



Multi-stakeholder engagement strategy towards accelerating the adoption of e-cooking in Kenya

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This material has been funded by UKAid from the UK government; however, the views expressed do not necessarily reflect the UK government's official policies.

EXECUTIVE SUMMARY

In Kenya, over 70% of the population still depend on biomass energy forms for cooking (ESMAP, 2020), with most people depending on firewood, charcoal, and kerosene (GLPGP, 2019). Cooking with electricity presents a strategic opportunity for clean energy transition in line with SDG 7, given that almost all households and other stakeholders interact with energy through cooking.

The MECS programme, a five-year UK Aid (FCDO) funded programme, provides an opportunity to catalyse the transition to modern and clean cooking options by building a range of innovations (technology and business models) that lead to improved choice of affordable, reliable, and sustainable modern energy cooking services for consumers. The programme seeks to explore innovative connections between clean cooking and wider developmental aspirations as a pathway to catalysing the transition to environmentally sound, economically viable, and modern clean cooking options. While working globally across multiple countries, in Kenya, the programme is coordinated by the African Centre for Technology Studies.

The e-cooking opportunity in Kenya

Kenya has put in place multiple efforts towards achieving clean cooking transition from biomass to cleaner options such as improved *jikos*, energy efficient stoves, among others. This has also been followed by the emerging efforts by the private sector and Government to support the uptake of LPG through initial subsidies and strengthening the distribution chain.

The country's efforts towards clean cooking have historically followed the narrow techno-centric path where clean cooking is seen as an isolated venture rather than a wider developmental issue, where technologies such as clean cook stoves, LPGs, etc., are deployed with little connections to the wider developmental opportunities. Most historically promoted clean cooking options have overtime failed to produce the transformations and anticipated benefits such as economic, health, environmental, and gender benefits.

In Kenya, the ambition to achieve universal clean cooking is developing at a time when the country's electricity supply is rapidly expanding, presenting a fresh path towards sustainable growth. The country has made enormous progress on electrification, with coverage increasing from 29% to 73% in just 5 years (KPLC, 2018). The Last Mile Electrification programme has extended the national grid into rural areas and densified the network to reach low-income households. The majority of Kenya's grid electricity i.e., over 70%, is generated from renewable sources, with geothermal being the most significant source (GoK, 2021).

In the context of progressing sustainable development, the country is currently experiencing a new window of opportunity around electric cooking, enabled by the increased electricity connectivity on one hand and clean cooking ambitions on the other. Cooking with electricity (e-cooking) provides Kenya with an opportunity to link clean cooking to broader development opportunities provided in the country's thriving electrification sector, thereby supporting the goals of numerous sectors in line with the SDGs.

Some of the engagement opportunities to catalyse e-cooking

First, a key challenge to e-cooking adoption in Kenya is the lack of integrated partnerships and coordination that could strengthen connections between clean cooking and electrification programmes. In this, there is an opportunity to strengthen partnerships and coordination of the relationships between the stakeholders already championing e-cooking and those promoting electrification programmes and revealing opportunities for intervention.

Second, Kenya has a rich policy ecosystem capable of supporting the transition to e-cooking across sectors, but there is still some mismatch in priorities in various policy-agencies within the energy

sector. Some agencies are already promoting e-cooking e.g., KPLC, but others are still championing traditional options such as clean cookstoves. There is also weak coordination across agencies. In this, there is a need to strengthen the adoption of e-cooking through clear messaging in the Kenya's Integrated Energy Plan that currently provides a framework for linking clean cooking to opportunities in the electrification sector and to create multi-sectoral benefits.

Third, the country still relies on a few companies to develop e-cooking appliances. The emerging international interest provides an opportunity for enhancing supply of these appliances. This has meant that either e-cooking appliances are not easily available in various outlets or are expensive especially for the low-income earners who are largely still stuck with traditional clean cooking techniques. To address this concern, there is need to strengthen partnerships between local and international actors involved with e-cooking appliances and link them to clean cooking financing actors such as ESMAP, as well as advocate for policy incentives that could unlock the manufacturing and supply capacity.

Fourth, e-cooking is still perceived to be expensive due to the high initial costs especially for the low-income earners. Developing or tapping into existing pro-poor financing instruments such as Pay-as-you-Go and soft loans could help unlock the relatively big market for e-cooking available in the low to middle income earners who form 80% of energy users in Kenya. Achieving this might require brokering/strengthening partnerships between local groups such as women groups with microfinance entities, e.g., SACCOS. Further, exchange platforms that could link e-cooking entrepreneurs to large financial platforms can enable e-cooking appliance start-ups and spur models that can create consumer and supplier confidence. Exploring additional opportunities in the climate change space, e.g., e-cooking emission reduction standards, can attract GCF funding and align e-cooking to mitigation and resilience building.

Finally, and currently, there are well-established awareness platforms and good coordination between clean cooking actors, e.g., the Clean Cooking Association in Kenya, and similarly, a well-established electrification sector. However, there is little coordination and awareness between these two well established sectors thereby impeding opportunities for e-cooking. Addressing this challenge through stakeholder engagement may include building on existing platforms to create national and county e-cooking knowledge exchange platforms (or e-cooking hubs) containing research data, stakeholder databases including who is doing what, projects/initiatives, opportunities, etc, and engage mainstream and social media as well food bloggers to widely disseminate information to the public. A community of practice could build on the e-cooking platform to create influence.

Conclusion

This strategy shows that stakeholders are key to unlocking and/or enabling opportunities for transforming the clean cooking agenda, not just as a standalone pursuit, but as a development pursuit with multiple benefits. The brief shows that whereas multiple opportunities exist to enhance the adoption of e-cooking and transform the clean cooking agenda for Kenya, these opportunities can mainly be actualized through strategic building of relationships and partnerships between the various actors who have different complementary strengths and aspirations. To this end, this brief has indicated that a strategic intervening space lies within strengthening the connection and linkages between the well-developed and coordinated clean cooking sector and the thriving electrification sector in Kenya. This approach to stakeholder engagement is likely to break the historical silos characterizing the clean cooking landscape and place the clean cooking agenda in Kenya within a wider developmental opportunity, thereby creating multiple and multi-sectoral benefits in line with the aspirations of the SDGs. Therefore, the stakeholder engagement opportunities identified in this work provide a wide range of intervening opportunities that can be adopted by the different stakeholders interested in e-cooking.

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List of Acronyms

AIIM	Alignment Interest and Influence Matrix
AMDA	Africa Minigrid Developers Association
CBOs	Community Based Organizations
CCAK	Clean Cooking Alliance of Kenya
CLASP	Collaborative Labelling and Appliance Standards Program
COP	Conference of Parties
eCooking	Electric Cooking
EnDev	Energy Development
EPC	Electric Pressure Cooker
ESMAP	Energy Sector Management Assistance Program
FCDO	Foreign, Commonwealth and Development Office
GCF	Green Climate Fund
GHGs	Green House Gases
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit
GOGLA	Global Off-Grid Solar Forum and Expo
GoK	Government of Kenya
ICS	Improved Cookstoves
IEP	Integrated Energy Planning
INEP	Integrated National Energy Plan
KIRDI	Kenya Industrial Research and Development Institute
KOSAP	Kenya Off-Grid Solar Access Project
KPLC	Kenya Power and Lighting Corporation
LPG	Liquefied Petroleum Gas
MECS	Modern energy Cooking Services
MEL	Monitoring Evaluation and Learning
MOE	Ministry of Energy
NDC	Nationally Determined Contribution
NEMA	National Environmental Management Authority
NGO	Non-Governmental Organization
RBF	Result Based Financing
REDD+	Reduced Emissions from Deforestation and Forest Degradation
RERAC	Renewable Energy Resource Advisory Committee
REREC	Rural Electrification and Renewable Energy Corporation
ROMA	Rapid Outcome Mapping Approach
SACCO	Savings and Credit Co-operative
SDG	Sustainable Development Goals
SEforAll	Sustainable Energy for All
SETA	Sustainable Energy Technical Assistance
SHS	Solar Home Systems
SSA	Sub-Saharan Africa
TVET	Technical and Vocational Education and Training
VAT	Value Added Tax
WHO	World Health Organization

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1. Background

1.1 Modern Energy Cooking Services (MECS)

The MECS programme is a five-year programme funded by UK Aid (FCDO) which aims to spark a revolution through rapidly accelerating the transition from biomass to clean cooking on a global scale. By integrating modern energy cooking services into energy planning, MECS looks to leverage investment in renewable energies (particularly regarding electricity access, both grid and off-grid) to address the clean cooking challenge. Modern energy cooking is Tier 5 clean cooking, and therefore MECS also supports new innovations in other relevant cooking fuels such as biogas, LPG (bio) and ethanol. The intended outcome is a market-ready range of innovations (technology and business models) that lead to improved choice of affordable, reliable, and sustainable modern energy cooking services for consumers. We seek to have the MECS principles adopted in the SDG 7.1 global tracking framework and hope that participating countries will incorporate modern energy cooking services in energy policies and planning.

