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Emerging Issues in Devolved Electricity Governance in Kenya

A Case Study of Machakos County Government

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Table of Contents

Abstract

Kenya has ambitious legislation regarding devolution in electricity governance, the implementation of which, however, is delayed and fraught with challenges. Decentralized structures have become increasingly important in recent electrification policies. However, electrification is still mainly planned and implemented by national-level actors. There is little literature on the topic of devolved electricity governance. Kenya is one of the few countries in Sub-Saharan Africa that have devolved energy functions in the constitution and in the Energy Act. However, the interaction between policies and actors seems to impede the fast-tracking of rural electrification as envisioned in the Kenya Vision 2030.

Keywords

Kenya; devolution; electricity; governance

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Definition of terms

Feed-in Tariff (FiT) is a policy mechanism designed to accelerate investment in renewable energy technologies by offering long-term contracts to renewable energy producers.

Last Mile Connectivity Programme is an initiative of the Government of Kenya (GoK) aimed at providing affordable electricity connection to rural and peri-urban areas. The project was launched in 2015. The first phase of the project involved extending the low voltage network to reach households located within 600 meters of the transformer. The second and third phase of the programme included installation of new transformers and extension of a low voltage network to connect 2.5 million Kenyans to the power grid. The project is financed by the GoK and the African Development Bank (AfDB).

Kenya Electricity Generating Company (KenGen) is a limited liability company listed on the Nairobi Stock Exchange (NSE), with a government shareholding of 70%. KenGen is the largest generator of electricity in Kenya.

Kenya Power and Lighting Company (KPLC) is 51% government-owned, operates both the transmission and distribution networks throughout Kenya. It buys power from all power generators based on negotiated power purchase agreements (PPAs) for onward transmission, distribution and supply to end-use customers throughout Kenya. It operates most off-grid diesel power plants on behalf of the REREC. KPLC is also the national system operator responsible for maintaining power system security and for arranging the dispatch process.

Kenya's Big Four Agenda refers to the four priorities established by the previous administration in December 2017 to spur Kenya's economic growth into a middle income country. These include: i) universal health coverage; ii) quality and affordable housing; iii) food security; and iv) industrialization by the year 2022.

Privately owned Independent Power Producers (IPPs) own and operate private power stations and sell electricity in bulk, or in renewable energy projects under the FiT policy, to the Kenya Power and Lighting Company.

Rural Electrification and Renewable Energy Corporation (REREC) was set up under the Energy Act in 2019 as a successor of the Rural Electrification Authority (REA) and is responsible for, among others, accelerating the pace of rural electrification, developing, promoting and managing the use of renewable energy (excluding geothermal energy) and offering clean development mechanisms, such a carbon credit trading.

A) Introduction

1. Background

The post-independent Kenyan state was heavily centralized despite several unsuccessful attempts at federalism. Patron-client networks promoted the advancement of respective President's regions and their local ethnic groups, fuelling strong regional disparities. This enforced tensions along ethnic lines (Kanyinga, 2016). It is against this background that post-election violence erupted following the closely-run 2007 presidential elections (Tödtling et al., 2018). The Constitution of Kenya (CoK, 2010) was established against this backdrop. It created a decentralized system of government wherein two of the three arms of government – namely the Legislature and the Executive – are devolved to the 47 political and administrative counties as provided for under Article 6 of the constitution. A devolved model was seen as a remedy for addressing regional disparities.

The primary objective of decentralization was to devolve power, resources, and representation down to the local level. This would promote equitable resource and power sharing by promoting citizen participation and local self-governance on the county level (Kanyiga, 2016). In addition, devolution was seen to be the key to unlocking Kenya's economic potential through the distribution of responsibilities. According to SID (2011), decentralization not only permitted counties to identify problems but also to make policies, plan, collect revenue, execute the budget, account, audit and monitor, and evaluate and ensure citizen participation in decision-making. In this devolved structure, the relationship between the national and county level is distinct and interdependent. According to the CoK (2010), at least 15% of nationally generated revenue must be distributed to the Counties.

The Fourth Schedule of the CoK (2010) contains the distribution of functions between the national government and the county governments. A number of sectors were devolved, including health and agriculture. Some of the functions have concurrent jurisdiction of both levels of government. The CoK (2010) established energy as a shared mandate between the national and county governments. In most countries, the energy sector is less devolved compared to other sectors, due to the notion of the grid as an expected monopoly (Havet et al., 2009). Kenya is one of the few countries in Sub-Saharan Africa that have devolved energy functions in the constitution and in the Energy Act. Subsequently, the Fifth Schedule of the Energy Act distinguishes between three types of functions:

Energy policy and planning: The national government has overall responsibility for the formulation of the national energy policy while the county governments shall prepare County Energy Plans. Both the national and county governments have responsibility for the provision of land and rights of way for energy infrastructure.

Energy regulation: Energy regulation is a joint responsibility between county and national governments. Most regulatory and licensing functions are attributed to the national level. The county governments are only responsible for the regulation and licensing of biomass and biogas facilities.

