Stakeholders' perspectives on the effectiveness of the feed-in tariff and renewable energy auction policies in Kenya

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Key messages

- **Strategic communication and stakeholder engagement, particularly with academic and research institutions, community-based organizations and local institutions, is essential for the effective formulation and implementation of Kenya's Feed-in Tariff (FIT) and Renewable Energy Auction (REA) policies.**
- **Kenya's REA ambitions would benefit from the establishment of a robust financing and de-risking mechanism, comprising incentives such as tax credits, guarantees and reduced import tariffs on renewable energy technologies to attract private sector investments.**
- **With the right institutions and incentives as well as a transparent REA bidding process, Kenya could potentially achieve its goal of 100% electricity generation from renewable energy sources by 2030.**
- **Leveraging development finance to fund high-risk, high-impact renewable energy projects that deliver development results while rendering them bankable and reducing the investment risks for private capital is critical in ultimately making renewable energy investments financially viable and attractive.**

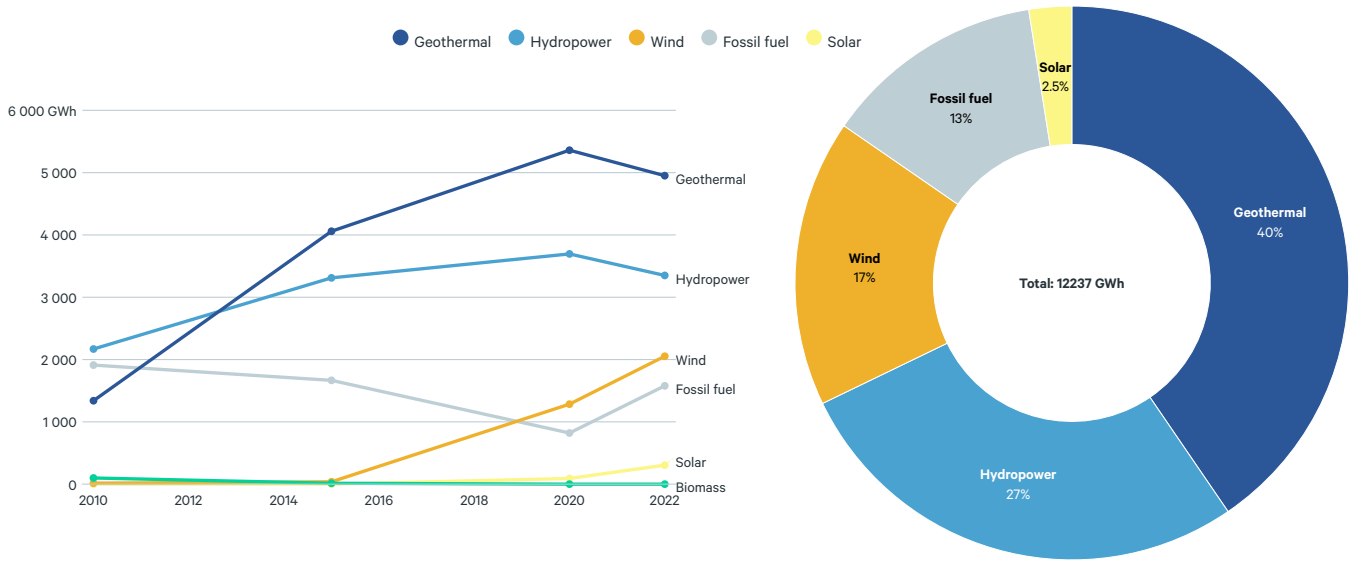
Contents

1. Introduction

Electricity consumption in Kenya has been growing, and demand is projected to increase to 4244 MW by 2030 (Ndiritu & Engola, 2020; Sergi et al., 2018). The adoption of renewable energy sources, such as solar, wind, geothermal and hydropower, is a positive move towards meeting this demand and transitioning to low-carbon development pathways. Kenya is among the countries that are aggressively promoting the adoption of renewable energy technologies, with an estimated 87% of its grid mix in 2022 coming from renewables (Mabea, 2020; MoE, 2021a).

As illustrated in Figure 1, solar and wind technologies accounted for 20% of the total generation mix, with solar contributing to 3% while wind energy contributed 17% in the year 2022/23. Geothermal and hydropower accounted for 40% and 27% respectively, with fossil fuel accounting for 13% of the total generation mix. This achievement is attributed in part to policy and structural reforms in the country's electricity sector (Ndiritu & Engola, 2020). And Kenya is perceived to have even more potential, especially in solar and wind, that has not been exploited due to institutional challenges (Sergi et al., 2018), inadequate finance, weak infrastructure, socio-technical challenges and lacking capabilities (Kruger & Eberhard, 2023; Lucas et al., 2017).

Figure 1. Renewable energy adoption trends in Kenya



Source: Authors' own, adapted from Kenya Power, annual report and financial statements, 2014–15; 2018–19, 2022–23

The Kenyan government has introduced a series of policy reforms and formulated several strategic planning documents to advance the development and expansion of the renewable energy sector (MoE, 2021b). Feed-in tariffs (FITs) and renewable electricity auctions (REAs) are part of these policy instruments aimed at facilitating the expansion of renewable energy in Kenya's power grid (Box 1).