The program as a whole (led by Loughborough University in the UK) works through a multi-partner program of activities to catalyse the transformation of clean cooking that enables long-term use of MECS to generate inclusive environmental and development benefits for the poor by enabling technological, institutional, and market innovations. Through a multi-level partnership bringing key international, government, private sector, end-users, and other stakeholders together, the program generates empirical evidence, identifies locally embedded opportunities, and mobilizes the global partnerships and knowledge to scale up these opportunities in ways that leave no one behind.

In Kenya, the MECS programme is coordinated through the African Centre for Technology Studies (ACTS). The MECS Kenya programme aims to drive forward the clean cooking agenda with the enormous progress that has been made in electrification by catalysing partnerships and facilitating multi-stakeholder coordination around the emerging opportunities for cooking with electricity (e-cooking).

The objectives of the MECS Kenya programme include:

- To bring together the clean cooking and electrification sectors and foster the growth of the emerging e-cooking sector.
- To improve and make available evidence of the various technological, social, and policy pathways to MECS in the region including assessment of opportunities for transformative change through foresight, industrial mapping, historical and cultural studies.
- To establish an integrated evidence-base on the MECS a 'one-stop shop' or knowledge platform where stakeholders/entrepreneurs/governments can access and share relevant information on MECS in Kenya.

2. Clean cooking and electrification in Kenya

Cooking presents an opportunity for clean energy transition in line with SDG 7, given that almost all households and other stakeholders interact with energy through cooking. In Kenya, over 70% of the population still depend on biomass energy forms for cooking (ESMAP, 2020), with most people depending on firewood, charcoal, and kerosene (GLPGP, 2019). While a large population of households especially in the rural settings of Kenya traditionally use biomass due to convenience and perceived affordability, the health and environmental costs of these options are very high, with indoor air pollution reportedly causing over 20,000 premature deaths annually in Kenya, Uganda, and Tanzania (WHO, 2009).

Kenya has put in place multiple efforts towards achieving clean cooking transition from biomass to cleaner options such as improved *jikos*, energy efficient stoves among others. This has also been followed by the emerging efforts by the private sector and Government to support the uptake of LPG through initial subsidies and strengthening the distribution chain. According to (Vereshchagina, Gstrein, & Teufel, 2020), the transition to clean cooking is driven by a variety of factors including the availability of technology, the acceptance of this technology by various stakeholders (including the technology developers, marketers, and consumers) as well as the policies to incentivize access and sustained adoption. More generally, literature has highlighted poor communication, insufficient consumer knowledge, limited market development, price, regulatory, and institutional constraints, and poor-quality products as key challenges to the slow adoption of modern energy cooking. In reality, the challenges are contextual and driven by a number of systemic factors that require clear understanding and interventions.

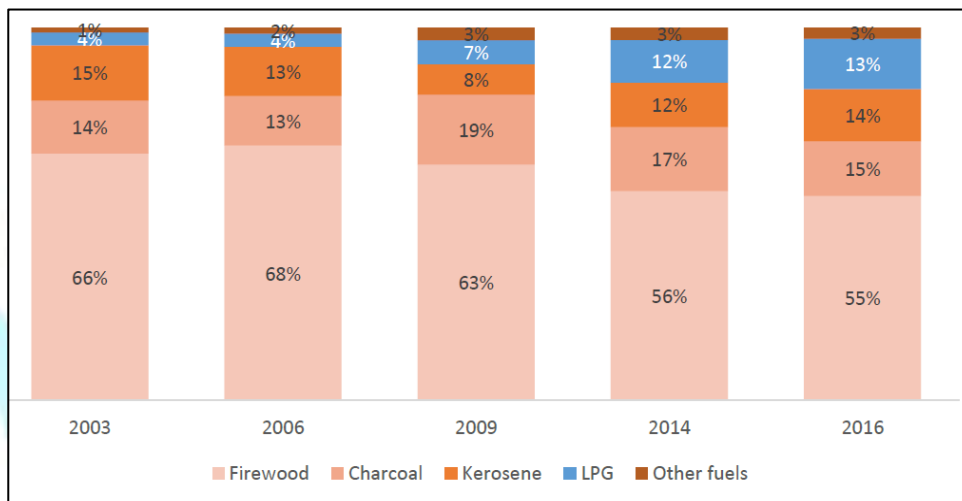


Figure 1: Trends in primary fuel use in Kenyan households (2003-2016). Source: GLPGP (2019).

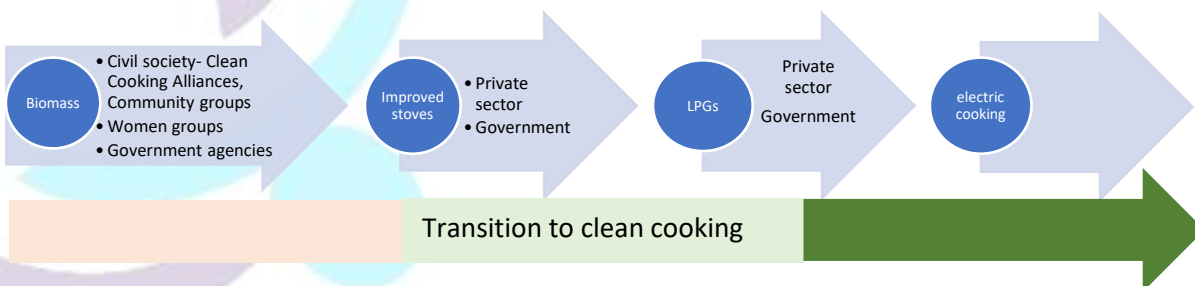


Figure 2: Biomass burning remains rampant but with detrimental health and environmental costs

About 81% of the population especially in the low-income category still rely on traditional biomass and polluting fuels such as firewood (65%), charcoal (10%), and kerosene (6%) for their cooking needs but with detrimental health and environmental challenges (GoK, 2019). An estimated 21,560 deaths/year are linked to household in-door air pollution while 13.6 MtCO₂e/yr is emitted from such fuels and associated forest degradation. Socially, severe impacts are felt by women and girls who have to spend more time fetching firewood and in most cases foregoing more beneficial educational and economic opportunities. These women and girls additionally get more exposed to the pollutants thus are more exposed to resultant health impacts. In other studies, it is argued that biomass causes low birth weight and neonatal death in babies and potential risks of lung cancer, high blood pressure in adults and vision impairment in adults.

2.1 Improved cookstoves does not offer adequate solution to the health and environmental concerns of biomass

Conscious of the growing health and environmental concerns of burning biomass, efforts to move towards clean biomass cooking received enormous attention in the last few decades. Through various civil society movements and Non-Governmental Organizations, Improved Cookstoves (ICS) have been heavily promoted in Kenya as a cleaner technology for biomass cooking. Improved cook stoves are designed to enhance performance of biomass stoves by increasing the efficiency of charcoal/wood fuel use and reducing emissions. However, recent evidence indicates that these ICS still posit some health risks than previously thought (WHO, 2016). Also, studies reveal new environmental challenges around wastes associated with lack of sustainable uptake of ICS due to high rates of abandonment after initial acceptance (GoK, 2020). Concerns have been raised that the ICS replicate similar utility pathways as the traditional cookstoves or three-stones fires and that they do not provide significant changes to the reduction of household air pollution (Sambandam and others 2015) there is the risk that households could easily fall back to the traditional cooking behaviours.

2.2 LPG is increasingly becoming unsafe and expensive

The last decade has witnessed the increased promotion and adoption of Liquefied Petroleum Gas cookers (LPGs) as modern clean cooking option. Through public-private investments and subsidies, adoption of LPG in Kenya has doubled over the last decade from 7% in 2009 to now approximately 15% in 2020. This adoption is however more skewed towards the urban areas compared to rural areas where biomass burning remains rampant. Through public-private initiatives such as the *Mwananchi* Gas Project and multiple investments in distribution channels (see MECS Kenya Techno policy Analysis), the access to LPGs for the low-income group has been enhanced. While widely seen as clean and modern, key concerns about the LPG in Kenya relate to safety and costs. In Kenya, regulatory standards for various forms of LPGs remain a challenge resulting in the introduction of certain sub-standard forms of LPGs into the market, yet most incidences remain unaddressed. Again, LPG have been promoted as affordable to a wide range of consumers because the Government to zero rated for Value Added Tax (VAT). On June 30th, however, the president of Kenya assented to the Finance Bill that effectively imposed 16% VAT on LPGs resulting in about 31% increase in prices. This has meant that LPGs are becoming more expensive, and this pushes consumers to begin thinking about alternative modern cooking options such as e-cooking. This has also provided some consciousness among consumers on the need to consider a range of choices including e-cooking, but this will depend on the types of information availed and disseminated to them.