Operations and development: There seem to be some overlapping functions, particularly regarding energy data collection, energy infrastructure protection, electricity reticulation and rural electrification. Implementation of the rural electrification programme is the responsibility of the na-

tional government while the counties shall implement county electrification programmes. In addition, county governments are mandated with street lighting as well as energy efficiency and conservation.

While the CoK (2010) laid the foundation for devolution in the energy sector, it took six years for the Energy Act, which specified the roles of the national and county governments more concretely, to be established (Kimeu, 2019). The definition of competencies between the two levels of government seems not clearly delineated (The World Bank, 2017). Furthermore, it seems that the energy sector has received less attention in the devolution than other sectors. The reasons for this delay are not apparent in reviewed literature.

Electricity is prominent in Kenya's Vision 2030 – the blueprint for the country's long-term development. Vision 2030 aims at transforming Kenya into a newly industrializing, middle income country providing a high quality of life to all its citizens in a clean and secure environment (GoK, 2007). Low electricity access rates were identified as a key challenge in achieving Kenya Vision 2030. Although there has been improvement in electrification, there are many Kenyans who live under the grid but are not connected to it (Lee et al., 2014). This is evidenced by the very high consumption of biomass.

Considering the foregoing, this paper will examine emerging issues that are relevant to the devolution of energy in Kenya with a focus on electricity governance and more specifically rural electrification, using the Machakos county government as a case study. Since there is limited literature on this topic, the study will mainly be informed by interviews of key informants working within the relevant sector in Kenya. This study will contribute to the body of knowledge and literature on how proper electricity governance can contribute to enhancing electricity distribution.

2. Problem statement

The Energy Act describes electrification as a joint function of national and county governments. However, the Rural Electricity and Energy Corporation (REREC) and the Kenya Power and Lighting Company (KPLC), who are both national-level actors, are the main actors in achieving universal electricity access. The Members of Parliament (MPs), even if not mentioned in any of the relevant legislation and strategies, are an important national actor group, with strong connections to the respective counties. In addition, the private sector has emerged as an important actor for electrification in Kenya and have stronger connections to the national level than to the county level. International actors are also important stakeholders for electrification, not only through funding, but also through their influence on national policies and legislation.

As alluded to above, there are several stakeholders involved with a complicated web of vertical and horizontal interactions. According to one interviewee (03 KPLC), REREC and KPLC tend to work with the MPs to better understand local needs but tend to exclude county governments from this cooperation. This impedes their efforts in bringing decision-making closer to the people and promoting public participation and democratization of the sector, as stated in Article 176 of the Constitution. As a result, horizontal interactions still highly dominate electrification governance in Kenya. In addition, the power of MPs over funding through the National Government Constituency Development Funds (NG-CDFs), and the little control of their power, is perceived as a problem by both national and county government representatives. The NG-CDF has become a

fund that the MPs exploit to maximize their political return as opposed to addressing the priority needs of their constituencies (Ngigi et al., 2019).

Further, a majority of county governments seem to suffer from capacity related challenges. This is evidenced by the fact that several counties not only lack County Electrification Offices but also the County Energy Plans. According to the Energy Act, each county shall develop a County Energy Plan as the basis for the Integrated National Energy Plan (INEP). However, a lack of structures and manpower undermines effective coordination.

The County Integrated Development Plan (CIDP) is one of the major planning documents for counties in Kenya. It is a 5-year plan, setting midterm development priorities that inform the annual county budget process. The CIDP is majorly informed by the priorities of the county. In as much as electrification is mentioned as a Vision 2030 flagship project in Kenya, some counties have not included it in their CIDP either because they are not yet grid-connected, or they may be grid-connected but have other pressing needs such as health (which is also a devolved function). The Machakos county government has been selected for this study because it has not only established a county electrification office but also includes electrification in its CIDP.

3. Objectives of the study

3.1 Overall objective

The overall objective is to assess how devolution of energy is regulated and implemented with a focus on electricity governance and more specifically rural electrification, using the Machakos county government as a case study. In order to do this, the study will i) analyze the actors involved in electricity governance and how they are working together; ii) analyze the funding and coordination mechanisms for electricity governance between the national level actors and the county level actors; and iii) draw conclusions and make policy recommendations based on study findings.

3.2 Main research question

The main research question is '*what is the impact of devolution of energy on electricity governance and more specifically rural electrification in Kenya?*' The study will assess if the Machakos county government has established a County Energy Plan (CEP) and if so, to what extent rural electrification is addressed in the CEP and whether it is aligned to the national level energy policy with regards to rural electrification. The study will also examine funding arrangements for rural electrification in Kenya with a focus on the Machakos CIDP. The study will examine coordination mechanisms/platforms on rural electrification and assess how coordination between the national actors and county government actors takes place. Further, the study will assess how coordination influences the policy and strategy for rural electrification. Finally, the study will identify the key challenges experienced in the devolution of energy and make policy recommendations arising from the study findings.