BOX 1: UNDERSTANDING FIT AND REA

The adoption of renewable energy technologies is motivated by energy transition ambitions towards decarbonization to meet Paris Agreement targets. Countries have responded in different ways through policy frameworks and support mechanisms like FIT and REA. These tariff-based mechanisms are perceived to be the most successful renewable energy support schemes in different contexts (Azimoh et al., 2017).

A FIT is a government-led policy instrument to promote investment in renewable electricity. Under this scheme, a generator of electricity from a renewable energy source is guaranteed a predetermined tariff (a fixed price per kilowatt hour, kWh) for a period. The objective of the Kenya FIT is to encourage private and local investors to participate in power generation (MoE, 2021a). These are price-driven, government-set, long-term price contracts, not competitive ones (Mabea, 2020).

The REA is a policy instrument to procure electricity services in a competitive bidding process to fundamentally deliver renewable electricity at least cost and to achieve investment outcomes (Kruger & Eberhard, 2023; Lucas et al., 2017). A certain amount of power (megawatt, MW) or energy (megawatt hours, MWh) from renewable energy sources is offered up for bidding. The project with the lowest required support level and competitive tariff typically wins the auction and is allocated the project for that tariff rate over a certain period (Azimoh et al., 2017).

This report discusses the key barriers and enablers in the design and implementation of FIT and REA policies in Kenya. It draws on empirical evidence and secondary data to provide recommendations for the effective development and deployment of REA and other emerging policy instruments to support renewable energy deployment.

2. Methodology

This study was informed by an analysis of primary data collected through surveys and key informant interviews, which were complemented by secondary data. The survey and interviews aimed to ascertain stakeholders' opinions on the effectiveness of Kenya's FIT and REA policies and identify opportunities for improvement based on international best practices. The survey drew perspectives from stakeholders representing government agencies, the private sector, civil society organizations, networks and associations, think tanks and research institutions. The interviews elicited viewpoints from 39 participants, including government officials (national and subnational), private developers and investors, financiers and donors, and energy experts. The study results were validated during a stakeholder workshop held in February 2024, with the insights from this workshop enriching further the policy recommendations.

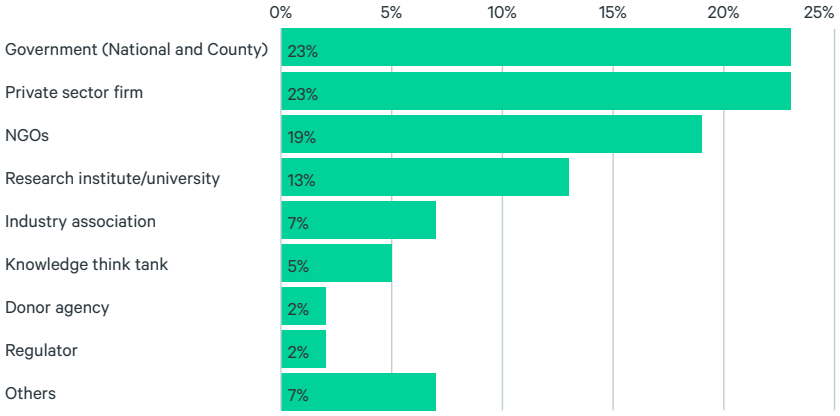
The survey provided a return rate of 54%, corresponding to 88 responses out of 164 respondents that were sampled. The survey results were analysed quantitatively using the Statistical Package for the Social Sciences (SPSS), while ATLAS.ti software was used to conduct a thematic analysis of the findings of the interviews. The results were complemented with limited REA cases from Ghana, Uganda and Zambia, which further informed our recommendations for the effective implementation of Kenya's REA policy.

3. Factors affecting the deployment of the FIT and REA policies in Kenya

3.1 Respondents' background and expertise

The majority of respondents (23%) were from the government and private sector followed by non-governmental organizations (NGOs) (19%) and research institutions/ universities (13%), with less than 10% of the respondents from other agencies. Regulators and donor agencies were least represented, at 2% (Figure 2).

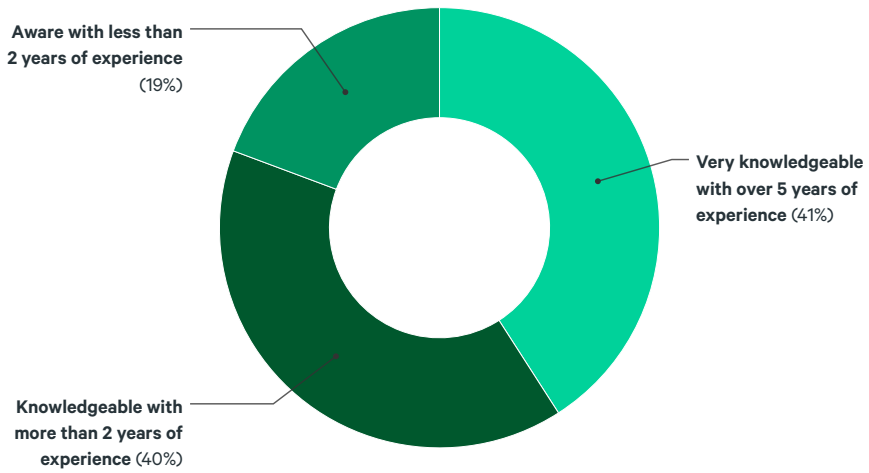
Figure 2. Organizations represented by respondents



Source: Authors' own.