2.3 E-cooking is an opportunity for low carbon development pathway in Kenya

In Kenya, the ambition to achieve universal clean cooking is developing at a time when the country's electricity supply is rapidly expanding, presenting a fresh path towards low-carbon growth. Kenya has made enormous progress on electrification, with coverage increasing from 29% to 73% in just 5 years (KPLC, 2018). The Last Mile Electrification programme has extended the national grid into rural areas and densified the network to reach low-income households. Majority of Kenya's grid electricity i.e.,

over 70% is generated from renewable sources, with geothermal being the most significant source (GoK, 2021).

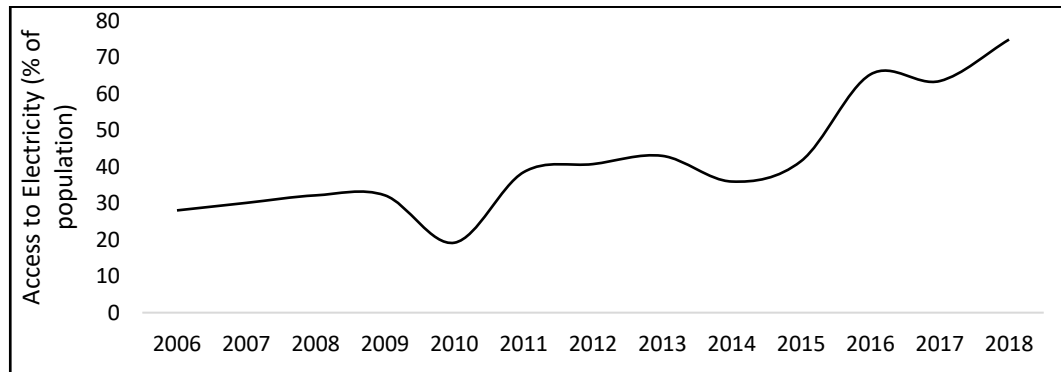


Figure 3: Trends of the population access to electricity in Kenya. Source: World Bank Database

Despite the opening of this window of opportunity, adoption of electric cooking is still very low. Recent study shows that only about 3% of Kenyan households own an electric cooking appliance such as a dual LPG-electricity stove, electric induction stove, electric coil stove and microwave (ROK (Republic of Kenya), 2019). The study attributed this finding to the high purchase costs of some of these cooking appliances, however an array of lower-cost more energy-efficient appliances are now available in Kenya. The perceived high cost of electricity as a cooking option is rampant and needs to be addressed through adequate awareness among stakeholders and end-users.

At the Clean Cooking Forum in Nairobi, 2019, the Government of Kenya (GoK) announced its intention to enable universal access to clean cooking by 2028, 2 years ahead of the global SEforAll targets. Hon. Simon Kachapin, the Chief Administrative Secretary in the Ministry of Energy, told delegates at the close of the forum that: “[This] means we have to do things differently, disrupt our way of thinking, as business as usual will not enable us to achieve our global and national aspirations.” Other than increasing connectivity, other opportunities for e-cooking in Kenya are as outlined below.

The country has an opportunity to link the clean cooking challenge with its rapid electricity growth by promoting electric cooking. The leadership of the Ministry of Energy and Petroleum has advised households to use electricity for cooking and to take advantage of new electrical connections and e-cooking technologies/appliances on several occasions. Kenya Power acknowledges that the nation has surplus electricity supply – so e-Cooking is an opportunity to increase profitability. The Ministry is currently leading the development of an integrated energy plan that targets to supply clean energy to meet all household needs.¹ to offer households energy for all their needs, including cooking. Practical programs like KLPC's *Pika na Power* and others like *Jikoni Magic* have evolved to operationalize e-cooking in a variety of settings. E-cooking is a cross-sectoral possibility for low-carbon development in general. Because of historical cooking's negative implications on health, environmental, and gender implications, as well as the limited advantages offered by many types of ostensibly improved cookstoves, e-cooking is ideally positioned to play a central role in supporting the goals of numerous sectors, including health, climate change, forestry, gender, housing, and other related sectors.

2.4 So, what needs to be done to catalyse the adoption of electric cooking in Kenya?

In the pursuit of e-cooking as a new innovation opportunity in Kenya's clean cooking pursuit, it is critical to recognize that the journey to clean cooking can be enabled strengthening partnerships, market and institutional innovations as well as financial revolution to enhance consumer access. In the electrification sector, innovative financial options such as the PayGo solar, subsidized grid connection

¹ <https://youtu.be/sbh4ZwzKCuM>

fees with instalment payment options, etc. have played central role in enhancing the adoption of both on and off grid electricity connectivity. These have already achieved much more success in terms of numbers of people with access than the clean cooking enablers. Meanwhile a number of women groups and community-based organizations have supported sustainable biomass cooking through tailored community afforestation and reforestation plans. The transition from biomass in most Kenyan rural households has also been enabled through a strong network of civil society organizations and NGOs that have partnered with the government to incentivize the distribution and adoption of clean cook-stoves. The emergence and increased adoption of LPG has been enabled through strong private public partnerships that has resulted in strengthened distribution chains, subsidies, and enhanced access. Similarly, a transition to electric cooking solutions will require strategic stakeholder engagements to create a legitimacy and catalyse awareness, markets, and adoption of the emerging e-cooking technologies by connecting actors in the clean cooking and electrification sectors.

- *Strong policy environment- ecosystem:* Kenya has oriented its plans to a number of global efforts which advocate for clean and sustainable energy (see annex 1 for the list of relevant policies). Such global initiatives include *inter alia* the Sustainable Development Goals (SDGs), Sustainable Energy for All (SE4ALL) and the Paris Agreement on Climate Change. The Constitution of Kenya 2010, The Energy Policy 2004, The Energy Act 2019, The Environment Policy 1999, and various Regulations under the Energy Act, 2019, the National Climate Change Action Plan 2018-2022 and its associated Nationally Determined Contributions advocate for modern energy cooking with low carbon development benefits. Despite this rich regulatory environment, there is still lack of specific direction on e-cooking and associated appliances. The policies provide opportunities to entrench e-cooking across multiple sectors.
- *Strong public and private support for e-cooking.* Kenya's electricity distributor, KPLC, has already begun e-cooking studies which could be out-scaled through connections with the specific platforms such as demo centres/county energy centres. The MECS Kenya team has already established an MoU with KPLC and is working closely with the county and national governments in the energy planning and capacity building projects.
- *Existing experiences with innovative financial instruments and approaches:* including social entrepreneurship. The country has experienced vast innovations through options such as mobile money, PayGo, local financing initiatives through women groups and government enterprise funds, emerging SACCOs among others. These provide an opportunity for enhance affordability and access to e-cooking appliances and business development.
- *Devolution and the strengthened role of local governments (Counties):* that could help contextualize interventions and generate evidence for supporting partnership development. Counties in Kenya have been mandated to develop energy strategies and plans and also establish energy centres within various local communities to enhance learning, incubation and consumer awareness on e-cooking.
- *Strengthening the supply chain:* Increasing suppliers and technology developers for e-cooking equipment including EPCs. This is likely to provide a range of choices for consumers to adopt.
- *Building the evidence base and raising awareness of e-cooking:* through e-cooking demonstrations and diaries as well as studios led by KPLC, continue to strengthen contextual evidence on the social (e.g., Gender benefits, equality, economic (income and economic enterprises) and environmental benefits (e.g., forest conservation, reduced GhG emissions) of e-cooking. These evidence needs to be communicated effectively different interest groups.

While the opportunities are many, the challenge lies in lack of integrated partnerships to understand and utilize the emerging opportunities. In Kenya, there are already many partnerships between actors in the electricity access sector and between partners in the clean cooking sector, however what is

lacking is partnerships that break out of this siloed way of working. There is a need for intersectoral partnerships between established players from both sectors to build the emerging e-cooking sector that sits at the intersection of the existing clean cooking and electrification sectors.

