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Enhancing Community Energy Projects (CEPs) in Kenya: policy lessons from the United Kingdom (UK)

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Abstract

This paper examines community energy projects (CEPs) in a developed (UK) and an emerging (Kenya) economy, focusing on renewable energy (RE) generation to address climate change and achieve universal energy access by 2030 (UN SDG Goal 7). While CEPs thrive in the UK, they are scarce in Kenya. Through comparative analysis examining CEPs historical trajectories, policy landscapes, and impacts on communities, the study aims to distil lessons that could inform Kenya's CEPs development. Success in the UK suggests Kenya can replicate and adapt some CEPs models. By addressing existing challenges and adopting strategic policies and approaches, Kenya can unlock the full potential and impact of CEPs, contributing to sustainable energy transitions and achieving national development goals. Key lessons and recommendations include incentives like grant programs, feed-in-tariffs tariffs tailored for CEPs, adopting Smart Export Guarantee, implementing grid connection agreements, fostering collaborative task forces with community involvement, and centres for data and knowledge exchange.

Keywords: Community energy projects (CEPs), Comparative analysis, Policy lessons, UK renewable energy, Kenya renewable energy

Introduction

Community energy is defined as "delivery of community-led renewable energies, energy demand reduction and supply projects, *wholly owned or through a partnership* with commercial or public sector partners" (Bauwens *et al.*, 2022; DECC, 2014). While several distinct strands of community energy approaches exist (Brummer, 2018; Dall-Orsoletta *et al.*, 2022; Norbu *et al.*, 2021), the definition of a community energy project (CEP) is flexible, with diverse groups applying the term to distinct types of schemes. For the purposes of this paper, a CEP is installation of one or more RE technologies in or close to a rural community, with input from members of that community or individually. The project must benefit the community, either directly through supply of energy to multiple properties or a community facility, or indirectly e.g., through sale of energy generated to the grid. Community members' input may be in various forms i.e., project initiation, administration, implementation, financial support, or decision-making.

CEPs have evolved across technologies, ownership structures, and engagement approaches (Bauwens *et al.*, 2022). They now incorporate various renewable energies (REs), adopt cooperative ownership, employ innovative financing, and emphasize social, economic, and environmental sustainability purposes (Nolden *et al.*, 2020). Literature from various parts of the world, straddling different areas of application (Herzog *et al.*, 2001), observe various benefits of CEPs while highlighting how CEPs pose several opportunities for a cheap and sustainable energy transition process. CEPs can also enhance community empowerment by facilitating community engagement in the development and ownership of energy projects, fostering a sense of responsibility and active participation in decisions related to energy production and consumption (Coy *et al.*, 2022), supporting the achievement of universal energy access by 2030 (UN SDG Goal 7) (UN, 2015).

However, CEPs are disproportionately found in the developed countries, following policies that promote them as part of efforts to fulfil their Net Zero targets (Leonhardt *et al.*, 2022). In contrast, CEPs are relatively scarce in the developing countries, where cooperating and pooling of community resources could be a viable and beneficial option, towards energy transition (Coy *et al.*, 2022; Klein *et al.*, 2016). Thus, CEPs are a niche that can be fraught and varied in approach, with various contexts having own drivers and enablers, and diverse barriers to adoption and implementation, to which appropriate solutions must be found. For Nolden *et al.* (2020), financial constraints from limited access to capital, high upfront costs, and uncertainties around return on investment, may hinder project development. For Brummer (2018), limitations in connecting CEPs to

existing electrical grids can be a hurdle, via e.g. grid capacity constraints, interconnection costs, and regulatory approval processes. Some (Mirzania *et al.*, 2019; Nolden *et al.*, 2020) point to a lack of ambition and unhelpful changes in government policies, which create uncertain policy environments for CEPs. They also highlight lack of awareness or misconceptions about the benefits and feasibility of CEPs, as a hinderance.

The literature is united about both the need and crucial role for clear, consistent and supportive policies to promote and enable long-term planning for CEPs (Brummer, 2018). As some jurisdictions have managed to adapt CEPs, while others have not, it bears asking whether lessons from the successful jurisdictions could enhance CEPs adoption in the less successful areas, especially where CEPs are potentially viable and beneficial (Norbu et al., 2021). This dearth of CEPs in developing countries has not been covered in the literature, from a policy lessons learning perspective, exploring the extent to which a country can borrow lessons from a more successful one where CEPs have been adopted.

In this paper, we look at an early adopter, e.g. the UK, juxtaposed with Kenya, where CEPs are relatively scarce, and compare their policies with the aim of distilling lessons that can inform policy approaches for CEPs in Kenya. This is within the broader field of policy transfer or lessons learning (McCann and Ward, 2012; Park *et al.*, 2014), where policies from one place can be considered and adopted in another (Brummer, 2018). The paper is underpinned by two well-studied interrelated theories. First, policy learning, involving accumulation of data about problems and solutions through social interactions. This examines how learning and policy change occur from different theoretical perspectives to substantiate, legitimize, or transform beliefs (Bennett *et al.*, 1992; Dunlop, 2020; Hall, 1993). Learning serves as a lens to explore questions about policy diffusion and transfer (Benson *et al.*, 2011), policy convergence (Plümper *et al.*, 2009), and evidence-based policy (Cairney, 2015). It is considered a fundamental component of the policy process (Béland *et al.*, 2019; Heikkila *et al.*, 2013). Secondly, policy transfer, referring to the process where information or policy from one political system is utilized by another (Dolowitz *et al.*, 2000; Peck *et al.*, 2015)

Following the introduction providing a brief overview of the evolution, benefits and challenges of CEPs, the methodology is presented, followed by the results chapter, which includes policy recommendations for Kenya. In the conclusion, we highlight key policy implications and propose areas for further research to support the adoption of further policies for CEPs in Kenya.