All the respondents were knowledgeable about renewable energy, with 81% having more than two years of experience in the sector (Figure 3). They described themselves as directors (20%), researchers (17%), advisors (3%), managers (11%), regulators (2%), project or policy coordinators (3%), engineers (2%), and technicians (3%).

Figure 3. Level of expertise in the renewable energy sector (n=88)

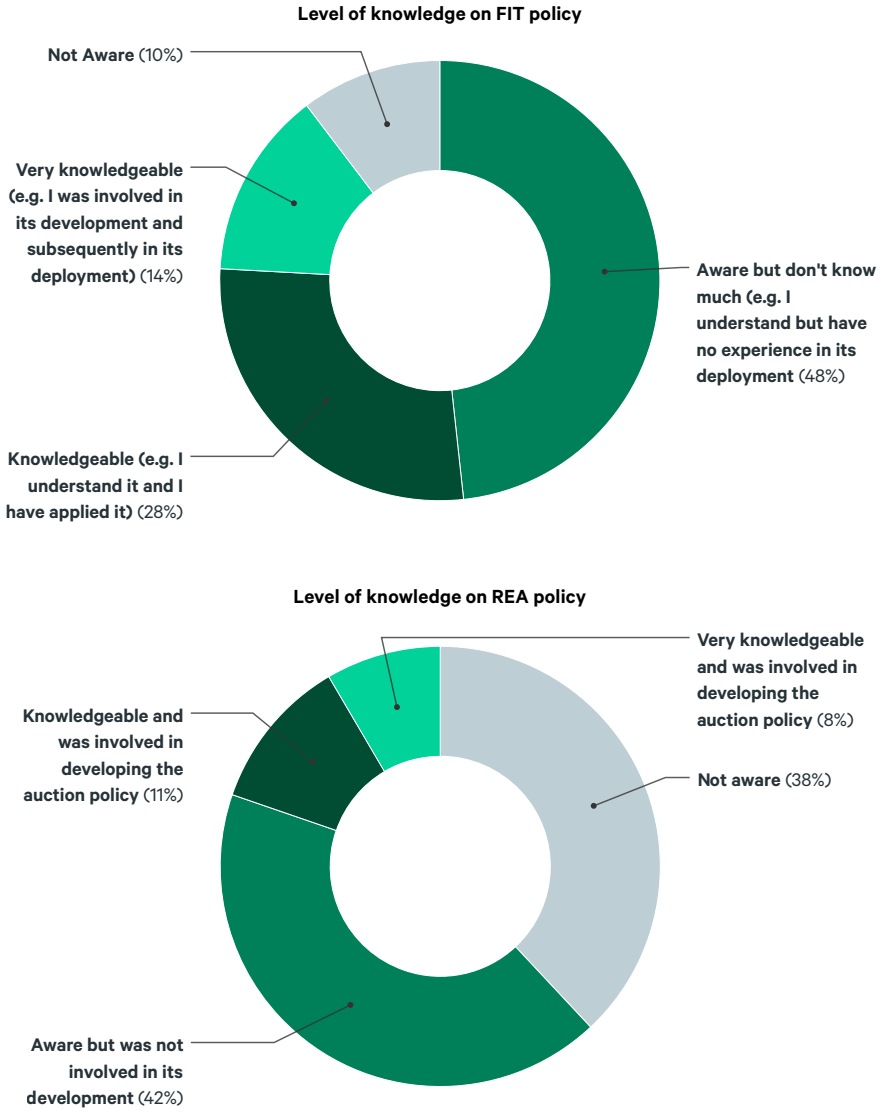


Source: Authors' own.

3.2 Stakeholder awareness and engagement

Study results revealed several challenges to the FIT and REA deployment process. A notable observation was the low level of awareness and limited understanding of both FIT (58%) and REA (80%) policies across all stakeholder groups, as illustrated in Figure 4.

Figure 4. FIT and REA policy awareness (n=87)



Source: Authors' own.

All the regulators were knowledgeable and were involved in the development of the FIT and REA policies (Table 1). Conversely, only 10% and 18% of respondents from the national and county governments exhibited substantial understanding and engagement in the development and implementation of the FIT and REA policies, respectively. About 17% of industry associations were completely unaware of the existence of the FIT policy, while 33% reported general knowledge about the policy. Most respondents

from research institutes and universities (82%) were aware but did not know much about the FIT policy, with a similar response from think tanks and NGOs at 75% and 69%, respectively.