2.5 Aim and Objectives of the Strategy

This document presents a stakeholder engagement strategy for the MECS Kenya activities which aims to catalyse linkages between actors driving the clean cooking agenda (technologies, finances, markets, policies) and those involved in electrification sectors to enable a transition from biomass cooking directly to e-cooking. The strategy is intended to catalyse the opportunities and partnerships that can create great awareness, market, and policy incentives as well as innovation for increased access and adoption of e-cooking. More specifically, the strategy is focused on strengthening the linkages between the clean cooking sector and electrification sector. The strategy is inspired by the Rapid Outcome Mapping Approach (ROMA). The strategy comprehensively details opportunities through which various actors working in the clean cooking and electrification spaces in Kenya can intervene to promote e-cooking in their new strategies. There is growing interest among development partners, private sector and practitioners who want to intervene in the emerging e-cooking sector but may not yet have the strategic insight how to do so effectively.

Constructed around the 5 stages of the Steven (2007) framework, the specific objectives of the strategy include:

- Changing perceptions and public opinion around cooking with electricity
- Setting an integrated agenda by reframing electricity access and clean cooking as a single problem that can be tackled more effectively together
- Building an eCooking community of practice and brokering strategic partnerships between the clean cooking and electrification sectors
- Developing capacity within the county and national governments to allow them to effectively integrate the planning for electrification and clean cooking
- Changing institutions and the county and national level to create an enabling environment that can support the growth of the emerging eCooking sector in Kenya

3. Methodology

3.1. The Rapid Outcome Mapping Approach (ROMA)

The strategy uses the RAPID Outcome Mapping Approach (ROMA) as a key guide. The approach helps to direct targeted engagement modes to specific opportunities and niches for catalysing change. ROMA is conceptual framework with three primary activities broken down into a series of steps to improving policy engagement processes, to influence change. It comprises a set of tools that organizations, programs, and projects such as MECS can use at any stage in their policy engagement processes. The approach helps to strategically diagnose the problem, understand the types of potential impact on policymaking, set realistic objectives for policy influence, develop a plan to achieve those objectives, monitor and learn from the progress made and reflect this learning back into their work (Young J. , et al., 2014). The guide comprises three main activities with a number of steps (Figure 4). It is worth noting that the ROMA framework is policy focused even though the MECS work is not solely to influence policies but to broker relations at various levels as means to policy and market change. To this end, we have adjusted key elements of the frameworks and adjusted where necessary to suit the context.

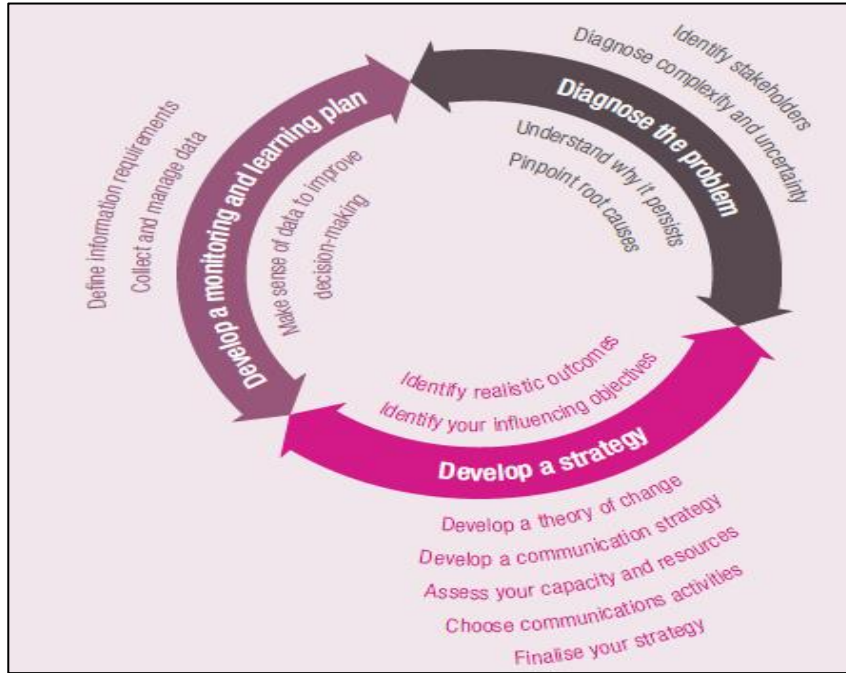


Figure 4: The ROMA Cycle

The framework has four steps which include problem identification as a means to understanding the root challenge and designing targeted intervention. Identifying the problem also involves understanding why it exists and which stakeholders are associated with challenge. The ROMA framework provides for the Alignment Interest and Influence Matrix (AIIM) as a guide that helps to categorize these stakeholders based on their interest and influence (Figure 5).

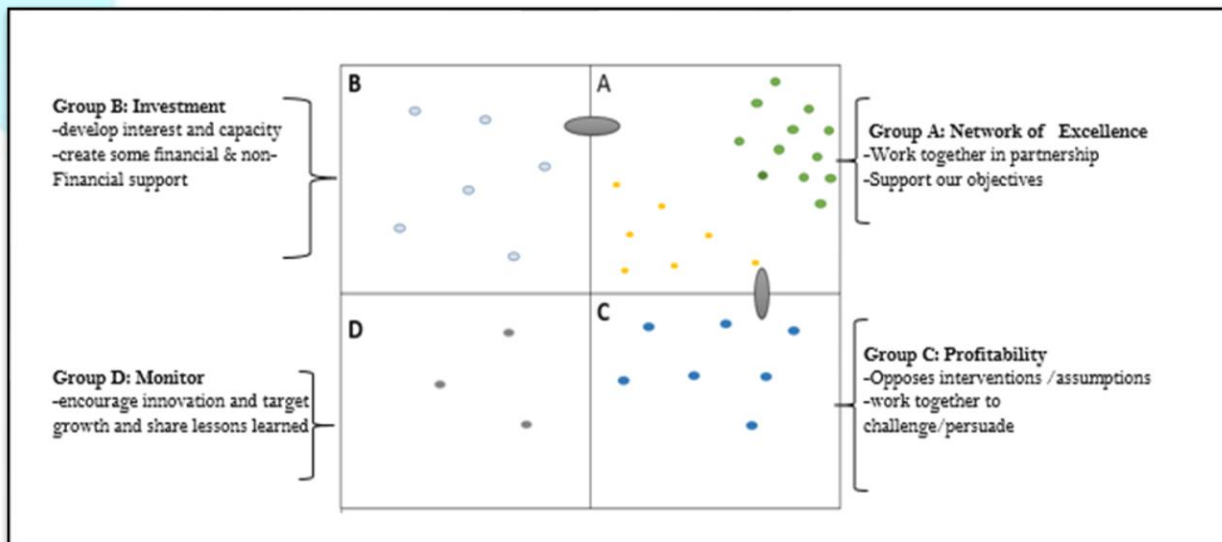


Figure 5: The Alignment Interest and Influence Matrix (AIIM)

Step 2 of ROMA involves strategy development through workshop-based tools that allows for consultative identify key influencing objectives, actions, outcomes a communication strategy as part of the strategy. The ROMA approach helps to understand and identify what sort of communication and knowledge-brokering roles you could choose and what sorts of effects they are likely to have. The objectives and expected changes are then linked to the outcomes and impacts. The process provides

a useful first check on how realistic your initial objective is and explains the theory of how change is likely to come about. The final step is to develop a monitoring and learning plan (MEL) to promote effective learning and feedback especially about the strategies being adopted to achieve the objectives and the improvements that might be required. In this strategy, the MEL framework will allow for continuous surveillance of stakeholders and emerging opportunities for engagement

3.2 Data collection for the strategy

Techno-policy analysis: This strategy builds on a comprehensive analysis of technology and policy landscape for e-cooking in Kenya (available here). The report maps out the current policies, programmes, and technologies supportive to e-cooking and has therefore provided a foundation for building stakeholder actions in this strategy. More specifically, the techno-policy analysis has shown that whereas there exist several e-cooking technologies, appliances as well beneficial impacts, there is limited awareness about these opportunities especially among consumers and policy. The number of private sector actors exploring e-cooking is increasing but their connection to the consumer and markets is still weak. The potential for achieving large scale consumer adoption and interest in e-cooking further lies in the fact that there is a disconnect and lack of coordination between the relatively well-established clean cooking actors and the electricity access actors. These insights have informed this strategy especially on the need for a coordinated approach to partnership and awareness especially between clean cooking actors and their counterparts in the electricity access sectors.

Stakeholder assessment workshop: We undertook a stakeholder assessment workshop to map and identify key stakeholders involved in the MECS work in Kenya to identify their roles and connections, strengths, and opportunities for engagements (see Byrne et al., 2020). The analysis provided a map of how different stakeholders are connected and the kinds of energy ideals they promote. A key insight that emerged is that most actors in Kenya's clean cooking sphere are already well connected through networks such as the Clean Cooking Association in Kenya (CCAK). Similarly, the electrification sphere is well established including domestic grid connectivity programmes e.g., last mile connectivity and broader regional and global platforms promoting off-grid electrification e.g., GOGLA (Global Off-grid Lighting Association), AMDA (African Mini-grid Developers' Association). As revealed by the techno-policy analysis, a key gap remains in the weak or lack of connections between the clean cooking and electricity access sectors, which needs to be addressed to achieve a thriving eCooking sector.