Methodological approach

This study conducted a comparative case analysis between two contrasting policy contexts: the UK as an early adopter and Kenya as a laggard in adopting CEPs. While there is no methodology peculiar to comparative research, comparative analysis in the social sciences is aimed at making comparisons across different countries or cultures (Clasen, 2013), entailing comparing two or more things with a view to discovering something about one or all the things being compared e.g. their similarities and differences. We adopted Bartlett *et al.* (2017) comparative case study approach that attends simultaneously to two logics of comparison. Firstly, the more common 'compare and contrast', often traversing across macro, meso, and micro dimensions of case-based research, e.g., 'tracing across' sites or scales, from the national to the local cases of CEPs. Two, ensuring that the objects of analyses are compared based on a common theoretical framework drawing on equivalent conceptualizations and methods, with carefully defined boundaries of their cases.

According to Esser *et al.* (2012), comparative analysis serves several closely interlinked and essential functions that are highly relevant to our research aim. It enhances the understanding of one's own society by contrasting its familiar structures and routines with those of other systems. It also heightens awareness of other systems, cultures, and ways of thinking and acting, enabling critical comparison with one's own. Additionally, comparative analysis allows for the testing of theories across diverse settings, contributing to the development of universally applicable theories. It helps prevent over-generalization, which is often based on scholars' personal experiences, and provides alternative options and solutions to problems. Comparison is the defining component of our research design, focusing on the similarities and differences in policies related to CEPs across the two countries. Different contextual conditions (i.e., influencing factors) will be used to explain varying outcomes concerning CEPs, while similar conditions will be used to explain parallel outcomes. Quoting Mancini *et al.* (2012), "theorizing the role of context is precisely what comparative analysis is about."

Three steps elaborated in the comparative analysis literature (Bartlett *et al.*, 2017; Clasen, 2013) were followed. First, *selecting the cases* for comparison, ensuring that any revealed similarities or differences is not merely an artifact of the choice of countries, but a consequence of the policy environment in those countries (Hantrais, 1999). The rationale for our case selection is linked to a conceptual framework that justifies the idea that observed energy transitions are an outcome of the prevailing policy environment e.g., incentives, targets, institutions and budgets (Becker *et al.*, 2014). Our cases for comparison were selected based on the following

criteria: availability of country data showing the levels of CEPs adoption and performance, and documents on policy, regulations, CEPs reports, in English language.

Second, we provided *contextual descriptions* in each case study, of CEPs and relevant policies, to enhance our understanding about factors that may help recognise *functional equivalents,* which are important for explaining similarities and differences that will be observed in our data. For example, what are the policy or contextual equivalents in both countries, as only objects that meet the same function (or role) may be meaningfully compared with each other. Third, we *compared* the existing typologies and elements of policies in each case, as a yardstick to interpret the policies as representative (typical of a category) or a critical case (if it works here, it will work everywhere), following Hallin *et al.* (2004). Any policy deemed to have delivered widespread adoption of CEPs shall be classified as 'effective' and labelled 'A'. Any policy that delivered some but not a significant number of CEPs shall be classified as 'moderately effective' and labelled 'B'. Any policy that will not have delivered any CEPs, shall be classified as 'ineffective' and labelled 'C'. Such judgement calls by the authors, based on reports of performance, helped distinguish the role of the policies and accomplish the important step from "description" to "explanation" according to (Hameleers *et al.*, 2020) of the observed CEPs and associated policies. However, we do not go into reasons for policy success or failure (Daddow, 2019), which was outside the scope of the paper. We also compare the policies in terms of their characterisations, whether it was a supply side (SS) or demand side (DS) type of policy (William, 2009). The methodological approach is summarised as follows:

- An online search for CEPs policies and performance reports, for the UK and Kenya, on Google search engine, was undertaken.
- A review of available policy documents and energy mix reports, noting the policy landscape and levels of CEPs adoption and contribution, dissecting the regulatory frameworks, government incentives, funding mechanisms and overarching support mechanisms that likely influenced the adoption of CEPs, was undertaken.
- Critical analyses and comparison of the policies to identify similarities, parallels and divergences was undertaken to discern causal elements that could explain the adoption and performance of CEPs. A verdict score between grades A and C helped describe policy effectiveness, and a distinction between supply side and demand side helped describe the different policy types.

- A reflection was done, drawing on both successful and non-successful policy models and approaches implemented in the UK, to provide policy recommendations for Kenya.

Results

Case study 1: Overview of CEPs in the UK.

First established in 1997 CEPs in the UK have evolved over the past two decades (Younity, 2022). In the early 2000s, projects focusing on RE sources emerged and in the mid-2000s, the formation of cooperative models and social enterprises laid the groundwork for more CEPs (Nolden *et al.*, 2020). Data on the state of community energy in the UK (CES *et al*., 2022) show an upward trend, and despite the difficulties posed by the COVID-19 pandemic and the withdrawal of Feed-in-Tariffs (FiT), CEPs have generally increased, though at different rates.