Table 1: Level of awareness (percentage, %) of the FIT (n=87) and REA (n=71) policies across the organizations

Types of organizations	Very knowledgeable and was involved in developing and deploying the policy		Knowledgeable and was involved in developing the policy		Aware but have no experience in its deployment		Not aware	
	FIT	REA	FIT	REA	FIT	REA	FIT	REA
Donor agency	0	0	50	0	50	50	0	50
Government (national and county)	10	18	45	18	15	18	30	47
Industry association	0	0	50	25	33	25	17	50
Knowledge think tank	0	0	25	0	75	33	0	67
NGO	13	0	13	7	69	64	6	29
Other	17	0	33	0	50	60	0	40
Private sector firm	25	18	20	0	50	47	5	35
Regulator	50	0	50	50	0	50	0	0
Research institute/ university	9	0	9	29	82	43	0	29

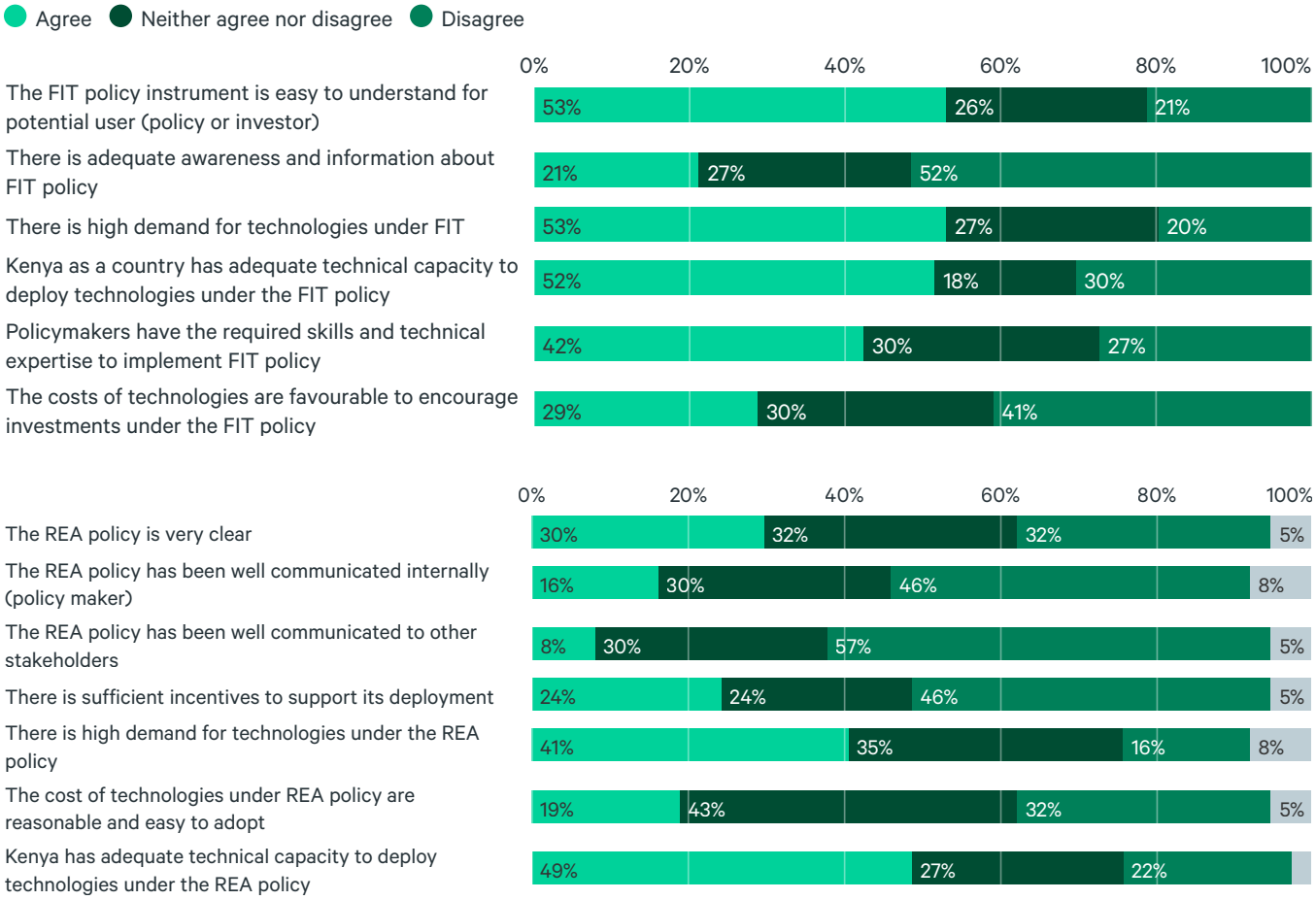
An overwhelming majority of stakeholders, including think tanks (100%), the donor community (100%), research institutes/academia (72%), private sector firms (82%) and industry associations (75%), were not engaged in the formulation of the recently released REA policy, despite their pivotal roles in evidence-based policy development and implementation. Just about 25% of industry associations and 18% of private sector firms participated in the policy development process (Table 1).