Policy dialogues: Four virtual policy dialogues were held to identify opportunities and challenges for e-cooking: 1) Virtual policy discussion with the MECS challenge fund activities in Kenya on 16th June 2) Virtual policy discussions on gender and clean cooking on 8th September focusing on accelerating the inclusion of women and persons with disabilities in modern energy cooking services 3) virtual dialogue on cooking which highlighted that electrification policies and programmes are well established in the country with over 75% households able to access electricity. However, the link between the clean cooking policy agenda and the electricity space/opportunities remains weak. The country's Integrated Energy Plan (under preparation) provides a framework through which these two issues can be linked up and tackled together.

Key informant interviews: discussions with county governments- engaged with key target counties within Kenya including Nairobi, Nakuru, Homabay, Kisumu on energy planning including discussions with the four (4) county directors in charge of climate change and energy to understand key gaps in sub-national energy planning. From these interviews, there seem to be multiple emerging opportunities at the county level including planning and infrastructural prepositions to promote modern energy options such as e-cooking among local communities and consumers. However capacity and clear understanding of e-cooking procedures and opportunities remain weak thus the need for strong capacity building and awareness opportunities in collaboration with the county governments. Additionally, while most households in counties continue to access electricity through government

subsidized programmes, the utility of this electricity is relatively limited to lighting. There is little know-how on alternative uses of electricity including for cooking and other entrepreneurial activities.

Participation in ongoing initiatives: These include engaging with the GIZ-Kenya office and ICLEI Africa under the Covenant of Mayors initiatives on county energy assessment; HIVOS-SPE initiative to gather information on clean cooking and gender issues especially in the low-middle income settings of Kenya; participation in forums such as the Global Off-Grid Solar Forum and Expo (GOGLA) Annual conference 2020. A key insight from these engagements is that there is weak documentation and presentation of private sector experience regarding e-cooking. This is occasioned by lack of proper documentation of these experiences in forms accessible for engagement. However, ongoing MECS activities in Kenya seem to be exploring a valuable path through the private sector actors (both international and local) who are already designing and assembling MECS appliances. Initial discussions with some private sector actors reveal that insecurity in protecting patents and property rights in Kenya limits the opportunities to share information.

Empirical evidence and household surveys: cooking diaries where a follow-up survey with 20 participants in Nairobi was undertaken to document the experiences and consumer expectations. Interviews with clean cooking initiatives in Nakuru, Kisumu and Makueni counties with CBOs and households provided further details that aided our analysis of consumer and policy needs and entry points for e-cooking. The surveys have shown the need for upscaling and sustaining e-cooking awareness among consumers.

Lessons from past projects: the strategy is built on a long history of engagement and experiences through past projects which involved targeted stakeholder engagements and capacity support. Insights show that the clean cooking and electrification environment remains relatively complex with multiple actors promoting different ideas.

4. Analysis

4.1 Mapping stakeholders and their interests on e-cooking

Drawing on the AIIR framework, we developed a comprehensive map of stakeholders and their engagement in the e-cooking agenda as well as their influence on the same. A comprehensive mapping of stakeholders involved in clean cooking and electrification space resulted in four categories of stakeholder groups: policy, technology supply, financing, outreach, and awareness-oriented stakeholders.

4.1.1 Policy Oriented Stakeholders

The policy-oriented stakeholders in Kenya are multiple and key in enabling e-cooking processes including technology development, financing as well as legitimacy and awareness. A central actor in the policy space in the Ministry of Energy where various energy regulating agencies are domiciled. The Ministry has a strategic and direct policy mandate in regulating the energy demand and supply through its various agencies. Currently, the Ministry is developing an Integrated Energy Plan which will guide multi-sectoral approach to clean energy transition in line with the SDG 17. There is a huge opportunity in mainstreaming e-cooking as a central part of the plan and building on this to steer multi-sectoral presence of e-cooking. A key challenge highlighted in the techno-policy analysis is the weak coordination among the agencies within the Ministry of Energy itself manifested via overlaps in technological interests that could slow the adoption of e-cooking. While KPLC is already promoting e-cooking, other agencies are pursuing a wide range of different cooking technologies, including improved cookstoves. The lack of harmony is further inspired by a lack of an integrated understanding on the opportunities associated with the various energy uses and the consequences of such. As part of promoting e-cooking, MECS-Kenya will engage closely with the IEP development process with the aim of facilitating inter-agency dialogues around e-cooking. Such dialogues will also require active integration of the civil society organizations as well and the private sector who are key players in the policy and market influence.

Besides the Ministry of Energy, there are also other important agencies and Ministries outside the energy docket, e.g., the Ministry of Environment hosting climate change directorate, Kenya Forest Service, NEMA etc) and Ministry of Health, Ministry of Finance and planning, Kenya Revenue Authority. These agencies, whilst are not directly involved in governing the energy supply and demand, are important in facilitating the implementation of clean cooking measures and innovations. The Ministry of Environment for instance is responsible for promoting sustainable management of natural resources including those used in generating electricity and hosts climate change directorate which is responsible for preparing and implementing the country's climate action plan and Nationally Determined Contributions. E-cooking presents new and innovative options to reduce GHGs resulting from burning solid biomass. While Kenya's climate plan and the updated NDCs submitted to the Paris Agreement recognize modern cooking options for both climate mitigation and adaptation, there is an opportunity to integrate more specific e-cooking agenda in the implementation of the plans.

County governments are increasingly becoming important in local energy planning and implementation. The Kenyan Constitution mandate county governments to support communities with clean energy and the New Energy Act requires that these counties set up county energy Centres (GoK, 2011). The counties have been mandated to establish energy Centres for demonstration, and extension on renewable energy technologies and innovations including capacity building. These local energy Centres provide special opportunity to strengthen, demonstrate, and integrate e-cooking forums/hubs in various counties.

Overall, the analysis of policy indicates that whilst clean cooking and electrification policies and programmes are well developed in Kenya, these sectors however remain relatively disconnected. There is increasing recognition of this issue within the MoE who intend to develop a more joined up policy

framework through the INEP and other mechanisms currently under development. These efforts will require interventions that strengthens the e-cooking narrative and policy foresight in this emerging integrated policy framework. This is to say that even with the integrated policies, there will need for targeted interventions that uses e-cooking as a connection point between clean cooking and electrification sectors. This section has summarised the key opportunities for strategic engagements with policy stakeholders in Kenya drawing from the full range of opportunities listed below in Table 1.

Table 1: Analysis of policy stakeholders

Stakeholder	Ambition	Position in the e-Cooking transition	What do they need to know to support transition to e-Cooking – the opportunity	Possible entry point
EPRA	To support the sustainable growth of the energy sector through energy price regulation and promotion of energy consumption	Recognizes electricity use more generally but no specificity on e-cooking yet – current electricity tariff structure not designed around eCooking	Specific evidence on e-Cooking and associated market. Expressed interest in supporting the development of an off-peak tariff to stimulate demand for excess renewable electricity during the daytime through e-cooking in institutions.	Build the evidence base on electricity price sensitivity for eCooking, in particular institutions to support the development of an off-peak tariff designed to stimulate demand for excess renewable electricity during the daytime.
County Government Energy Planners	To support universal access to clean energy for communities, enterprises, and institutions	Clean cooking and electrification planning currently disconnected - e-cooking not prominent. Electricity connectivity is identified in planning as an opportunity, but usage remains unclear beyond lighting.	Feasibility of e-cooking technologies at household, business and institutional levels. They also need to know how to integrate clean cooking solutions as part of the increasing electricity connections.	Development of an e-cooking framework and supporting specific counties (Kisumu, Nakuru, Kitui, Makueni) to develop County Energy Plans inclusive of eCooking.
Ministry of Energy	To promote universal access to clean and renewable energy inclusive of cooking. The Ministry has set target to achieve universal access to electricity by 2022 and universal modern energy cooking services by 2028.	Vocal champion for clean cooking and e-cooking specifically at high level global events. Leading Integrated Energy Planning which considers diversifying electricity market through alternative uses including cooking.	Need policy foresight evidence on the potential of eCooking as a niche for transforming clean cooking landscape. They also need to know how to integrate clean cooking solutions as part of the increasing electricity connections.	Work with the Ministry of Energy on the development of the INEP (Integrated National Energy Plan) and Clean Cooking Strategy by providing policy foresight evidence and analysis.
Clean cooking inter-ministerial committee	To coordinate between ministries on cross-cutting issue of clean cooking.	Aware of the transformational potential of e-cooking and are interested in solutions with multi-sectoral benefits, but still lack evidence on how e-cooking could promote such multi-sectoral benefits.	Need policy foresight evidence on the multi-sectoral benefits of e-cooking and how to integrate planning for clean cooking and electrification	Work with existing inter-ministerial clean cooking committee and extend remit into the electricity sector. Develop a policy scenario analysis that could enable the committee to make evidence-based decisions on how to create an enabling policy framework for e-Cooking.
County Energy Centres	Aims to promote ongoing clean energy initiatives. Create awareness on clean energy, incubate	Are currently anchored on various ongoing clean energy initiatives by communities and institutions. E-cooking	e-Cooking technologies, community feasibility and expansion opportunities.	Design a programme for empowering local champions to start up innovative new eCooking businesses in their local area.