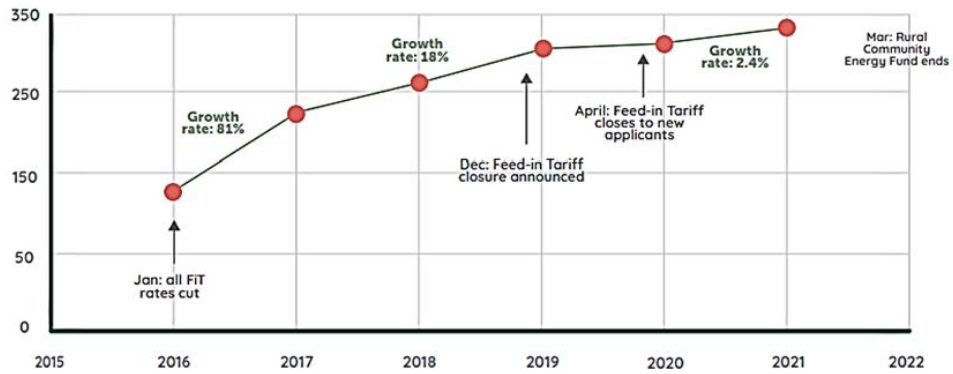

Figure 1: Growth of community-owned electricity in England, Scotland, and Wales (Source: from CES *et al*., 2022)

A key organization relevant to CEPs in the UK is Community Energy England (CEE), founded in 2014, Community Energy Scotland (CES) founded in 2008, and Community Energy Wales (CEW) established in 2012, by practitioners within the community energy sector, to act as the voice of the sector and help put people at the heart of the energy system. For instance, with over 300 community energy organisations in 2022, CEE's vision is "A thriving community energy sector integrated into and truly powering a fair, zero-carbon energy system". Their mission is "To create the conditions within which community energy is able to thrive and scale". CEE launched a national public-facing, downloadable and user-friendly map containing all CEPs initiated under the UK's Rural Community Energy Fund (RCEF), now replaced with the Community Energy Fund. CEE, CES and CEW produce several research and review reports, e.g. annual State of the Sector

Reports, providing an overview of how the community energy sector has developed and performed.

The State of the Sector Report 2022 shows that in 2019, CEPs generated equivalent 264.9MW, accounting for less than 1% of total renewable capacity in England and over 65,000 tCO2e savings. As of 2021, CEPs in the UK demonstrated substantial success, with highlights including 217,489 people engaged in the sector, 495 community energy organisations, compared to 477 in 2020 and 275 in 2019, and 271 participating in electricity generation. The cumulative installed capacity for 2021 reached an impressive 331 megawatts (Figure 2), with 645 full-time employees created, £3m saved on energy bills, and 143,000 tCO2e saved. Nevertheless, this progress is slow and will need to increase considerably to help the UK reach Net Zero by 2050 (Brown, 2022). While in 2014, the UK Government anticipated 1m homes to be powered by CEPs by 2020, in 2018, there were only 67,000 homes benefiting from such schemes (Green Alliance, 2019). 31% less generation capacity was installed via CEPs in 2017 than in 2016, and at least 66 projects are known to have failed or stalled in 2017.

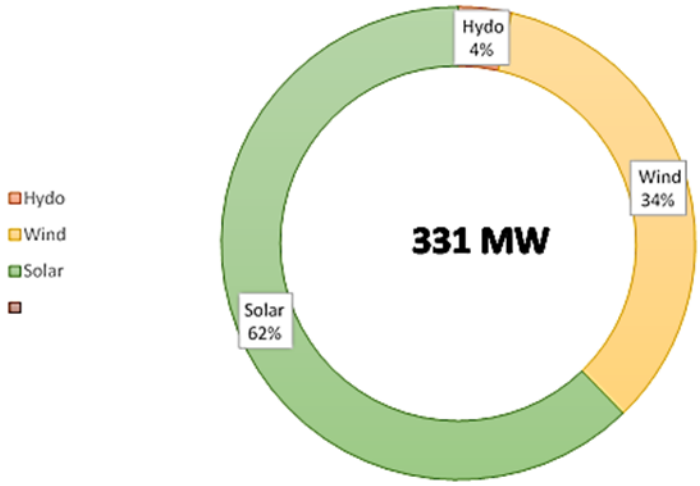

Figure 2: Community-led RE installed capacity in 2021 by energy mix, showing that most of new CEPs was solar (138.3 MW) while wind (27.4 MW) and hydro (2.2 MW) trailed behind (CES *et al*., 2022)

In terms of heat generation, until March 2021, while subsidies were still available under the Renewable Heat Incentive (RHI), very few were installed. Three new heat installations were reported in 2021 with a capacity of 138 kW and two of them secured RHI support. Understandably, communities can find the high installation costs of networks and transmission systems, challenging (Brummer, 2018). Another actor potentially relevant to creating a conducive environment for CEPs, is the Energy Saving Trust, based in all the UK nations of England, Wales,

Scotland, Northern Ireland. It provides technical advice on setting up groups, feasibility studies, financing projects, and reducing carbon emissions etc. In Scotland, to help achieve its target, Energy Saving Trust is running the Scottish Government's Community and Renewable Energy Scheme (CARES) (Scottish Government, 2024), giving guidance to communities interested in CEPs.

Although there are almost 5000 active CEPs across the UK (CES *et al*., 2022) and about 500 generating electricity, some (Brown, 2022) argue that a lack of coherent Government support or several changes in strategy (Green Alliance, 2019), and/or poor policy decisions have stopped the sector from flourishing in recent years. The policy environment has impacted the viability of CEPs, yet the opportunities of CEPs are still as valid as ever. For Farrell (2019), frequent Government strategy changes have left CEPs struggling to put forward effective business cases. While CEPs were heralded in 2014 as the next big thing in local energy provision, visible support from the Government has mostly disappeared (CES *et al*., 2024), and the last update to the Community Energy Strategy was in 2015. For Lee (2019), a Community Energy Strategy must be created to invest and re-mobilise the community energy sector, putting community energy at the heart of the roll-out of Smart Local Energy Systems and Local Area Energy Planning. According to CES *et al*. (2022), several reoccurring themes explain this: inadequate time and capacity; lack of early-stage funding; inadequate expert support and guidance for new business models; unattractive grid connection costs; planning complexity, and unattractive finances. However, this may change with the new labour government installed in July 2024.

