth in Kenya provided it can be produced sustainably – for instance, by using agricultural by-products of the tea, coffee and flower industries. Besides biomass, domestic energy use is dominated by fossil fuels and electricity. Imported fossil fuel products complement the energy mix and made up roughly 18 percent of the total import bill in 2013. Kenya's power sector is dominated by renewable energy sources such as geothermal and hydropower (Figure 1).

Kenya has abundant exploitable renewable energy sources such as hydro, geothermal, wind and solar.<sup>4</sup> According to the National Energy Policy, fossil fuels are expected to play a larger role in the country's electricity supply; domestic coal production is rising and a 1,050 MW coal plant has been contracted in spite of legal and civil opposition. With the discoveries of coal and oil fields and new recent drilling activities, the potential for green energy growth and a low-carbon economy is under pressure. This can be partially offset when foreign income from commercial oil exploitation is diverted to support green growth initiatives, for instance via sovereign wealth funds. Yet, the infrastructural investments needed to initiate large-scale exploitation of domestic fossil resources would reflect a long-term commitment towards high-carbon industry, which is difficult to reconcile with Kenya's ambitious 'green' policies.

### Low access to electricity

Despite Kenya's relatively low-carbon electricity generation capacity, the electricity sector accounts for only 9 percent of national energy consumption. Access to electricity has doubled in the past years, but is still low with just 55 percent of the population (mostly urban-centred) having access to the grid electricity. The government has set the ambitious target of universal access by 2020, which is an important step towards more economic inclusion and could very well be aligned with green growth objectives. One of the major obstacles to realise this goal is the country's weak and inefficient energy transmission and distribution infrastructure, resulting not only in irregular supply but also high energy prices. Kenya Power, the country's semi-public energy utility company that has a monopoly on energy distribution and transmission, is frequently blamed for

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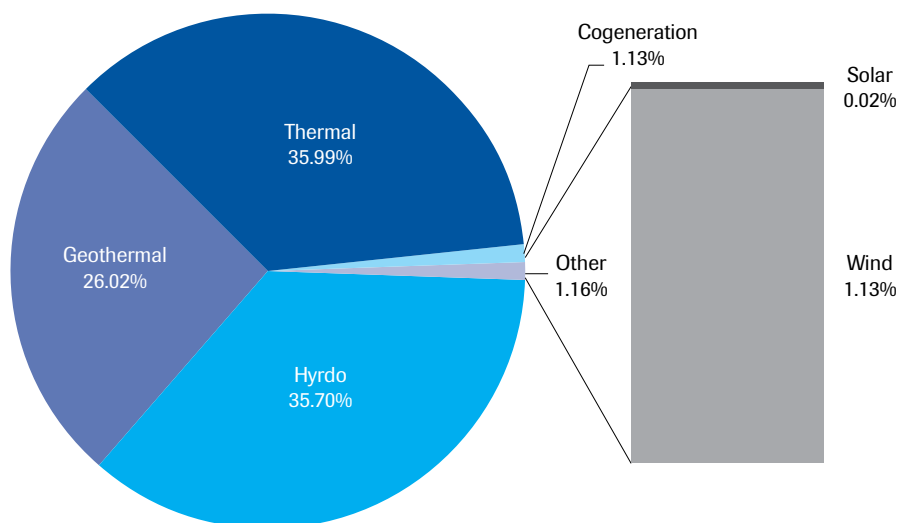
2 Newell, P., Phillips, J., Pueyo, A., Kirumba, E., Ozor, N. Urama, K. 2014. 'The political economy of low carbon energy in Kenya.' *IDS Working Papers* (445), 2014, p. 13.

3 *Kenya: Country GHG emissions*, CAIT Climate Data Explorer, 2013, <http://cait.wri.org/profile/Kenya> (accessed 14 October, 2016).

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4 For example, solar energy has one of the highest insolation rates in Kenya with 4-6 kilowatt hours per m<sup>2</sup>. *Renewable Energy Sources*, Energy Regulatory Commission, [http://www.erc.go.ke/index.php?option=com\\_fsf&view=faq&catid=2&Itemid=649](http://www.erc.go.ke/index.php?option=com_fsf&view=faq&catid=2&Itemid=649) (accessed October 21, 2016).