	related innovations and provide information for consumers.	is already being considered in the plans of some of the counties.		
KPLC	To increase the consumption of surplus electricity and enhance profitability.	Already promoting e-cooking with the Pika na Power programme. Looking to expand beyond Nairobi hub and expand range of financing options beyond KPLC employees.	How to scale up the <i>Pika na Power</i> programme beyond Nairobi into the other 46 counties to reach more of their 7 million customers.	Connect to County Govts via County Energy Centres to enable the Pika na Power programme to reach across the country and provide a diversity of e-Cooking services including demonstration, technical support, financial support (e.g. through the Stima Loan concept) and consumer awareness.
KOSAP (Ministry of Energy or SNV)	To scale up solar home systems, mini-grids and clean cooking as a way of enhancing socio-economic development of the community.	Explore the viability of incentivising the supply of e-Cooking appliances to newly connected households.	Awareness of locally available and affordable technological options and appliances for e-Cooking via SHS & mini-grids.	Develop a set of knowledge briefs on e-cooking technologies suitable for SHS and mini-grids.
Rural Electrification And Renewable Energy Corporation (REREC)	To expand electricity connectivity in all parts of Kenya to achieve 100% access to electricity.	Already supporting access to electricity for household and institutions and are advocating for diverse electricity uses to match the supply.	Potential role of e-Cooking in stimulating demand for electricity in rural areas and increasing impact of electricity connectivity.	Facilitate knowledge exchange between REREC and MECS Challenge Fund winners piloting e-cooking on mini-grids and SHS.
Kenya Revenue Authority (KRA)	Mobilize tax collection from enterprises, support enterprise development and job creation to enhanced revenue for the country.	Responsible for managing tariffs and licensing for e-cooking manufacturers and service providers.	Options for optimizing revenue from e-Cooking including better tariffs, tax reliefs to enhance local manufacturing and jobs with more revenue to the economy/ taxes in return.	Generate and supply policy advisory/foresights on the e-Cooking enterprise ecosystem and the potential impact of optimising taxation and subsidies (e.g. tax exemptions for energy-efficient appliances)
Ministry of Environment	Management of sustainable use of natural resources including electricity generating resources.	The climate change action plan envisages clean coking as an opportunity for reduced GHG emissions but lacks details on measuring emission from clean cooking.	Methodological approaches to accounting emissions from e-cooking.	Work closely with climate-care to leverage the new streamlined methodology for the certification of e-cooking carbon financing projects in the implementation of the updated NDC. .
Ministry of Health	Reducing health risks for the Kenyan population.	Keen to promote clean cooking and reduce health risk from indoor pollution caused by dirt fuels. However still not aware of e-cooking solutions.	Health and safety information on e-cooking.	Engage the Ministry in e-cooking dialogues and broker collaboration on mainstreaming e-cooking into the design of community health programmes
Ministry of Planning and Finance/Treasury	Budgetary allocation to different departments	Allocates resources to clean energy investments and clean cooking more specifically even though specific attention is yet to be given to e-cooking.	Programmes and activities on e-cooking that are aligned to the energy, environment and health sectoral action plans	Work with the MoE through KPLC to increase the inclusion on e-cooking in plans submitted to the Treasury for funding.

Kenya Bureau of Standards	Ensure high quality products are available for Kenyan consumers through the provision of Standards, Metrology and Conformity Assessment.	It ensures standards of the energy appliances including e-cooking ones such as cookers and EPCs.	Inventory of emerging innovations for various consumers and standard assurance needs.	Build local capacity for implementing an e-cooking testing programme using the Global LEAP EPC Test Method as a starting point.
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4.2 Technology oriented Stakeholders

Technology development and supply is a key enabler for the transition to e-cooking. A number of stakeholders have emerged to promote the supply of different forms of e-cooking technologies and appliances suitable for both on-grid and off-grid electricity supplies. Appliances ranging from EPCs, hot plates, smart meters, AC grid cooking, including battery supported options have emerged. The key stakeholders here include appliance distributors and manufacturers such as Burn and Hotpoint who have recently ventured into the production/distribution of EPCs and are seeing increasing sales volumes as markets expand. Large industry associations such as GOGLA, CCAK, AMDA have emerged to bring manufacturers and private ventures together, share knowledge, investment opportunities and scale up supply and innovation. These industry associations deal with their respective sectors (e.g., off-grid solar for GOGLA, clean cooking for CCAK). Although they may have started to engage in e-Cooking, there is need to bring them together and broker working relationships and engagements. The MECS programme is often invited to the annual events, e.g., the at the 2020 GOGLA Global Off-grid Solar Conference that provided an opportunity to learn what different stakeholder do. During this event, the MECS programme ran a session on eCooking which was chaired by the CEO of the Clean Cooking Alliance.

Whereas Kenya still relies on a few companies to manufacture modern appliances, the emerging international interest provides an opportunity for enhancing supply of these appliances. There are domestic entities such as KIRDI, TVETS with potential to venture into local manufacturing of appliances but this will require strengthened capacity and support from the wider experienced industry players. The local manufacturing capacity is still weak thus the supply is still relatively low. A key concern from this is the relatively high costs of e-cooking appliances which impedes affordability for most potential consumers and overall access. Additionally, most consumers are unaware of where to get the appliances and even how to use them. Consequently, a recent survey shows that only 3% of Kenyans own e-cooking appliances let alone their usage (GoK, 2019). While there have been awareness creation efforts via mainstream media, such as showcasing e-Cooking through the Shamba Shape up programme on the National Television and a series of social media campaigns, these need to be upscaled Even with the awareness creation a key entry point also remains in promoting incentives to scale up production of appliances and stimulate demand at affordable prices. Such efforts are already emerging through the CLASP’s RBF programme which supported the development of the supply chain for eCooking appliances in Kenya by incentivizing the sale of 5,000 EPCs.² This presents a first step towards much bigger programmes that are already under development.

Overall, the analysis of technology-oriented stakeholders shows the need to strengthen partnerships between these stakeholders (technology stakeholders) and market and policy enablers such as KPLC, which is already raising awareness of e-cooking and opening markets. There is also wider need for strengthening local manufacturing capacity to enable enhanced supply of appliances, reduce prices

² <https://efficiencyforaccess.org/publications/uses-impacts-of-electric-pressure-cookers>

and enhance affordability of these appliances. This section has summarised the key opportunities for strategic engagements with technology stakeholders in Kenya drawing from the full range of opportunities listed below in Table 2.