3.3 Communication, institutional setting and organizational design

Various factors were perceived to exert influence on the deployment of FIT and REA in the Kenyan context (Figure 5). Overall, most respondents (53%) were of the opinion that the FIT policy is clear and easy to understand and use for interested parties such as investors, with 32% saying the same for the REA policy. We note that 52% of all respondents expressed dissatisfaction over the sufficiency of knowledge and information about the FIT policy, while 53% and 41% of the respondents acknowledged the high demand for the technologies under the FIT and REA policies, respectively. On another note, a majority of respondents (46% and 57%) contested the assertion that the REA policy had been effectively communicated to internal and external stakeholders, respectively. Interestingly, 52% and 49% of respondents indicated that Kenya, as a country, has adequate technical capacity to deploy the technologies mandated by the FIT and REA policies, respectively. And 42% of the respondents were of the opinion that policymakers have the required skills and technical expertise

to implement the FIT policy. Equally intriguing was the fact that 41% and 32% of the respondents pointed to the costs of technologies as a barrier to promoting FIT and REA investments respectively. About 33% of respondents disagreed with the assertion that the cost of technologies under the auction policy is reasonable and easily adoptable.

Figure 5. Perceived factors shaping the deployment and use of (a) FIT (n=66) and (b) REA (n=37) in Kenya



Source: Authors' own.

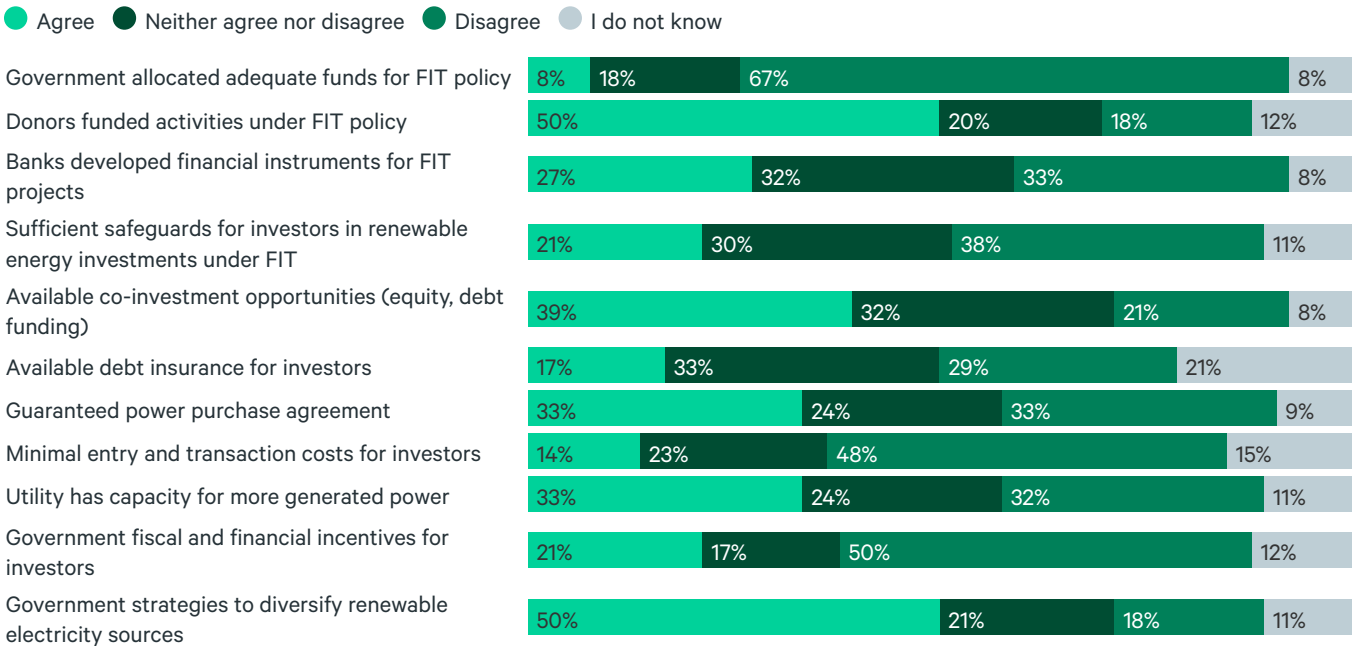
Key informant interviews revealed varied perspectives about key elements that have influenced the deployment and utilization of FIT in Kenya. First, key informants noted that the FIT policy has been superseded by REA, signalling a shifting landscape in the renewable energy sector. Second, some key informants argued that the FIT policy is simple and effective, while a few others considered it challenging, particularly for newcomers to the energy sector. Collaboration between institutions was also recognized as significant, but there was concern regarding the limited involvement of academic and research institutions in policy formulation and implementation. Key informants expressed uncertainty about the timing of FIT projects approval, citing issues such as financial closure, and perceived prefeasibility studies as beneficial

for enabling the deployment of renewable energy technologies. Lastly, creating an enabling environment to facilitate financial flows for FIT and associated technologies was emphasized as crucial in shaping their deployment and usage.

3.4 Financial and de-risking mechanisms

The extent to which financial and de-risking mechanisms have been implemented by the government of Kenya to enhance the deployment of FIT and REA in the country is perceived differently (figures 6 and 7). Respondents highlighted insufficient incentives (50%) and inadequate funding (67%) as the main barriers to the deployment of FIT in Kenya (Figure 6). Additionally, support from local banks and financial institutions has been inadequate as 33% of respondents stated that banks and other financial institutions have not been forthcoming in developing financial instruments to fund projects under the FIT program.