4. Assumptions

The study has two main assumptions: i) that the devolved electricity governance has expedited the distribution of electricity in Machakos county; and ii) that there is a high level of understanding of the devolution of the electricity governance in Machakos county amongst all stakeholders.

5. Scope and limitations of the study

The study has focused broadly on the devolution of energy governance in Kenya and more specifically rural electrification with a specific focus on Machakos county government. In addition to literature review and document analysis, the study is informed by 13 Key Informant Interviews drawn from the national level, the county level, the private sector and Non-Governmental Organizations (NGOs). Due to the limited time and the complexity of getting respondents, the study focused more specifically on actors involved in electricity distribution and not all actors across the chain of energy governance. There was hesitation among some of the experts in accepting to provide feedback due to political dynamics but some overcame this since the study guaranteed anonymity. The study did not target international donors funding the energy sector since the focus was on the dynamic between the national and county government with regards to electricity governance. The Members of Parliament (MPs) were also not interviewed due to time limitations and the complexity of securing an interview with them. Further, there were no site visits nor interviews with the populace regarding their own assessment of the situation.

B) Literature review

1.1 Devolution

Kenya's path to devolution has been fraught with challenges. The pressure to form majimbo – a Swahili word for regions – was first experienced immediately after independence in the early 1960s, driven by numerically smaller communities organized around the political party KADU (Kenya African Democratic Union). They feared that larger groups would dominate them and their land (Ghai & McAuslan, 1970; Harbeson, 2012). The first post-independence government under President Jomo Kenyatta and KANU (Kenya National African Union) consolidated political power and dismantled institutions that promoted the interests of regional governments. The second attempt came during the regime of President Daniel Moi in the 1980s. To deflate the clamour to establish majimbo, Moi introduced the District Focus for Rural Development, which he argued gave citizens a chance to participate in development planning and implementation. As Barkan (1992) argued, Moi used this as an instrument to deconstruct the Kenyatta state and establish his own patron-client structure, led by a new group of political elites from his tribal subgroups to control the development space and benefit his own region. President Mwai Kibaki came to power with the promise to complete the constitutional review, previously curtailed by his predecessor. His first government (2003-2007) faced huge demand for devolution, and in August 2010, during his second term, a new constitution embracing devolution was promulgated.

Kenya's political economy has influenced implementation of devolution in several ways. First, the post-independence government retained a highly centralized state. Second, different regions

of Kenya are characterized by sharp inequalities. Third, the executive has been using state resources to create patron-client networks through which development resources trickle down to the local level. Fourth, the 'first-past-the post' electoral system is the basis for political competition and ethnicity is the fulcrum of major political and economic events. All these factors, as will be demonstrated in this paper, have been affecting the implementation of devolution in Kenya, not least in the energy sector.

It is estimated that worldwide, more than 770 million do not have access to electricity (Levin & Thomas, 2016), and a majority of these – nearly 600 million people, or 70% – are in Sub-Saharan Africa (IEA, 2013). Though there lacks consensus on what entails access to electricity, a publication by the International Energy Access (2020) defines energy access as "a household having reliable and affordable access to both clean cooking facilities and to electricity, which is enough to supply a basic bundle of energy services initially, and then an increasing level of electricity over time to reach the regional average".

Several studies including by Dinkelman (2011), Khandker et al. (2012), and Barron and Torero (2014) suggest that rural electrification drives improvements in employment, health, agricultural productivity, and education. Thus, policymakers increasingly view energy poverty with a sense of urgency. There have been high-level efforts to electrify Africa rapidly to achieve universal energy access. These include Sustainable Energy for All, a joint venture of the United Nations and the World Bank, and US President Obama's Power Africa initiative. The private sector has increasingly financed and commercialized off-grid solutions that can provide rural households with renewable power for basic stuff such as lighting or charging a mobile phone. Further, most of the countries in the global south have implemented devolved systems in their quest to have universal access to services like electricity. Devolution is seen as a vehicle for bringing services closer to people and stimulating social and economic development (Zalengera et al., 2020).

1.2 The energy sector in Kenya

The energy sector remains a critical enabler for achieving Kenya's social and economic objectives and global commitments such as the Nationally Determined Contribution (NDC) under the Paris Agreement and the Sustainable Development Goals (SDGs) including SDG 7 on sustainable energy for all. Kenya's Vision 2030 (a set of national developmental goals) seeks to achieve universal access to electricity by 2030. Energy is identified as an infrastructural enabler, which would enable the achievement of the three pillars of Vision 2030. The GoK commits to increasing access to electricity and support a cost-effective energy supply regime to support industrial take-off for economic growth.