Policy Framework and Fiscal Regime

Our search identified at least six policies which can be said to have directly or indirectly enabled CEPs in the UK, listed chronologically, to show trend in the policy spectrum. One, introduction of Feed-in Tariffs (FiT) in 2010 was a most impactful policy decision, financially incentivising CEPs by offering payments for the electricity they generated and exported to the grid. Various technology types qualified: solar PV, wind, micro combined heat and power (CHP), hydro, anaerobic digestion, for installations of a capacity up to 5 megawatts, or 2 kilowatts for Micro CHP. Payable for the installation's eligibility period (typically 20 years) and adjusted annually by the Retail Price Index (RPI), FiT led to substantial growth in CEPs despite rates cut in 2016. In 2019, the FIT scheme was terminated although the policy's legacy continues to support CEPs (Ofgem, 2023a). Overall, FiT policy was very effective and perhaps was prematurely terminated, before enough CEPs to meet the UK's Net Zero targets were adopted.

Two, since 2014, although targeting large companies, the Contract for Difference (CfD) mechanism saw some local communities adopt CEPs (Nolden *et al.*, 2020). The CfD is a contractual mechanism designed to incentivize investments in RE projects: i.e. a long-term contract between an electricity generator and the Low Carbon Contracts Company (LCCC), allowing the generator to stabilize its revenues at a pre-agreed level for the duration of the contract (Department for Business, Energy & Industry, 2019). Three, the Community Energy Strategy, in 2014, aimed at inaugurating CEPs through financial incentives, grants, and streamlined regulations (DECC, 2014). However, this has not been very successful based on the proportion of CEPs in existence. Four, the Rural Energy Community Fund (RECF), now the Energy Community Fund, was a national scheme launched in 2019 by the Department of Business, Energy & Industrial Strategy. It invested £10 million to support over 200 new CEPs, delivered via five regional Net Zero Hubs (CES *et al*., 2022).

Five, in January 2020, the FIT scheme was replaced by the Smart Export Guarantee (SEG) scheme. SEG supported CEPs by requiring electricity suppliers with over 150,000 customers to have export tariffs available for customers and to pay for surplus electricity exported to the grid. Unlike the previous FiT, SEG allows community projects to negotiate rates directly with suppliers (Ofgem, 2023b), although it has been criticised for lacking a framework to help reward community groups providing economic, environmental and societal benefits, and failing to incentivise community energy at all (Mirzania *et al*., 2019). Six, CEPs got a vital grid connection agreement with the Distribution Network Operator (DNO), covering key areas of application, assessment, and negotiation of technical requirements, charges, timelines, and compliance (Cornwall Energy, 2013). A DNO is a company licensed to distribute electricity in the UK. These companies own and operate the system of cables and towers that bring electricity to UK homes and businesses.

Case Study 2: overview of CEPs in Kenya

Kenya has a backdrop of encouraging and ambitious policy commitments for RE. Its national development plan Kenya Vision 2030 sets out to be a regional leader in sustainable industrialisation, including a transition to 100% clean energy by 2030 (GoK, 2023). While Kenya has its share of challenges in the energy transition (Kazimierczuk, 2019), data from the Kenya National Bureau of Statistics (KNBS, 2022) indicates a diverse composition of the country's total installed capacity, of which none was accounted from any CEPs (Figure 3).

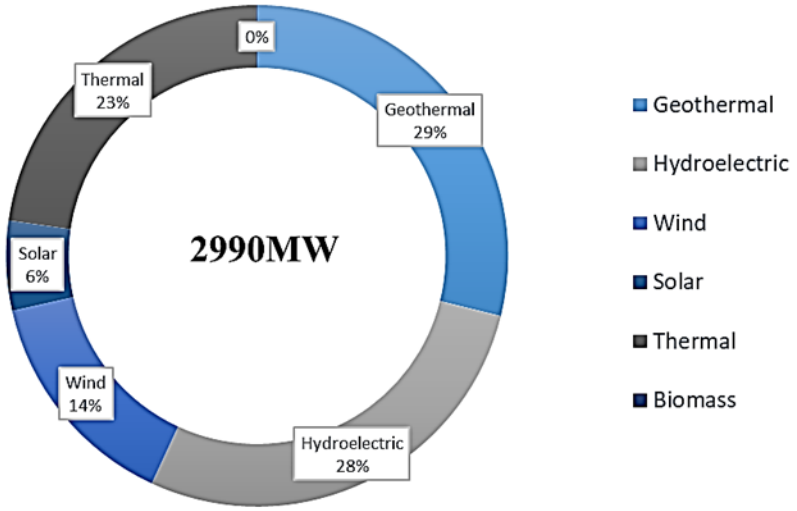

Figure 3: In 2021 approximately 1/3 of the installed electricity capacity (data source: KNBS, 2022) was under the ownership and operation of Independent Power Producers (IPP), e.g., privately owned Lake Turkana Wind Power Project with a capacity of 310 MW, which injects power into the national grid

To fully understand Kenya's policy context for the energy mix planning and decision-making, one must note that in 2013 Kenya established a devolved system of government, of 47 counties, which decentralized significant powers and resources with county governments developing strategies and policy frameworks to address their energy needs in a specific and more concentrated manner (Ngigi *et al.*, 2019; Volkert *et al.*, 2022). With 23.5% of Kenyans still having no access to electricity, let alone sustainable energy solutions (EPRA, 2022), several counties have developed detailed energy plans integrating RE into their County Integrated Development Plans (CIDPs). However, these energy development plans need to be strengthened by incorporating capacity building and participatory planning strategies to better address all the energy issues, and strongly promote the adoption of RE technologies within the local communities (Janho, 2020).