Figure 6. Perceptions on financial and de-risking mechanisms for the deployment of FIT policy in Kenya (n=66)



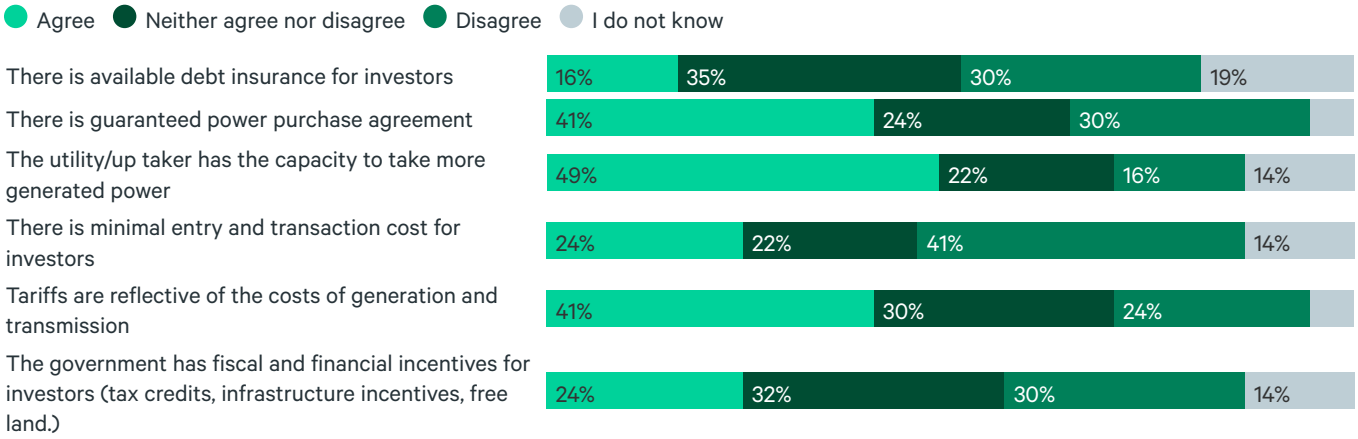
Source: Authors' own.

Although 41% of respondents acknowledged the existence of guaranteed power purchase agreements, high entry and transaction costs for investors, as highlighted by an equivalent number of respondents (41%), pose a significant challenge to the deployment of renewable energy auctions in Kenya (Figure 7).

Despite Kenya Power's capacity to take more generated power, as stipulated by 49% of the respondents, 30% of the respondents pointed to inadequate fiscal incentives and a lack of debt insurance for investors as two of the main barriers to

the deployment of renewable energy auctions in the country. Additional barriers provided by key informants that offer evidence to support these findings include (i) inefficient government support associated with bureaucratic processes related to power-purchasing agreements (PPA) and to FIT assessments, (ii) delays and lack of clarity and transparency in the government's transition plan from FIT to REA systems, noting that discussions among stakeholders date back to 2017, and (iii) policy incoherence and conflicting mandates within the energy sector and allied institutions, hampering efficient communication and coordination on renewable energy matters.

Figure 7: Perceptions on financial and de-risking mechanisms to enhance the deployment and use of REA policy in Kenya (n=37)



Source: Authors' own.

4. Discussion

4.1 Lessons from FIT implementation

Kenya, like many sub-Saharan African countries, has an abundance of renewable energy resources, positioning it to achieve Sustainable Development Goal (SDG) 7 target 7.2 of 100% renewable energy share in its electricity grid (Kiplagat et al., 2011). However, as noted in the literature, this target remains elusive for many African countries, partly because of inadequate implementation of renewable energy policies such as FIT and REA (Rotich et al., 2024). This finding resonates with Ndiritu and Engola's (2020) assertion that the ineffectiveness of Kenya's FIT policy, introduced in 2012, has significantly hampered the country's progress towards a 100% renewable grid by 2030 due to the delayed commercial rollout of renewable energy projects. This finding is consistent with those of Apergi et al. (2024) and Osok (2010), who pointed to ineffective policy design, regulatory barriers, slow decision-making by public bodies, lack of access to capital, prolonged PPA negotiations, and gaps in legal frameworks as the major barriers to renewable energy deployment in Kenya.

An observation that emerged from this study is the low level of awareness and engagement around FIT and REA policy development, suggesting a gap in

communication that has stifled broader understanding and uptake of FIT. A lack of stakeholder engagement, particularly from research institutions, academia and knowledge hubs, emerged as a noteworthy concern. These entities, which serve as essential knowledge intermediaries, are often absent from key policy formulation and implementation processes, potentially hindering expert insight into policy design.

Contrary to Ndiritu and Engola's (2020) assertion of insufficient technical competencies in policy development and implementation, survey respondents said that Kenya has made considerable progress in building the technical capacity in renewable energy deployment. Key informants noted that policymakers now have the requisite skills to implement the FIT policy, with enhanced human resource capabilities providing an opportunity for further policy advancement. As Nzila and Korir (2022) also observed, Kenya has enhanced its technical capacity and capabilities in renewable energy technologies.