Efforts to reform and restructure Kenya's electricity subsector commenced in the 1990s. The International Monetary Fund (IMF) and World Bank had introduced the 'privatization model' in developing countries as a condition for loans. The objective of the reform was to separate the policy function from regulatory and commercial functions. This would see the generating function separated from the transmission and distribution function. These efforts led to the enactment of the Electric Power Act of 1997 which in turn led to the unbundling of KPLC, which was a vertically integrated utility into a public sector generation company (KenGen) and a transmission and (IPPs) in the generation function. Importantly, all power generated is to date still sold to KPLC in bulk for transmission and distribution, making it a monopoly.

The GoK first established the Rural Electrification programme in 1973 to subsidize the cost of electricity supply in rural areas. It was established as the joint responsibility of Ministry of Energy and Petroleum and KPLC with the latter having regulated monopoly in transmission, distribution, and reticulation of electricity. However, rural electrification remained stagnant over the next few decades mainly because of the prohibitive cost of grid expansion coupled with a general perception that demand for energy in rural areas was too low to be financially viable.

The Energy Act 2019 repealed the Energy Act 2006. It was enacted in response to calls to, among others, consolidate the laws relating to energy, promote renewable energy, and regulate midstream and downstream petroleum and coal activities. This was expected to create an enabling environment for the GoK's Big 4 Agenda – a set of four priorities established in December 2017 to spur Kenya's economic growth into a middle-income country which include: i) universal health coverage; ii) quality and affordable housing; iii) food security; and iv) industrialization by the year 2022. The Energy Act 2019 established several new energy sector entities replacing those existing under the repealed Act. It established the Energy Petroleum Regulatory Authority in place of the Energy Regulatory Commission, the Rural Electrification and Renewable Energy Corporation as successor to the Rural Electrification Authority, the Energy and Petroleum Tribunal replacing the energy tribunal, and the Nuclear Power and Energy Agency taking over from the Kenya Nuclear Electricity Board. In addition, the Energy Act 2019 restated and expanded the mandate of the new energy sector entities to enable them and discharge their functions effectively. The Energy Act 2019 also introduced the Feed-in Tariff (FiT) system, a crucial policy tool aimed at catalyzing the generation of electricity through renewable energy sources.

In the early 2000s, there was a big push to electrify rural Kenya. REA came up with a strategy to electrify markets, public secondary schools, and health clinics. By November 2012, Kenyan newspapers were projecting that 100% of the country's 8'436 public secondary schools would soon be connected (Koima, 2023). During 2013, REA announced that 90% of the country's public facilities had been electrified. This suggests that most of the population has achieved access to the electricity grid. Despite this success, it is estimated that only approximately 18-26% of national households have access to electricity (Energy Act, 2019). This is despite devolution of energy and further restructuring of the energy sector. This paper will assess emerging issues relevant to the devolution of energy in Kenya with a focus on rural electrification using the Machakos county government as a case study to understand why this huge gap still exists.

1.3 The energy sector in Machakos county government.

The Department of Energy & Electrification of the Machakos county government has the vision to turn Machakos county into a 24-hour economy. Its mission is to light up Machakos through quality workmanship and maintaining strong community partnerships for conducive, secure, social, economic and political development through installation of floodlights in all markets, streetlights on all tarmac roads and electricity in the homes. Further, it is mandated to carry out street lighting, flood lighting (lighting of markets), rural electrification (installation of transformers and use of available energy resources to generate energy in off grid areas), promotion of the use of renewable and clean energy solutions and the development of policies and legislations in the energy sector.

Prior to devolution, Machakos county had 130 streetlights and 28 flood lights. Following devolution, the last two terms (2013-2017 and 2018-2022) under the leadership of Dr. Alfred Mutua –

former Governor of the Machakos county government – a lot was achieved. As indicated in the Machakos County website, 907 flood lights were installed in 508 markets, 2'747 streetlights covering over 109 kilometre and 7'200 households connected to electricity through rural electrification. In addition, the county has embraced renewable energy and so far has installed 1'057 integrated solar streetlights. A draft energy policy on clean and sustainable energy has been established. The county has initiated the process of developing the County Energy Plans (CEP) with a focus on: i) ensuring universal access to clean energy by residents to Machakos county; ii) promoting development of renewable energy sources – solar, wind, bio-energy and small hydroplants; iii) enhancing adoption of energy efficiency and conservation measures such as implementing energy audits, fostering use of technologies that require less energy to perform the same task; iv) providing effective policy and legal framework for clean waste management; and v) providing a framework for implementing and financing the County Clean Energy Programme. Lighting and rural electrification has resulted in: i) less accidents experienced on the Kyumbi-Machakos Road; ii) less muggings and theft of shops in markets installed with flood lights as opposed to those without; iii) more investments in markets connected to electricity; iv) increased trading hours; v) less spending in terms of financial volumes in homes that use electricity as opposed to those that use paraffin; and vi) improved performance in rural schools (Machakos County)

The key stakeholders working with Machakos county government on energy are: i) the Council of Governors (CoG); ii) the Ministry of Energy and Petroleum (REREC, KPLC, KETRACO, KenGen); iii) the World Bank Group through Machakos county government municipalities; iv) private sector associations such as the Kenya Association of Manufacturers (KAM); v) entrepreneurs; and vi) Civil Society Organizations (CSOs).