Table 2: Mapping and analysis of technology-oriented stakeholders

Stakeholder	Ambition	Position in the e-Cooking transition	What do they need to know to support transition to e-Cooking – the opportunity	Possible entry point
AMDA (African Mini-grid Developers Association)	Enhance electricity supply and use through mini-grids	Mini-grid developers starting to experiment with eCooking, but appliance costs are high, as having to order small quantities direct from China	Partnerships with manufacturers and information on best quality eCooking appliances.	Use Global LEAP EPC Buyer's Guide to support bulk procurement and make connections with other suppliers and manufacturers of energy-efficient eCooking appliances. Lobby for import tax exemptions to drive down cost.
Industry associations (GOGLA, CCAK, AMDA, etc.)	Coordinating their respective sectors and giving a voice to their members	A number of industry players are already venturing into eCooking appliances manufacturing with to fill in the eCooking capacity in the electrification sector.	Understanding how eCooking can add value to their respective sectors, e.g., as a tool for demand stimulation on mini-grids, and how they can create opportunities for intersectoral collaboration.	Generate evidence on the value of eCooking in different sectors. Set up opportunities for intersectoral knowledge exchange and collaboration through workshops, staff exchange programmes, collaborative projects and the development of a community of practice on eCooking.
Innovation labs (e.g., UoN FabLab, Gearbox, Mideva)	Develop innovative technologies	Not yet engaged in the development of e-Cooking appliances and associated technology.	Raising awareness of the opportunities for e-cooking and the challenges that still need to be solved	Co-convene innovation challenges to tackle key technological and delivery model challenges for e-cooking, e.g., Hack-a-thons to prototype innovative new eCooking products, services and marketing strategies that could tap into the emerging modern cooking concept.
Kenya-based clean cooking appliance manufacturers (e.g., Burn)	Manufacturing clean cooking appliances to meet the growing market and strengthening local manufacturing capacity.	Kenya's manufacturing sector is developing rapidly and has been identified as a priority area for further development by the government. Already manufacturing certain types of e-Cooking appliances e.g. Burn manufacturing EPCs in Kenya to supply both Kenyan and other regional markets.	The policy and partnerships opportunities for reducing manufacturing and distribution costs locally and broader consumer outreach including viable distribution channels that can make Kenya a hub for supplying Africa with e-Cooking appliances.	Brokering partnerships for Burn and creating an enabling policy environment for e-cooking. Raising awareness of the emerging opportunities for manufacturing e-cooking appliances in Kenya amongst other modern manufacturers (e.g., via KAM).
Utility, mini-grid and smart-meter developers	To stimulate demand for electricity on mini-grids without overloading the system	Several mini-grid developers already piloting eCooking in Kenya.	The policy spaces and opportunities through which smart meters can inform variable tariffs and price signals to consumers and enable optimal e-Cooking i.e., cooking at off-peak	Strengthen dialogue between the policymakers, KPLC, mini-grid developers and manufacturers to pilot variable tariffs.

			times to minimize costs etc.	
KIRDI	Develop technologies and innovation for industrial development	Have built patents of clean cooking appliances including some hot-plates, but yet to venture into energy-efficient e-cooking appliances.	Feasibility of making e-cooking appliances locally	Capacity support and partnerships with private suppliers to consider supporting local manufacturing capacity of e-cooking appliances.
TVETS (RIAT)	Technical training	Some TVETS such as RIAT are already piloting clean energy courses including clean cooking even though the focus on e-cooking is still lacking.	Information on e-cooking processes that can inform curriculum development for training technicians.	Collaborate in enhancing e-cooking for a/hubs through supporting demonstrations and training technicians on e-cooking appliances and strengthening e-cooking within county energy centres
KCIC	Incubating innovations that are climate compatible.	Is already incubating clean cooking technologies and innovations such as LPG stoves and hotplates and these could be expanded further to include new innovations such as EPCs.	Market opportunities and platforms for showcasing promising technologies and linking up entrepreneurs and investors.	Create linkages with the manufacturers and consumers through e-Cooking forums and demonstrations/hubs.

4.2.1 Finance Stakeholders

Financing is a major enabler for e-cooking. This is because the high upfront costs of e cooking appliances and perceived high cost of electricity for cooking is a source of hesitancy for many Kenyans to adopt e-cooking (CCAK, 2019). The need for collaborative partnerships and learning towards creating innovative financial instruments is critical. Various stakeholders have emerged to finance e-cooking technology development, innovations as well as entrepreneurship. At the global a number of stakeholders such as the CLASP, ESMAP and others are already piloting e-cooking financing options. There are also Kenya based actors such as Burn, Jikoni Magic and Bidhaa Sasa who are piloting ecooking appliance financing mechanisms in Kenya. A key opportunity here is to link ongoing innovations in Kenya and businesses with these platforms so as to enhance capacity and expound business ideas and investments. It is worth noting that e-cooking in Kenya presents not only a clean energy venture but also an opportunity for entrepreneurship and poverty reduction.

Kenya has also piloted many of the innovative pro-poor financial models such as PayGo. The PayGo model has successfully been applied to promote SHS in Kenya and wider Africa through the MKOPA initiative. The model allows for low-income households to access SHS – mainly for lighting and other appliances (e.g., TV, Radios) and to pay momentarily based on their income capability. A key opportunity for e-cooking is to draw from these experience and spur models that can create consumer and supplier confidence. KPLC through their STIMA loans and other local financing facilities are piloting a different model based upon revolving funds. Opportunities for financing have also emerged through climate funds such as the GCF and especially through emission reduction credits. Given the potential emission reduction associated with e-cooking, MECS is currently working with Climate Care to develop a methodology for streamlining the accreditation process for carbon credits from the e-cooking sector using smart-metering devices. This provides a key entry point in the climate change market and other multilateral and bilateral funding opportunities such as REDD+ among others. Overall, most of the financing stakeholders exist in the wider clean energy arena including SHS and there is a huge opportunity to steer linkages to the e-cooking agenda but again this will require e-cooking business models that assures investors trust.

Overall, Kenya has very innovative financial environment and experiences. For MECS, the need to mobilize these innovative financial opportunities to accelerate adoption of e-cooking is critical. E-cooking specifically has an opportunity to tap into a wide range of funding opportunities including

climate financing. Consolidating the institutional arrangements to tap into these opportunities is key. Further creating enabling investment commitments towards e-cooking would require business models that exploits the linkages between the clean cooking narrative and the electrification programmes. This will also require targeted messaging that captures the entrepreneurial value of e-cooking. The table below outlines some of the entry points. This section has summarised the key opportunities for strategic engagements with finance stakeholders in Kenya drawing from the full range of opportunities listed below in Table 3.

Table 3: Analysis of finance-oriented stakeholders

Stakeholder	Ambition	Position in the e-Cooking transition	What do they need to know to support transition to e-Cooking – the opportunity	Possible entry point
CLASP	To develop & pilot consumer financing options for eCooking appliances	Strong advocate for e-cooking, convenor of the Global LEAP Awards & well-connected thought leader in the energy-efficient appliances space.	Evidence and projects with innovative consumer financing mechanisms (e.g., on-bill financing), or extending established mechanisms to eCooking (e.g., Stima Loans)	Collaborate on field research to generate and disseminate evidence on consumer preferences/market surveys, impact stories to inform feasible and sustainable options and instruments.
PayGo service providers (e.g., MKOPA, StimaCo, Angaza)	To enable low-income consumers to access energy services via digitally enabled asset financing.	Some forms of PayGo for e-cooking have been explored and piloted via MECS Challenge Funds (MKOPA, Burn).	The commercial opportunity for integrating energy metering, cloud-based communications and locking mechanisms into e-cooking appliances to facilitate the uptake of e-cooking.	Design partnership support and brokerage to enhance learning and exchange between experienced PayGo providers (e.g., MKOPA, Burn) and energy service companies looking to stimulate demand (e.g. KPLC). Raise awareness amongst other PayGo service providers of the commercial opportunity to integrate energy metering, cloud-based communications and locking mechanisms into electric appliances.
Climate Care, GCF and KCIC	To leverage carbon finance to develop clean energy projects as a mechanism to reduce climate change.	Currently working on standards e.g., Gold Standard methodology to enable e-Cooking products to be linked to climate financing that would to subsidise appliance and electricity costs.	The institutional and commercial opportunities for operationalizing the new standards for specific projects in Kenya, e.g., mini-grid developers piloting dedicated cooking tariffs subsidised with carbon finance	Broker partnerships that can leverage the new streamlined Gold Standard methodology for appraisal of eCooking projects under development by MECS partners
RBF administrators & funders (CLASP, EnDev, SNV, etc.)	To support the development of supply chains for large scale roll out of clean energy.	Several RBF programmes in Kenya now supporting e-cooking, inc. KOSAP and EnDev/CLASP EPC RBF.	Viable mechanisms for supporting the development of the emerging e-cooking market.	Support knowledge exchange between RBF administrators/funders. Support the development of new RBF programmes for eCooking and the incorporation of eCooking into existing clean cooking or electrification RBFs
GIZ	To contribute to sustainable development by expanding the range of clean cooking options for	Supporting clean cooking and electrification interventions across several African countries, including	Unsure of which interventions to make, as not aware of current status of e-cooking ecosystem in Kenya.	Engage via e-cooking dialogues and provide targeted briefings and market assessments on request.