Although no CEPs are currently documented in Kenya, the government, in partnership with the Kenya Off-Grid Solar Access Project (KOSAP) (GoK, 2023), plans to combat rural energy access gap by building 137 solar mini-grids across 12 of the 14 counties not connected to the main grid. The project will electrify 567 public facilities, including secondary schools, health facilities, administrative offices, and power water pumps for 380 boreholes. The project will give access to electricity to approximately 277,000 households, or 1.5 million people (KOSAP, 2023). Thus, the extent to which this can integrate CEPs requires exploration. Another potential for CEPs can be found in the variety of innovative business ventures which have

emerged within Kenya's dynamic energy market ecosystem. A notable initiative is M-KOPA, which helps low-income communities to gradually increase their ownership of installed RE, through flexible micro-payments, enabled by smartphone technology (M-Kopa, 2024). At the end of 2021, M-KOPA had unlocked $600 million in credit for its customers and installed one million Solar Home Systems that prevented around two million tonnes of CO2e from being emitted (M-KOPA, 2021). A Bloomberg New Energy Finance report from 2019 ranked Kenya as fifth globally in terms of investment opportunities in clean energy (Okoth, 2019), boding well for CEPs.

In terms of institutional actors, the NGO Power Africa, has supported capacity-building to guide energy-sector stakeholders in developing policies and legislation. As a U.S. government-led partnership, Power Africa aims at harnessing the collective resources of public and private sectors to double access to electricity in sub-Saharan Africa, with a goal to add at least 30,000 megawatts (MW) of cleaner and more reliable electricity generation capacity and 60 million connections by 2030 (USAID, 2024). It is advocating for communities at the center of energy infrastructure development, supporting energy companies and developers in Kenya to proactively assess community needs, develop relationships based on transparency and trust, and reshaping how energy infrastructure impacts their customers.

Kenya can be at the forefront of meaningful community engagement in the energy sector, with a vibrant civil society, and clean energy potential of: 10,000 MW of geothermal, 15,000 MW of solar, 6000 MW of hydro and 4600 MW of wind (GoK, 2021a; R.T.A, 2022) providing significant scope for CEPs. Kenya is currently the eighth largest geothermal energy producer in the world, while its solar potential of 15,000 MW is the same generation target President Biden has set for the USA for wind capacity by 2035 (Zemanek, 2022). Some of Kenya's targets, which could drive CEPs, aims to generate 2,036 MW of wind power, i.e. 9% of its current capacity, by 2030 (Kazimierczuk, 2019). According to the Energy and Petroleum Regulatory Authority (EPRA), 73% of Kenya experiences wind speeds of 6 m/s or higher at a hundred metres above ground level (EPRA, 2013), making it an optimal place to bolster wind generation. With such potential, which policies can deliver and sustain CEPs?

Policy Framework and Fiscal Regime

In Kenya, several policies which have enabled RE and could potentially contribute to CEP adoption, are worth mentioning. One, in 2008, Kenya launched FiT on electricity generated from wind, biomass, and small hydropower (GoK, 2010). In 2010, this was extended to include geothermal,

biogas, and solar energy; updated in 2021, to cover RE plants under 20 MW in biomass, biogas, and hydro, allowing electricity producers to sell power to the off-taker at a predetermined tariff for a set period (GoK, 2010). However, a study by (Ndiritu *et al.*, 2020) found FiT to not have been effective in Kenya in terms of CEPs, as none exists. Two, the Renewable Energy Auctions Policy (REAP) of 2021 enables competitive procurement aligned with the Least Cost Power Development Plan and Integrated National Energy Plan (INEP). REAP (GoK, 2021b) outlines the approach to RE procurement based on competitive auctions, provides a transition scheme from FIT, as no RE projects larger that 20MW will be eligible under FIT policy. Instead, they shall be transitioned to the REAP framework. Geothermal projects will be procured under the policy on Licensing of Geothermal Greenfields.

Three, in 2018, USAID released a *Guide to Community Engagement for Power Projects* (USAID, 2018), as a reference tool in Kenya, setting standards for effective, comprehensive, and transparent community engagement by infrastructure project developers. The guide is based on global best practices, for the Kenyan context, as well as knowledge and information gathered from local stakeholders. Four, a revised *Resettlement Policy Framework was released in 2021 (KETRACO, 2021)* by the Kenya Electricity Transmission Company (KETRACO), integrating international statutes and policies and serving as a policy guide for the growing number of power transmission projects in East Africa. It outlines action plans for communities affected by land acquisition for transmission infrastructure and emphasizes fair and prompt compensation for resettlement. The Kenya Electricity Generating Company (KenGen) has announced intention to develop a mechanism to handle community grievances about energy development (Rotich, 2019), to secure goodwill from communities and ensure speedy implementation of energy infrastructure projects. This can be a useful tool in facilitating CEPs.

Five, **in terms of environmental awareness,** the *Mainstreaming Wildlife Incident Management into Utilities in East Africa* guide (USAID *et al.*, 2022), outlines potential wildlife interactions with energy infrastructure, relevant outcomes and costs, and mitigation measures for smarter utility planning vis-à-vis environmental concerns. Six, the 2019 Energy Act is a comprehensive regulatory framework governing electricity generation, establishing licensing requirements, setting Renewable Portfolio Standards and incentivizing RE through FiT and Power Purchase Agreements. It provides for community engagement, land access, revenue allocation, and resettlement compensation, thus potentially encouraging CEPs by simplifying procedures, enhancing grid access, and ensuring compliance with regulatory standards (Janho, 2020). Seven, The Draft Energy (Net Metering)

Regulations, released in 2022, allows electricity prosumers to sell surplus energy to the national grid and earn credits (EPRA, 2022). Eight, in 2021, the Finance Act 2021 reinstated VAT exemptions on RE products ranging from small-scale solar modules and mini grids to larger wind power equipment, as well as clean cooking technologies (Njuguna, 2021). However, overall, as no CEPs have been adopted in Kenya, the policies therefore can be assigned the verdict: C.