C) Research methodology

This paper has mainly relied on literature review of existing documents, studies and data on electricity governance in Kenya. This has been complemented by key informant interviews within the devolution/energy governance sector. The selection of key informants was conducted through stratified sampling methodology targeting key actors in the energy sector, a majority of whom cover the Machakos county government in their work (9 out of 13 interviewees). The interviews were conducted between 12 October 2023 and 10 November 2023. The selection of key informants was based on existing contacts and snowballing to get interviewees from the different strata. An intuitive, powerful and reliable software known as the *KoboToolbox* was deployed to collect and analyze data. The *KoboToolbox* was filled by 13 key informants. This was followed up with meetings/calls in cases where further probing of the data was needed. Thereafter data cleaning was done, followed by analysis to establish key findings.

The respondents were drawn from the following:

i) Kenya Power and Lighting Company (KPLC); a public liability company which transmits, distributes and retails electricity to customers throughout Kenya (national level actor).
ii) Rural Electrification and Renewable Energy Corporation (REREC); established with the aim to tackle Kenya's most pressing socio-economic need: subsidized electricity in rural areas (national level actor).

iii) County governments – mainly county government executives working for Machakos county government and few executives working for Nairobi county government.
iv) Mercy Corps; a Non-Governmental Organization which runs energy programmes.
v) An Independent Power Producer (IPP), an electricity contractor and design engineer (private sector).

The strata were as follows: (**One key informant had a dual role and therefore appears twice*).

Category	Actor	Position	#
1. National government	KPLC	- Senior management (1) - Middle level management (1) - Technical team (1)	3
	Energy Committee	- Energy Committee representative	1
	REREC	- Technical team	2
2. County government - Machakos - Nairobi	Machakos county executives	- Senior management (1) - Technical team (1)	2
	Nairobi county executives	- Senior management (1) - Technical team (1)	2
3. NGO	Mercy Corps	- Technical team	1
4. Private sector	Independent power producer	- CEO/managing director	1
	Energy reliant private corporation	- Design engineer	1
	Energy contractor	- Senior management	1

D) Findings

1. Energy governance and electrification in Machakos county government

As mentioned elsewhere, Machakos County is one of the few counties in Kenya that have established a County Energy Plan (CEP). This study, however, established that the CEP is in draft. One interviewee (02 Machakos) confirmed that the CEP is being developed in partnership with UNDP. Once it is developed, it will be integrated into the Integrated National Energy Planning (INEP). According to the same informant, public participation and stakeholder forums have been held in connection to the development of the CEP. The study further established that most counties are yet to establish the CEP due to lack of funding and capability challenges. The Machakos county government has been successful due to the partnership with UNDP and this underscores the role of international partners in supporting electrification efforts.

So far, the Machakos county government has implemented two County Integrated Development Plans (CIDPs) with a third one underway. According to another official (01 Machakos), the CIDP contains programmes and sub-programmes that allow funding and implementation of rural electrification. There are specific resources allocated in the CIDP towards the implementation of the CEP, under a programme called policy formulation which targets a policy per year. Further,

Machakos County has a vote line on rural electrification funded every year. According to one interviewee (02 Machakos), the CIDPs contain programmes that are aimed towards the promotion of renewable energy, rural electrification, street lighting, the installation of flood lights in markets and capacity building. Further, there are resources allocated to these programmes. The source of the funding is from the county government, national government, development partners and other non-state actors. Coordination with national government actors is limited to identification of priority projects for implementation by REREC through the matching fund (shilling for shilling implemented by REREC) and the *last mile* connectivity project.

1.1 Devolution key successes

The study established that devolution in Kenya as established by the CoK 2010 has seen several key successes. According to a leading actor in Kenya's politics (01 National Energy Committee representative) the key notable ones are: i) enhanced local governance by bringing the government closer to the people through creating county governments, which has increased citizen participation in decision making and improved the responsiveness of governance to local needs; ii) infrastructure development through prioritization and implementation of infrastructure projects that directly benefit their communities, such as roads, healthcare facilities and educational institutions; iii) job creation at the county level as local governments undertake various projects and initiatives; iv) promotion of diversity and inclusivity as various communities and special interest groups are given a platform to participate in governance and development processes; and v) devolution has established a system where county governments receive a share of the national revenue creating fiscal responsibility which allows them to have resources needed to implement development projects. Another interviewee (01 NGO) further asserts that devolution has opened up much of the country to national prominence, and entrenched some levels of representation, particularly for communities that once felt marginalized. Devolution has created opportunities at the local level, leading to socio-economic development within the county headquarters. Because the 2010 Constitution demands it, public participation is done for all projects, programmes, and actions. Devolved functions include, health, agriculture, transport, infrastructure, public works and utilities, trade and commerce, land and physical planning, tourism and wildlife management, cultural promotion and sports.