Despite the high costs associated with the deployment of renewable energy technologies and a lack of government support in de-risking mechanisms to reduce financial exposure, key informants highlighted the strong and growing demand for these solutions in the country, especially for solar photovoltaic (PV). Indeed, solar PV has been widely adopted globally and Kenya is leading in the region (Lighting Global/ESMAP, et al., 2022). However, without robust financing frameworks, market-driven demand alone is insufficient to catalyse widespread adoption of renewable technologies (Isah et al., 2023).

4.2 REA lessons from other countries

Benchmarking the Kenyan case with other emerging economies such as Uganda, Zambia and Ghana reveals significant parallels as well as notable differences in REA policy implementation. We evaluated the effectiveness of Kenya's auction system based on the key performance indicators highlighted in Table 2. Comparatively, the provisions of Kenya's REA policy are mostly similar to those of Uganda, Zambia and Ghana, which have demonstrated evidence of successfully pioneering the deployment of renewable energy auctions in Africa (IRENA, 2018). Thus, with the right institutions and incentives as well as a transparent bidding REA process, Kenya could potentially achieve its goal of 100% electricity generation from renewable energy sources by 2030.

Table 2. Comparative analysis of REA systems in selected countries

	Key performance indicators	Uganda – GET FIT Solar Facility	Zambia – Scaling Solar Round 1	Ghana	Kenya
1	Period of auction implementation	2014	2016	2015/2016	Published in 2021, not yet implemented
2	Volume of auction (generation, budget or capacity-based)	Capacity-based (20 MW)	Capacity-based (2 x 50 MW)	Capacity-based (20 MW)	Capacity-based (20 MW and above)
3	Periodicity of auction (scheduled or not scheduled)	Not scheduled	Not scheduled	Not scheduled	Not Scheduled
4	Diversity of auction (technology neutral, multi-technology or technology-specific; geographical neutrality, actor neutral; size neutral)	Technology-specific (solar PV)	Technology-specific (solar PV)	Technology-specific (solar PV)	Technology-specific (solar and wind)
		Preferred location identified	Site-specific	The developer selected the site in consultation	MoE to outline the requirement for the selected site
		No specific actors were proposed	No specific actors were proposed	No specific actors were proposed	No specific actors are proposed
		Maximum project capacity (5 MW)	Maximum project capacity (50 MW for two facilities)	Maximum project capacity (5 MW)	No maximum capacity
5	Participation condition (pre-qualification requirement; local content rules; information provision)	Previous experience, financial capability	Experience, expertise, and financial resources	Previous experience, financial capability	Previous experience and financial capability
		Bids and performance bonds	Bid bonds		Bid bonds and performance guarantees needed
			Technical requirements		
		No local content required	No local content required	Minimum of 20% of local content	
		Some information provided	No information available	Some information provided	Full transparency with technical, financial and environmental data provided
6	Support cost condition, e.g. type and form of remuneration by capacity or generation. Forms of remuneration include FIT, sliding feed-in premiums (FIP) and fixed FIP.	Remuneration by generation	Remuneration by generation	Remuneration by generation	Remuneration by generation, with potential for competitive pricing
		Sliding FIP (difference between winning bid prices and a FIT USD 0.11/kWh)	FIT	FIT	Remuneration by generation, potential for competitive pricing
7	Selection criteria (price only vs multi-criteria)	Multi-criteria 70%, price 30% (technical, financial, environmental and social parameters)	Price only	Price only	Multi-criteria (price, technical viability)
8	Auction format (Multi vs single item)	Multi	Single (project specific)	Single item	Multi-item (technology-specific auctions)
9	Auction type (static, dynamic and hybrid)	Static	Static	Static	Static
10	Pricing rules [pay-as-bid (PAB) vs uniform]	PAB	PAB	PAB	PAB
11	Ceiling prices	Yes there was ceiling prices	No ceiling price	Yes, ceiling price is the FIT	No ceiling price
12	Realization period	Two years	One year	Two years	
13	Penalties	Contract termination, confiscation of bids and performance bonds	Contract termination, bid bond withheld	Contract termination, confiscation of bids and performance bonds	

5. Recommendations and Conclusion

5.1 Key recommendations to bridge the policy design and implementation gap

Overall, our study findings highlight key barriers and opportunities associated with the deployment of Kenya's FIT policy, which is more advanced in terms of implementation compared to its nascent REA policy. We recommend how these barriers might be overcome for the FIT policy while leveraging on the opportunities to inform the implementation of the recently enacted REA policy. These recommendations speak to actors in both the policy and private sectors.

1. **Policy options to address technical and institutional barriers**

To effectively leverage Kenya's abundant renewable energy resources and move forward to achieving SDG 7, the government should focus on refining the already existing policy frameworks such as FIT and the recently published REA policy to align with existing capacities and market realities. Establishing a centralized body to help streamline the REA bidding process is critical to minimize overly complicated administrative processes and regulations that can have financial and opportunity costs for investors. The country could also create partnerships with research institutions to foster continuous innovation and inform policy design with evidence-based insights. These institutions, acting as intermediaries, should be actively involved in ongoing policy dialogue to ensure policies are well-grounded and address real-world challenges.