Scope for Lessons (recommendations)

Having examined six UK and eight Kenyan policies relevant to CEPs, some similarities, parallels and differences, can be identified. But first, it is important to compare the policies in terms of effect and typology (Table 1).

Table 1. A summary of the impact the policies and regulations have had on CEPs, with a grade assessing performance, and comments on whether it was a supply side (SS) or demand side (DS) type of policy

Policy / regulation (UK in italics and Kenya in bold font)	Verdict and comments
Feed-in Tariffs (FiT)	B; DS
Smart export guarantee (SEG) scheme	C; DS
Contract for Difference (CfD)	B; SS
Community Energy Strategy	B: DS & SS
Rural Energy Community Fund (RCEF)	B; DS & SS
Distribution Network Operator (DNO)	B; SS
FiT	**C; DS**
Renewable Energy Auctions Policy (REAP)	**C; SS**
Guide to Community Engagement for Power Projects	**C; SS**
Resettlement Policy Framework	**C; SS**
Mainstreaming Wildlife Incident Management into Utilities in East Africa	**C; SS**
2019 Energy Act	**C; DS & SS**
Draft Energy (Net Metering) Regulations	**C; SS**
Finance Act 2021	**C; SS**

From Table 1, it is noted that both countries have similar policy aims of reductions in carbon and transition to Net Zero, encompassing similar functional mechanisms being deployed, i.e. a mix of both supply type and demand type policies. Supply side policies enhance an economy's ability to produce goods and services, e.g. by stimulating investment, innovation, efficiency in industries and promoting healthy competition, via free-market measures, privatisation, deregulation, lower income tax rates, and interventionist measures to overcome market failure. Demand-side policies, e.g. the FiT scheme, create high demand for products and services, via controlling the availability of credit (borrowing) and its price (interest rates), and changes in government spending and taxation. Both countries generally

have similar timelines for similar type policies e.g. FIT introduced in the UK in 2010 and in Kenya in 2008.

However, while Kenya has a similar mix of supply and demand side policy-types to the UK, the content and details reveal key differences. In terms of outcomes, the FiT scheme in the UK delivered CEPs while the Kenyan one ended up supporting IPPs and no CEPs. For implementation, FiT in the UK was terminated and rolled over into an auction scheme, before CEPs reached maturity and were able to compete on their own terms (without subsidies) with other sources of energy. In Kenya, FiT has not been terminated, but instead expanded to cover more technologies, although no explicit targeting or quota for CEPs has been set. The Kenyan policy, like the UK, has set a threshold of 20MW to qualify for FiT. That Kenya launched its FiT scheme two years ahead of the UK implies that the absence of CEPs in Kenya must have a specific explanation. Perhaps, any combination of 1) CEPs are not yet a community or government priority; 2) CEPs are not yet acknowledged as viable in Kenya; 3) no provision e.g. via ring-fencing, quotas or targets for CEPs; 4) unawareness about CEPs; 5) inadequate capacity in technical, project management, and investment spheres, and; 6) fear of financial risks, real or perceived. These are tentative explanations which should be examined more empirically.

From Table 1, five out of the six (83%) listed UK policies can be classified as ‘implementation oriented’, compared to only two out of nine (22%) policies in Kenya. Most policies in Kenya are guidance documents, i.e. about setting the ‘environment or framework’ and less of direct ‘implementation and delivery’ of targets. This also shows the levels of advancement in the policy agendas between the two countries, towards CEPs. Here, we see policies and institutions in the UK explicitly addressing CEPs, unlike in Kenya. Furthermore, at least 50% of UK policies we found have a demand side element, compared to Kenya’s 25%. This implies a bigger push towards delivering CEPs in the UK, compared to Kenya, where CEPs are possible but there is no direct motivation towards their adoption. Other policy targets in the UK make for a suitable driver for CEPs. Wales has a policy target for 1GW of locally owned RE by 2030. By the end of 2020, an estimated 853MW locally owned capacity was operational in England, meeting around 42.6% of Government target of 2GW of community RE by 2030. However, Kenya has successful interventions in RE e.g. KOSAP and M-KOPA, which can potentially anchor the jump to CEPs. The existence of policy targets e.g. for Net Zero and RE, can also act as policy drivers for CEPs.

In terms of policy performances relative to CEPs adoption, the UK has a mix of moderately effective and ineffective policies (Table 1), while Kenya’s are generally ineffective. Arguably, the UK, by having active CEPs

in existence, means that their policymakers, communities, and potential investors already have proof of concept, unlike in Kenya where no such demonstration exists. In terms of supporting institutions, the UK's CEE, The Energy Trust and CARES, are well-supported by the UK government funds, and at a minimum pursue government-led mandates and explicit government targets, including CEPs. In contrast, the Kenya government has almost no such institutions. For example, Africa Power is not funded by or answerable to the Kenya government. Moreover, while the UK institutions are directly pursuing delivery of government agenda, the NGOs in Kenya are more focused in supporting capacity building, community awareness and engagement in energy decisions, and policy-formulation, generally. In contrast to the UK, they are not successfully promoting CEPs as stakeholder investments i.e. income generation for local communities. Instead of empowering communities to *own* CEPs, they are more engaged in empowering communities to participate in acquiescing to or facilitating IPPs. Whether this is because communities in Kenya, at this juncture, are not ready to undertake meaningful CEPs, is unclear.

Having considered and compared the above UK and Kenya policies, we subsequently recommend priority policy lessons for Kenya: to enhance the policy environment for adopting CEPs.