Kenya has been a leader in East Africa harnessing renewable energy sources. Devolution has allowed for localized planning and implementation of renewable energy products including geothermal, wind and solar power, for instance in counties such as Turkana and Marsabit where we have wind power projects. Devolution has facilitated targeted efforts in rural electrification. Devolution has allowed for increased community engagement in energy projects by involving local communities in decision making, thus ensuring energy projects align with the needs and preferences of the people they serve. Public private partnerships have played a critical role in financing and implementing energy projects fostering investment and innovation. The devolution of the energy sector has created employment especially in the renewable energy industry which has contributed to local and economic growth and empowerment.

It is also important to note that not all counties have the same capacity or resources to address their energy needs effectively, and while the energy sector has largely remained under the national government, county governments have been involved in promoting and facilitating energy related initiatives to contribute to improved access to energy such as: i) renewable energy projects (e.g. wind power and solar initiatives); ii) rural electrification projects which bring electricity to areas that were previously underserved; iii) community based energy projects where energy solutions

are tailored to specific community needs; and iv) some counties have implemented programmes to promote clean and efficient cooking solutions reducing reliance on traditional biomass fuels to improve indoor air quality and health outcomes.

1.2 Key challenges of devolution in the energy sector

While the successes of devolution exist, challenges and shortcomings on areas of improvement also exist. Some of these key failures and issues are: i) corruption and mismanagement of funds which undermines the benefit of devolution; ii) lack of skilled personnel and competency inhibits administrative capacity to plan and implement development projects effectively; iii) political influence undermines the benefits of devolution in the sense that focus is usually on short term political gains rather than long term development objectives; iv) inter county disputes over resource allocation hinder collaboration and regional development; v) counties that heavily rely on national government for financial support remain vulnerable to changes in national policies and financial allocations; and finally vi) inadequate monitoring and evaluation of the performance of county governments contribute to the persistence of inefficiencies, mismanagement and lack of accountability (Ngigi et al., 2019). One interviewee (01 NGO) further states that tribalism, clannism and nepotism have been devolved to the local level. Devolution has decentralized corruption and pilferage of county resources by public officials. It has led to entrenched marginalization, whereby certain communities do not feel they are represented by either the national and county governments. It has led to fiscal indiscipline, hiring of more workers than are needed, and ballooning of the wage bill through inflation of recurrent expenditure.

The interviews with the key informants revealed a myriad of challenges in the energy sector in Kenya. Key challenges noted included: a lack of political goodwill and/or political interference, high national peak demands and poor production, coupled with inadequate infrastructure for transmission, limited investment in grid development and expansion, competing national and local interests, capacity gaps, funding constraints, limited coordination around important policy issues, slow response time for faults due to poor road networks in some counties, old infrastructure leading to inefficiencies, vandalism, limited generation to meet the growing demand, which stands at 7% per annum. This paper analyses some of these challenges in the section below.

2. Coordination between national level and county level energy actors

As stated in its preamble, the purpose of the Energy Act 2019 is to consolidate laws and delineate the functions of the national and county governments relating to energy. According to one national-level actor (01 National Energy Committee representative) the Energy Act 2019 envisions the following coordination: i) Energy Sector Working Groups between national actors and county governments which bring together various relevant stakeholders; ii) Intergovernmental Relations Technical Committee between national and county governments; iii) Council of Governors for county governments to engage with national government; iv) Ministry of Energy and Petroleum, and County Departments of Energy; v) Joint Planning and Implementation Committees with relevant stakeholders; and vi) Public Participation Forums. Coordination is meant to facilitate alignment with local needs, informed decision making, resource mobilization and allocation, project planning and implementation, policy consistency and harmonization, public participation and acceptance and establishment of regulatory frameworks.

The study established that sub-optimal coordination is taking place between energy sector actors. According to a practitioner involved (01 KPLC), coordination is through the Ministry of Energy and Petroleum (MEP) and REREC, and this influences policy through planning and participation. However, according to another interviewee (02 REREC), the energy sector is both at the national level and county government under the agencies that fall within the Ministry of Energy and Petroleum. The agencies within the energy ministry at the national government level have clear cut mandates that include regulation, generation, transmission, distribution, geothermal exploration, nuclear research, operation and maintenance and customer connection. These functions are all under the national government energy agencies. Even amongst national level energy actors, there are gaps in coordination leading to duplication of some functions, particularly in generation and distribution of energy between the agencies. Coordination between national level actors and the county government energy ministries is limited to the identification of priority projects that require urgent implementation like health facilities and education centres and this is not optimal. One interviewee (02 private sector) avers that there are no formal coordination mechanisms or platforms for electricity distribution. The whole country's grid is controlled centrally by KPLC from the National Control Centre (NCC). The only thing that is devolved are the substations which are also controlled from the NCC. The NCC has to ensure that the power available goes to the areas with the highest demand. Therefore, the coordination from KPLC's regional offices and NCC definitely helps in allocation of electricity. One interviewee (01 National Energy Committee representative) further indicates that the success or failure of coordination mechanisms depend on the commitment, communication, and collaboration between national and county governments. When effectively implemented these mechanisms enable a more streamlined, responsive and inclusive approach to electricity development benefiting both urban and rural areas. A number of key informants argued that energy is not devolved but is decentralized and that coordination is therefore limited to administrative functions. Lack of a coherent understanding regarding devolution of the energy sector is a key contributor to the sub-optimal coordination.