2. **Policy option for enhanced awareness and engagement**

To bridge the communication gap surrounding FIT and REA policies, a targeted awareness campaign strategy should be developed, targeting all the stakeholders, using simplified information while employing accessible communication channels. If well effected, this could foster stronger public support and attract private sector investment. Launching multi-stakeholder forums that include research institutions, academia and knowledge hubs would facilitate knowledge exchange and allow these actors to contribute to enhanced policy design and implementation. Regular workshops, supported by government and private entities, could also encourage consistent dialogue and engagement, fostering an inclusive approach to a renewable energy transition.

3. **Policy option to address government funding and de-risking challenges**

Given the high costs and financial risks associated with the deployment of renewable energy technologies, Kenya's ambitions would benefit from the establishment of a robust financing and de-risking framework, comprising incentives such as tax credits, guarantees, and reduced import tariffs on renewable energy technologies, to attract private sector investments. Also critical is leveraging development finance to fund high-risk, high-impact renewable energy projects that deliver development results while rendering them bankable and reducing the investment risks for private capital, ultimately making renewable energy investments financially viable and attractive.

5.2 Conclusion

Kenya's renewable electricity market is expanding mostly due to the growing energy demand coupled with abundant renewable resources and an active private sector. This progress has, however, been staved by several factors, including technical and institutional challenges such as delayed or inconsistent implementation of government programs, limited financing, and inadequate market uptake measures.

On a positive note, rapid advancements in renewable energy technologies such as solar and wind, coupled with their cost competitiveness, interest in private sector investment, and compelling economic benefits offer tremendous opportunities for growth. With the right institutions and incentives, as well as a transparent bidding process, Kenya is poised to make significant strides in the deployment of renewable energy at scale.

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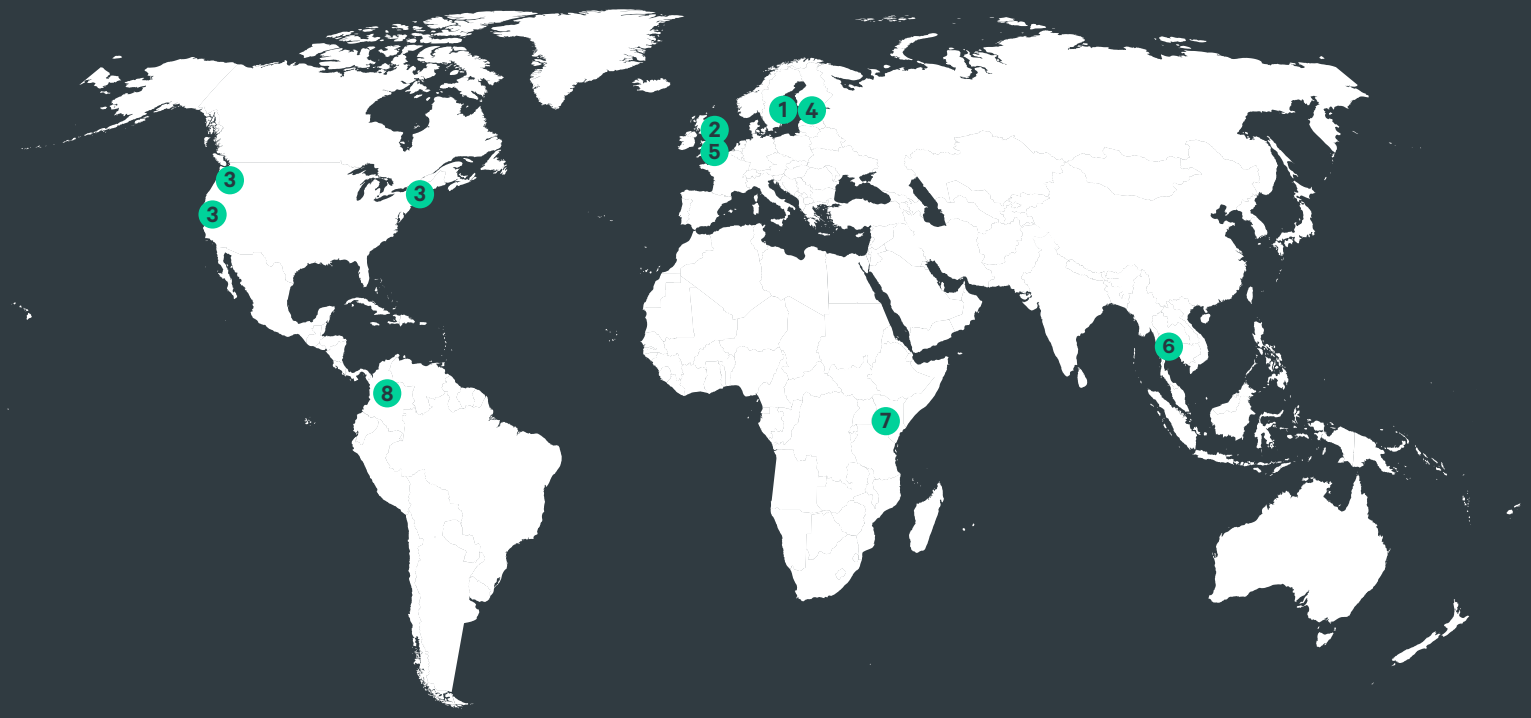

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