Multifaceted Grants Program

Kenya requires explicit policy targets for CEPs, especially in counties which have conditions conducive to CEPs e.g. abundance of RE, being off grid, and active cooperative societies. But enabling this requires a wide spectrum of attractive financial initiatives to help derisk and meet the investment needs of such communities. This matters, as Kenya initiated FiT two years ahead of the UK, still has a FiT scheme, but no CEPs. Drawing inspiration from CARES in Scotland, Kenya can offer various grants and low-interest loans to facilitate capital access: a funding program that integrates technical assistance and capacity-building components ensuring the acquisition of essential skills for effective planning, implementation, and long-term management. Such a multi-faceted grants program will ensure that various types and stages of CEPs readiness can be supported, to avoid a one-size fits-all policy approach, given the various barriers that may exist in Kenya's counties, and varied energy resources, cultures and socioeconomic conditions.

Introduce FIT for CEPs

Given the qualified success of FiT in the UK, Kenya's FIT scheme should treat CEPs as nascent RE technologies. Later, when CEPs are established and more cost competitive, FiT can be replaced with a more cost-

effective model e.g. auctions, like REAP, which Kenya already has. This should entail offering an attractive rate to incentivise, de-risk and provide a ring fence or quota for CEPs, and; compensating communities for the RE they generate, with additional payments for surplus energy fed into the national grid. Such dual incentive structure will encourage sustainable energy production fostering a more attractive, equitable and inclusive approach to the country's energy mix. FiT in Kenya should also consider preferential support for CEPs based on more local resources and content, thus providing considerable local jobs and environmental protection to the community. CEPs which are not home-grown and are built largely on imported products, foreign investment or systems should be lower in this hierarchy for support. This will address the concern that Kenya's energy market may over-depend on imported technologies and input e.g. from China, rather than developing these low carbon value chains at home or on the continent.A key lesson from the UK is to avoid withdrawing FiT until threshold levels of CEPs adoption and performance have occurred.

Introduce Principles of Smart Export Guarantee

Kenya can expand the benefits of Net Metering regulations by targeting CEPs and enabling small-scale CEPs to sell their surplus energy directly to electricity suppliers, ensuring guaranteed payments. However, aware that the UK SEG approach has not been very successful in terms of CEPs, Kenya should study why, and craft its own in such a way as to avoid the barriers and pitfalls in the UK one. In this policy, the county governments should be at the forefront, following the subsidiarity principle and bottoms-up approach to benefits creation, supported by the national government. Currently, in Kenya, only private investors (IPPs) are exporting to the grid.

Grid Connection Agreement Principles

Kenya can emulate the UK by implementing the principles of grid connection agreement strategy at the local DNO level. This approach would allow communities to establish direct connections to microgrids and national grids, enhancing local energy autonomy, and potentially earn much-needed income. Following Klagge *et al.* (2020) study supporting county level initiatives, each county should have its own rates to reflect local context resources, barriers, and opportunities. A one-size fits all national rate may be counterproductive as it may underplay the incentive and disincentive factors for CEPs in each county. Kenyan policies could consider setting targets and quotas, for CEPs connectivity, especially in places where CEPs are feasible or have emerged.

Mini-Grids

The Kenya government's Off-Grid Solar Access Project (KOSAP) is a worthwhile opportunity to stimulate awareness, integrate capacity-building and appropriate policy incentives for CEPs. As solar is abundant in Kenya, creativity in CEPs-based ecosystems should be prioritised to help communities exploit readily available resources, at local scales. From the UK experience, community groups can have difficulty securing planning permission, lack skills in negotiating leases and getting CEPs off the ground and maintaining them (CES, CEE *et al*., 2022). A study by Cloke *et al.* (2017) found that rural CEPs in the Global South have too frequently been framed within a top-down technologically driven framework that limits their ability to provide sustainable solutions to energy poverty and improving livelihoods. So, Kenya should prioritise formulating polices to address these issues, e.g. via mini-grids (Kirubi, 2009) based on local communities, instead of IPPs.

Social License to Operate

While community engagement is key to success of RE projects (CES *et al*., 2024), the UK experience has revealed tensions between communities and RE projects; and some reluctance to undertake CEPs, even when some incentives have been offered, e.g. under SEG. Developing countries like Kenya (Abdi *et al.*, 2024) *and Tunisia (Hammami et al., 2016),* as the UK, also have *underlying complex dynamics that restrain RE and CEPs. Thus,* Kenya policymakers must be alive to these sensitivities which are likely to affect CEPs, especially in wildlife-rich and indigenous community areas (Renkens, 2019). For CEPs based on geothermal energy, the principles of social license to operate (Mading, 2013) must nurture new thinking at the grass-root level for CEPs related policies, to account for equity and the influence of culture and organisational factors. This is because social acceptance is considered a *sine qua non* for geothermal development in the 21st century (Cataldi, 1999).

Kenya already has an advantage by having a *Guide to Community Engagement for Power Projects*, a *Resettlement Policy Framework*, and a *Mainstreaming Wildlife Incident Management into Utilities in East Africa* guide: relevant framework policies which they can apply to address social license to operate issues. Especially when considering environmental impacts on indigenous communities in whose lands CEPs may be based, to account for their interests and their fundamental collective human rights (Renkens, 2019). This will be during the overall planning and consenting process, especially via Environmental and Social Impact Assessment (ESIA) procedures (Onyango and Wiman, 2020).

Hubs and Centres of Excellence

The UK has several institutions tasked with funnelling funds to CEPs; undertaking awareness and training on specific areas in RE technologies and supporting policy formulation, e.g. CEE and the Energy Saving Trust. Kenya needs such centres of excellence, to significantly promote CEPs, by creating hubs for knowledge exchange and technology transfer, within counties. These centres should not only focus on establishing adequate community participation models but pursue a laser focus link to adequate financial and non-financial models that can deliver CEPs. A study reviewing community energy in the UK revealed that having access to data on the sector is vital for community energy organizations, stakeholders and policymakers to understand and communicate about the sector, encourage investment and bring about supportive policies (Brown, 2022).