Figure 1 Installed generation capacity in Kenya by end 2015



Source: Kenya Power, *Annual Report*, 2015.

these issues. However, a failing energy grid with limited national coverage has also created opportunities for (decentralised) green energy growth in the country. Besides a growing market for stand-alone distributed solar home systems, renewable energy firms are increasingly opting to generate, supply and distribute electricity in densely populated areas by means of solar energy micro-grids.<sup>5</sup> These have the additional advantages of being capable of sustaining larger appliances and offering a low-carbon solution to the problem of bringing reliable electricity to off-grid areas. For many Kenyans, access to the national grid is too expensive, in some cases even with subsidised prices. Solar decentral micro-grids can be a more affordable option, as they only require (significant) upfront investments in small-scale infrastructure and energy technology (which can be shared by the local community) while marginal production costs are nearly zero. At the same time, by increasing access to electricity, decentral energy solutions can transform Kenya's high latent demand into effective energy demand. This is highly important

considering the country's current electricity supply situation, which is characterised by moderate overcapacity of geothermal, wind and hydropower sources in the face of rising peak demand centres, national economic growth and low overall energy access. Existing laws give Kenya Power the monopoly of grid electricity distribution in the country and so far the Energy Regulatory Commission (ERC) has approved mini-grids only on a case-by-case basis. As its major shareholder, the government has been protective of KP for a long time. This is changing with the Energy Bill 2015,<sup>6</sup> which aims to liberalise both power distribution and retail, is sponsored by the government and the ERC, and is currently awaiting approval from Parliament. If the Bill is passed into law, Kenya Power will lose its stranglehold on the end-use electricity sector and decentral renewable energy initiatives will face less barriers to implementation.<sup>7</sup>

5 'Solar firm seeks nod to challenge Kenya Power monopoly', *Daily Nation*, May 2016, <http://www.nation.co.ke/business/Solar-firm-seeks-nod-to-challenge-Kenya-Power-monopoly/-/996-3219468-bgyds9z/index.html> (accessed October, 2016).

6 *The Energy Bill 2015*, [http://www.erc.go.ke/images/docs/Energy\\_Bill\\_Final\\_3rd\\_August\\_2015.pdf](http://www.erc.go.ke/images/docs/Energy_Bill_Final_3rd_August_2015.pdf) (accessed November 2016).

7 'Proposed law seeks to end Kenya Power market monopoly', *Business Daily*, May 2015, <http://www.businessdailyafrica.com/end-Kenya-Power-market-monopoly/539546-2702638-1442vstz/index.html> (accessed November 2016).

## Kenya's new framework for green growth

Political developments in recent years have given rise to optimism for the realisation of Kenya's green growth potential. First of all, awareness among the public and government on the need to address climate change is high, especially from an adaptation and renewable energy development perspective. The alignment of government and donor priorities in funding (large-scale) projects has been a major boost to the country's renewable energy growth. At the same time, this has increased the need to divert resources to more small-scale energy projects while involving the private sector and reducing donor dependency. Currently, the financial sector is working on issuing green bonds in Kenya, which may speed up this process. Since 2013, a new government structure based on the new constitution has come into effect following a referendum in 2010 in which the majority of Kenyan citizens voted in favour of constitutional reform. Improved democratic governance, communal rights, enhanced checks and balances, and devolution of political authority have created a new framework in which green (energy) growth can be promoted.

In this way, the 2016 Climate Change Act has provided the legal foundations for the National Climate Change Council, which is to coordinate implementation of the country's climate change objectives. It aims to stimulate low-carbon development through various actions including incentivising the private sector, promoting low-carbon technologies and mobilising financial resources through the Climate Change Fund while overseeing climate change efforts. The new law also permits individuals to appeal to the Environment and Land Court when someone's actions adversely affect adaptation and mitigation objectives,<sup>8</sup>

thereby empowering local communities who want to protect their environment. Local community groups in Lamu have already successfully exercised these rights by going to court and stopping the construction of a 1,050 MW coal plant. As the Act does not require anyone to demonstrate (physical) harm by the infringement, numerous parties and (civil society) organisations are able to step up for the poor and the environment.