2.1 Financing of energy projects

Counties are mandated in the Energy Act 2019 to create energy funds to be used in the energy sector. However, the study established that most of the funding in the energy sector is from the exchequer. In order to fast track electrification, and taking note of the fact that reticulation of power lines from the transformer to the homes is expensive, the Government of Kenya (previous administration) implemented what was referred to at the last mile project. Under this project, every transformer within 600 meters was subsidized to fifteen thousand Kenyan Shillings (approximately 115 USD). This had positive results due to affordability. However, under current arrangements, the financial subsidy from the national government for electricity distribution is ambiguous and depends on the influence of politicians and officials from the Ministry of Energy and Petroleum. According to sector actors, there seems to be a change of policy (unwritten) and not every transformer is subsidized. The counties that did not vote for the current government tend to be isolated. Without subsidy, the connection costs sixty thousand Kenyan shillings (approximately 460 USD). This was confirmed by one interviewee (02 KPLC) who mentioned that funding of projects is haphazard with some areas benefiting more than others depending on the discretion of the Ministry of Energy and Petroleum (MEP). An additional funding modality are the matching funds which is implemented through REREC. According to other interviewees (02 REREC and 01 Nairobi) matching funds are where county governments and constituencies identify priority projects within the county and constituency and REREC collaborates by financing

the projects on a 50-50 basis. The exchequer finances the 50% that is implemented through REREC. Lastly, donors may also fund projects of their choice and in some cases, these projects are not necessarily part of the priority projects within the CEP.

2.2 National Government Constituency Development Funds and the role of Members of Parliament

There are mixed views regarding the role of the National Government Constituency Development Funds (NG-CDF) and the MPs. According to a key actor (01 National Energy Committee representative) the NG-CDF is not directly involved in the electricity distribution projects as energy related matters fall under the devolved functions of county governments in Kenya, yet the NG-CDF is primarily designed to facilitate the implementation of projects at the constituency level. However, according to another interviewee (01 KPLC), the NG-CDF constitutes part of the electrification funding supporting rural electrification efforts. Further, one person (02 KPLC) indicates that the fund is often limited to pay for power connection to public facilities like dispensaries. It has a minimal impact since reticulation to homesteads is not covered. A number of respondents indicated that the NG-CDF has helped increase access to electricity in constituencies and that the MPs play a critical role in this. Private sector actors indicated that the NG-CDF should not have any role since all the funds are from the exchequer, it does not make sense to split it to so many entities (CDF, REREC, county government, etc.) and then ask them to contribute to the same project. It further emerged that the MPs have more legitimacy as elected representatives in the constituencies. This study did not delve into the constituency level and this is an area that would require further research.

2.3 Capacity of county governments to implement energy projects

According to one interviewee (01 NGO), counties have been mandated by the Constitution and Energy Act 2019 to develop County Energy Plans (CEP), which requires counties to plan for the development and exploitation of their inherent energy resources. The development of the county energy master plan has enabled energy agencies to increase the transmission and distribution of power. Counties are playing a critical role in the promotion of clean cooking initiatives. However, most county government staff lack the technical capacity for energy planning. Most counties lack resources in terms of human personnel and finances for developing a comprehensive CEP. This opinion is further reinforced by two other interviewees (02 REREC and 01 Nairobi) who mentioned that one of the key gaps in devolution has been human resource capacity to undertake the devolved functions. The lack of capacity could be due to recruitment that is done be rewarding cronies who assist those in power during election period. There has also been failure in absorption of funds by devolved units (Ngigi et al., 2019).

2.4 Politics and energy access

According to one interviewee (02 KPLC), the county governments can identify areas of public interest that require electricity, apply through KPLC for designs and quotations and make payment for KPLC to connect. The interest from the county governments in initiating electricity projects is, however, remote. Instead, MPs are more involved. He further asserts that the formulation of electrification policy revolves around national actors and that MPs at the centre of it. Funding of projects is arbitrary, with some areas gaining more than others, depending on the discretion of the Ministry of Energy and Petroleum. This hampers inclusiveness and public participation.

2.5 Horizontal versus vertical interactions and power relations

As indicated by one interviewee (02 REREC), the private sector is key in the implementation of energy projects, since most of the projects are outsourced through open tendering and this makes it easy for speedy implementation of projects. Energy sector players are key in regulation of the energy sector, keeping data of the country's electrification, improving and upgrading of energy infrastructure. Other stakeholders may include donors such World Bank, the Arab Bank for Economic Development in Africa (BADEA) and the French Development Bank (AFD) who are key in financing key capital intensive infrastructure projects through the treasury. County governments help in project identification and database keeping of the county electrification status.