Discussion

Although the wider policy environment for RE in Kenya is generally supportive and could potentially promote CEPs, based on lessons learning (Becker *et al.*, 2014) and policy transfer (Stone, 2012), we have recommended key policy lessons for Kenya to consider. While inspired by lessons from a different context from Kenya, the modest success in the UK suggests Kenya can replicate and adapt some CEP-relevant policy models. Failures in the UK are also sources of lessons, of what Kenya should beware of and consider bespoke solutions. While Kenya aims to be Africa's RE superpower, CEPs, as an avenue towards an equitable, home-grown, and sustainable energy transition, is yet to take root, for various reasons that can be addressed by policy. Thus, our recommendations focus on a policy confluence of pull-push factors, involving: 1) CEPs-friendly policy landscape, 2) ambitious CEPs targets under a long-term strategy, 3) natural abundance of different RE sources, and, 4) Kenya's appetite for using different policy solutions for different needs. This confluence is envisaged to deliver a conducive platform that will motivate CEPs.

Kenya's policies must go beyond 'community involvement in the energy transition', e.g. from mere procedures of public participation to a laser focus on actualising socio-economic models where communities own and adopt CEPs. For this to occur, the case studies show that both supply side and demand side type policies are necessary: but must match the objective with the most effective policy intervention. Here, the politics must support the policy environment. Even in the UK where CEPs were heralded in 2014 as the next big thing in local energy provision, visible support from the Government waned, e.g. the last update to UK Community Energy Strategy was in 2015. Thus, while demand side policies are crucial to derisking the investments for communities, once CEPs are established,

supply side policies will create efficient markets for CEPs to thrive, more cost-effectively.

Our recommendations are made with the proviso that Kenya need not start from the beginning; as it can leverage on several existing opportunities for CEPS, e.g. the Kenya Off-Grid Solar Access Project (KOSAP), by integrating incentives and business models for CEPs. Looking to the third term of county governments (2023- 2027), the scope for tapping into CEPs should be carefully explored, focusing on community RE generation (Oluoch *et al.*, 2020; Otundo *et al.*, 2020) to address climate change and achieve universal energy access by 2030 (UN SDG Goal 7) (UN, 2015). However, the political economy and moral issues around energy transitions, including CEPs, and rights of indigenous communities and wildlife, should be explicitly and methodically accounted for in the policy considerations. We fear the governing status quo has preferred an energy system that prioritises centralised energy generation in the face of an increasingly unstable energy market.

We envisaged that if these recommendations are implemented, Kenya's potential success with CEPs can provide a blueprint for other African states. Nevertheless, an attempt at lessons learning and policy transfer from a developed to an emerging economy, portends methodological limits due to contextual disparities such as socio-political priorities e.g. climate emergency, regulatory frameworks, funding accessibility, and community dynamics. Furthermore, comparative analyses may overlook nuanced cultural, political, and economic factors influencing project viability and scalability. Selecting only two contrasting countries limits generalisability of the findings and thus the opportunities for prediction (George *et al.*, 2005). Finally, a major problem in comparative research is that the documents and data sets in different countries may define categories e.g. success or effectiveness, differently or may not use the same categories. Therefore, for Kenya, translation of successful policy models from the UK will require careful consideration of local nuances and systemic challenges.

Conclusions

This study has considered notable achievements of CEP adoption and performance in the UK, because of the UK's policy environment. Aware of the dearth of CEPs in Kenya, it then compared the policies in the UK and Kenya, with the aim of recommending policies that could effectively promote CEPs in Kenya. The limited success of CEPs in the UK implies that Kenya limited effectiveness of the policies, the challenges faced in the UK are expected to also surface in Kenya. In this study, we have relied on theories of policy learning and policy transfer, to glean some policy recommendations which we believe can lead to more CEPs being adopted in

Kenya. The lessons from the UK show that care is required as some of these policies are more effective than others.

Although we provide seven recommendations, Kenya must use carefully considered context-sensitive policy approaches. Kenya should live to the spirit of CEPs defined as a group of people joining together to own, manage and generate energy while also reducing the local carbon footprint. As recommended for the UK by Green alliance (2019), Kenya should also consider 1) opening new markets for community energy; 2) designing local energy markets that fully value community energy; 3) stimulating local innovation with more [local] trials, and; 4) supporting RE ownership via CEPs. Kenya's policies, should for example, aim to apply the advantages of FiT schemes while avoiding FiT's disadvantages. Moreover, Kenya must not only have appropriate policies for CEPs, but as times and conditions change, it must keep updating and revising them, to ensure that the relevant push-pull factors that promote CEPs are maintained until certain thresholds for CEPs are met.

Kenya's demand side and supply side policies need to be carefully integrated, to create a confluence where CEPs are incentivised: matching appropriate funding streams with CEPs targets, technical assistance and capacity-building components, to equip communities with the skills needed for effective planning, implementation, and long-term management. Creating awareness of CEPs, providing proof of concept, and de-risking the initial wave of CEPs, until they become established and attract own investments, is the holy grail for CEPs policymaking. Furthermore, the adoption of grid connection agreement principles, enhancing local energy autonomy, will be a key policy item. As will be policies expanding on the benefits of Net Metering regulations in Kenya, and incorporating SEG principles, to enable small-scale CEPs, aligning with principles of decentralization, energy market liberalization, and sustainability at the local level.

Further to our recommendations, two key areas for research are worth mentioning. One, exploring where the equilibrium for cost-effective energy mix integrating CEPs lies, in Kenya's future. Two, empirically exploring the systems-wide analyses to reveal the interdependencies and interrelations of the various contextual and policy factors, including CEPs, aimed at Net Zero as an outcome.

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