## Kenya's political climate and the contested issue of landownership

Not all these developments are straightforward, however. As constitutional reform and devolution can generally be seen as an opportunity for green growth and energy security as elected representatives become more accountable and people feel more represented, that opportunity has also been taken up by landowners or pastoralists who want more compensation and are supported by local elected leaders and civil society organisations. A number of projects have been delayed or even cancelled as a result of claims from landowners, manifested recently in projects such as the Kinangop Wind Park project, which would have provided electricity to 150,000 households with a 61 MW generation capacity.<sup>9</sup> Since land is becoming scarcer in Kenya, the costs of land are expected to take up a larger proportion of project costs, especially for large-scale renewable energy projects. The National Land Commission, created and authorised to oversee land compensation and dispute settlement issues, is becoming an important stakeholder in Kenya's green growth trajectory. Also, while there is much popular support for 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 either are not familiar with many issues in the new

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8 See Article 23 of *Climate Change Act. No. 11 of 2016*, The Republic of Kenya, 2016, <http://www.kenyalaw.org/lex/rest/db/kenyalaw/Kenya/Legislation/English/Acts%20and%20Regulations/C/Climate%20Change%20Act%20-%20No.%2011%20of%202016/docs/ClimateChangeAct11of2016.pdf> (accessed October 27, 2016).

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9 *Kenyan wind power project cancelled due to land disputes*, Reuters, February 2016, <http://www.reuters.com/article/kenya-electricity-idUSL8N1620QG> (accessed October 2016).

constitution or deliberately misinterpret some clauses to serve their political and related partisan or sectarian interests. If implemented correctly, constitutional reform and devolution 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.

### Intermingling of interests and an over established energy sector

Another major issue in Kenya's political climate affecting green energy growth is the intermingling of political and business interests. Kenya has experienced unlimited ownership and indulgence by public servants in private property and business without any due consideration for conflicts of interest or commitment to public duty. This practice has fuelled corruption at various government levels and has led to inflated project costs, incompetent appointments and a general lack of accountability. To certain degree, it has thereby hampered the ability of the state to regulate and control the energy sector, which is crucial for green growth policies to succeed. In addition, Kenya's energy sector seems to be over-established with (semi-)public actors lacking a clear *de facto* delineation of responsibilities. Poor performance of state-owned companies and reliance on funding partners has created strong support for private sector involvement, with the share of independent power producers more than doubling since 2008 (to currently 24 percent of the country's installed capacity). The challenge for the Kenyan government here lies in attracting private capital to finance its electrification programme while ensuring a stable investment climate in a potentially rapidly growing market. This means increasing knowledge among local financial institutions about green energy options and finding a balance between investment returns and the ability of citizens in newly connected areas to benefit from clean energy on their doorstep.

### Opportunities for green growth

Despite some of the political-economic, institutional and socio-technical impediments to green growth outlined above, Kenya presents a relatively rare case in which national energy security goals align with renewable energy development and green energy growth. Historically, the Kenyan economy has been highly exposed to international energy prices, and plans to develop a domestic fossil fuel industry could make the country more vulnerable to geopolitical tensions in the region. Even though coal, oil and gas are likely to play a larger role in Kenya's energy mix in the future, the same is true for renewables as the Kenyan government strives to meet its goal of universal electricity access by 2020. Several alliances are expected as Kenya moves towards the implementation of green energy growth policies. Among the most promising are the so-called 'multi-stakeholder' meetings as reflected in Kenya's National Climate Change Action Plan development process and materialised in 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. Developed-country funding partners have been very active in Kenya's green energy growth and have, in line with government priorities, invested mostly in large renewable generation projects. Taking the above considerations into account, the Government of Kenya, funding partners, non-governmental and public organisations, as well as the private sector, should take the recommendations below as guiding principles in future energy policies in order to unleash Kenya's green energy potential.

- *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, a proportion of potential fossil-fuel extraction revenues could be redirected towards green investments via sovereign wealth funds.

- *Prioritisation of investment in energy infrastructure.* As well as increasing production, 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 distributed 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 be a quicker and more efficient low-carbon way 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. Meanwhile, Kenya Power could use its resources on upgrading the existing infrastructure to improve efficient and reliable supply in areas connected to the national energy grid. More competition in the end-use sector could 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 sections 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 could 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. At the same time, stakeholders should be cautious about potential additional political risk of rent-seeking, conflicting interests and project delays as a result of devolution measures in combination with low government capacity to regulate.

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