3. Key policy recommendations

The study has established a number of key recommendations, but there are certain trends emanating from the different actors:

Private sector actors are in favor of the establishment of market systems that promote trade. For instance, one interviewee from the private sector (03 private sector) suggested the creation of a fund that can help many people to get connected on credit and have a payment plan, while another (01 private sector) suggested that counties should be provided with an energy fund which they can use for last mile connections and investing in their own energy generation, transmission and retailing capacity. He further suggests that counties should be allowed to set up their own energy utilities so that they have more buy-in in the sector. This will in turn allow them to invest in full value-chain capture, generation, transmission and retailing. It will also make power cheaper for their people and shelter them from external risks**.** Another representative from the same group (02 private sector) recommends that each county should be allowed to open their own utility companies so that those that are not endowed with good natural resources such as hydro, wind, solar and geothermal energy can utilize this resource as an additional revenue stream. Worth noting is that private sector actors also recommend centralization. They mentioned that authority to strategize, build, maintain and utilize funds should be given to one body for accountability and monitoring efficiency.

Respondents from KPLC and REREC generally made recommendations that are more geared towards infrastructural improvements. These include improving access to remote places by upgrading roads and expanding the rollout and maintenance units to cope with services in addition to improved funding to the sector. What stood out was that (03 KPLC) recommended avoiding a monopoly.

The interviewee from the National Energy Committee made a number of recommendations including: i) to develop clear and comprehensive guidelines outlining the roles, responsibilities and decision making powers of county governments in the energy sector; ii) to establish transparent and equitable mechanisms for resource allocation to county governments for energy projects, all the while exploring innovative financing models and funding sources for county level energy initiatives; iii) to introduce incentives for the development and adoption of renewable energy projects at county level; iv) to develop a regulatory supportive framework that empowers county governments to regulate and oversee energy projects within their jurisdictions; and v) to provide support for research and feasibility studies on viable renewable energy sources in specific regions. At the national level, he suggests that there is need to: i) align energy projects with the broader

county development goal to contribute to inclusive economic growth; ii) establish a robust monitoring and evaluation system to assess the impact of devolved energy projects and then use feedback to improve policies and practices ensuring accountability and transparency.

E) Conclusion

The findings reveal that Kenya's devolved electrification governance, although defined as joint responsibility between the national and county government, is still mainly planned and implemented by national-level actors. Further, national programmes, plans and strategies, and international treaties and funds continue to guide electrification in county governments struggling to establish and align their own programmes, plans and strategies with those at the national level. This is exemplified by the fact that Machakos County has only managed to establish a draft County Energy Plan (with assistance from UNDP), and this will be aligned with the INEP.

While devolution has gained a foothold in Kenya, decentralized structures are nascent and capacities not well aligned. The counties welcome devolved functions but are not able to effectively implement them. This is reflected in devolved electrification governance which exhibits top-down structures and approaches. Electrification governance is dominated by national level actors such as KPLC and REREC, with limited coordination or involvement of the county level. Thus, horizontal interactions dominate electrification governance. Funding seems to be a contributing factor. Rural electrification and the last mile are both funded by the national government through the exchequer and negatively affected by political patronage. The revelation that politicians yield much sway on the last mile and how it is allocated, and that the contribution of the counties to rural electrification is limited to identification of projects and subject to the shilling-to-shilling matching fund modality means that the challenges in electrification governance are enormous. A better involvement of the county governments is also likely to lead to improved accountability of national level actors and enhanced participation of local communities and thus reduce political patronage and corruption.

The private sector has emerged as a key actor in the implementation of energy projects. Most of the projects are outsourced through open tendering where private actors are free to compete. Energy sector players are key in regulation of the energy sector, keeping data of the country's electrification, and improving and upgrading the energy infrastructure. The place of private actors in devolved electricity governance needs to be better clarified. In addition, donors such as the World Bank, the Arab Bank for Economic Development in Africa and the French Development Bank, have played a crucial role in financing key capital intensive infrastructure projects through the treasury. They have a free hand in financing any project of their choice. Their agenda and role need to be well aligned with other efforts of the government.

Kenya's electricity supply industry is based on a single buyer model, with all generators selling power in bulk to the Kenya Power and Lighting Company (KPLC). Efforts at unbundling have been superficial at best, meaning that the KPLC continues to be a monopoly. Further research is needed to establish how unbundling arrangements can be done more efficiently.

Interestingly, although most of the key informants agreed that devolution enhances opportunities for electrification, the role of county governments is limited to project identification and keeping the database of electrification. It is therefore clear that there is lack of clarity on how the shared devolved mandate should be implemented. Indeed, due to this lack of clarity, national level actors

and the private sector were more tending towards centralization while county level actors were in support of devolution. It is crystal clear that the functions between the two levels of government need to be better streamlined.

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