	various segments of society.	Kenya. Currently planning a range of e-Cooking interventions.		
Energy for Impact (formerly GVEP)	To stimulate the creation of energy based micro, small and medium enterprises, connecting to investment networks and brokering partnerships.	MECS Country Partner for Rwanda and supporting Scale-up Workstream. Recently published a set of knowledge briefs on consumer financing and other aspects of e-cooking.	Connection with ongoing e-cooking initiatives in Kenya.	Collaboratively disseminate findings from e-cooking reports. Connect ongoing e-Cooking activities e.g. MECS challenge fund winners, KPLC county showrooms and county energy centres to E4I processes to develop viable business models.
ESMAP-World Bank	To reduce poverty and boost growth through sustainable energy solutions in low-middle income countries	Launched US\$500 million Clean Cooking Fund (CCF) – the first ever such fund to scale up investments in the clean cooking sector. Also supports electrification programmes in Kenya e.g., the last-mile connectivity. Two sides of energy access programming not yet connected.	Scalable business models for e-cooking investment that integrate the electrification programmes with the clean cooking agenda.	Pipeline of investment-ready e-cooking pilots. Support outreach and awareness about the challenge fund.
Local Microfinance Banks	Aims to increase credit cover for SMEs and community enterprises.	Already funding a number of clean energy projects even though there is still limited or no e-cooking enterprises.	Business partnerships opportunities with e-cooking market opportunities including community projects and institutions.	Showcase e-cooking business models to spur investment ideas.
Africa Development Bank	Funding sustainable development solutions for Africa including clean cooking.	Launched US\$5 million investment in the SPARK+ Africa Fund to deliver clean cooking solutions to over two million households across Africa and with ecological benefit of reducing carbon emissions by 15.9 Mt of CO2 equivalent from inefficient stoves. The AfDB also funds electrification projects in Kenya thus an opportunity to join this up with the clean cooking agenda.	The significant GHGs reductions from e-cooking and associated standards. Initiatives for joining up the electrification programmes and the clean cooking agenda.	Collaborate with the delivery partners e.g., clean cooking alliance to mainstream e-cooking options for the targeted households in Kenya. Link e-cooking carbon standards to be considered in the fund's operations.
MECS- Challenge Fund	Supporting innovation in e-cooking	Providing seed-grants to local organizations and institutions	Opportunities for upscaling innovations into business ventures.	Linking the challenge fund Projects in Kenya to investment platforms and creating opportunities for showcasing the

		venturing into e-cooking technology, financing, outreach or inclusivity.		experiences of challenge projects and associated opportunities.
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4.2.2 Awareness, advocacy, and outreach-oriented stakeholders

Outreach and awareness are critical enablers for transitioning to electric cooking. Stakeholder analysis shows e-cooking awareness anchored on two levels: the consumer level and the wider stakeholder level. At the consumer level, there is significant lack of awareness on the e-cooking technologies as well as e-cooking procedures e.g. how to cook with EPCs or other appliances (Table xx). At the wider level, a number of stakeholders are unaware of the e-cooking opportunities and general landscape including the situational outlook that could inform their entry into the arena.

Various stakeholders have tried to create awareness either at consumer level or wider stakeholder level. The KPLC Pika na Power programme and the associates' showrooms are leading actors in promoting greater consumer awareness and capacity on e-cooking. KPLC is responsible for electricity distribution in Kenya and are interested in expanding electricity usage and sales through e-cooking. While KPLC-led awareness is a promising opportunity to up-scale consumer awareness and capacity given the Company's role in electricity distribution, the demonstrations through showrooms are mainly concentrated in a certain section of Nairobi. There is an opportunity to up-scale these demonstrations to various parts of Kenya and steer greater legitimacy and buy-in of e-cooking. The MECS Kenya programme led by ACTS has also been spearheading awareness and training through e-cooking diaries targeting select households to help experiment and monitor consumer experiences in various counties. Again these have been useful source of evidence on the benefits of e-cooking but relatively small scale and could be enhanced through larger scale demonstrations enabled through emerging County Energy Centres as well as opportunities around institutional cooking. Further, consumer-based awareness is hampered by limited distribution points for the e-cooking services (ROK (Republic of Kenya), 2019). For instance, KPLC in the field only retails the products at Kenya Power's Electricity House in Nairobi, and other county offices, a situation which may disadvantage potential customers who may not be able to access the KPLC main offices and hubs. This challenge is particularly limiting access to consumers located outside the city.

At the broader stakeholder awareness level, several alliances exist but these are still more focused on general e-cooking. For instance, the Clean Cooking Alliance of Kenya continue to promote different e-cooking technologies and there is an opportunity to strengthen the focus on e-cooking in the CCAK platforms. The MECS Kenya programme led by ACTS has also been convening national e-cooking dialogues aimed at profiling e-cooking opportunities to various stakeholder. These dialogues can benefit from more evidence and impact stories from consumers and various demonstrations.

Overall, the analysis shows that awareness, outreach and advocacy stakeholders play a critical role in transitioning from one cooking option to another. For e-cooking, these stakeholders provide opportunities for greater outreach and consumer, policy and market awareness for e-cooking. However, this will require targeted and tailored evidence and messaging to support such advocacy. The table below outlines some of the entry points to tap into these opportunities. This section has summarised the key opportunities for strategic engagements with awareness, advocacy and outreach stakeholders in Kenya drawing from the full range of opportunities listed below in Table 4.

Table 4: Analysis of outreach-oriented stakeholders

Stakeholder	Ambition	Position in the e-Cooking transition	What do they need to know to support transition to e-Cooking – the opportunity	Possible entry point
Consumers (Households and Institutions)	Getting delicious, cooked food on the table in the easiest and most affordable way	3% own an eCooking appliances. Widespread perception of electricity as 'too expensive for cooking'. Lack of awareness of modern energy-efficient eCooking appliances.	The real costs of eCooking, repayment models for upfront costs, how to cook popular dishes, which appliances fit best with Kenyan cuisine.	Awareness, demonstrations, access to affordable appliances and facilitated experimentation. Providing opportunities for consumers to experience eCooking, firstly via information centres or eCooking hubs, then at their own home with minimal financial risk.
Food bloggers	Sharing new ways of cooking delicious food with their followers, whilst generating revenue for their business	Several food bloggers, e.g. Jikoni Magic , Nimoh's Kitchen have already been supported by MECS to produce content on eCooking for their social media channels. Jikoni Magic also retailing EPCs and supporting appliance testing programmes . Lots of content now produced, but scattered across many platforms and in need of consolidation.	How to tap into alternative social media channels (e.g. Let's Cook Kenyan Meals Facebook group with 2m members), connections to appliance manufacturers, investment for scaling businesses.	Support Jikoni Magic and Nimoh's Kitchen to consolidate existing content and tap into new platforms. Broker partnerships with appliance manufacturers and investors.
TV/radio producers	Communication and outreach on emerging cooking solutions addressing various societal challenges	Media already featuring EPCs on Shamba Shape Up series 10 and 11. Other producers not yet picking up on opportunities for eCooking.	Impact stories of users whose lives have been transformed by eCooking.	Develop a set of impact stories that can guide producers of popular TV/radio programmes to produce content showing the real impact of cooking with electricity and position energy-efficient appliances as aspirational products for modern Kenyan cooks. Consolidate content from social media to give inspiration.
KPLC's Pika na Power	Aims to increase electricity consumption through e-cooking among Kenyan households and institutions	Already involved in eCooking promotion through demonstrations and supply of EPCs. The programme is however struggling to reach scale	Opportunities and niches for scaling out the Pika na Power programme into counties.	Support KPLC to explore opportunities to scale up their Pika na Power programme.
Mini-grid & SHS sector knowledge platforms (e.g. GMG Facility, SNV, AMDA, CrossBoundary)	Profiles knowledge and outcomes from various projects including clen cooking and showcase these to the wider audiences	Have developed some profiles of eCooking even though this is not prominent as other uses seem to be more prominent and pushed by multiple organisations	e-Cooking activities and projects taking place in various contexts and create awareness among various stakeholders on the Mini-grid & SHS sector e-Cooking platforms.	Facilitate knowledge sharing on eCooking between mini-grid developers and SHS companies in Kenya (and internationally) on the viability of eCooking as a tool for stimulating demand & enhancing social impact

County Energy Centres	Aims to promote ongoing clean energy initiatives. Create awareness on clean energy, incubate related innovations and provide information for consumers.	Are currently anchored on various ongoing clean energy initiatives by communities and institutions. E-cooking is already being considered in the plans of some of the counties.	e-Cooking technologies, community feasibility and expansion opportunities.	Design a programme for empowering local champions to start up innovative new eCooking businesses in their local area. Build on the centres to anchor e-cooking hubs as sources of demonstrations, information and awareness.
MECS Challenge Fund Winners (Burn, MKopa, Bidhaa Sasa, Jikoni Magic, Fosera, BioLite, PowerHive, RVE.Sol, Power for All, PayGo Energy, SCODE, SunCulture)	Developing viable delivery models for e-Cooking in Kenya.	Exploring e-Cooking pathways including technology development and piloting, drivers of adoption. Generating experience and evidence on what works for e-cooking – documented in Challenge Fund Final Reports	Opportunities for sharing experiences and scaling out activities beyond funding timelines.	Link challenge fund experiences to various platforms including policy, technology and markets, so as to share experiences and trigger new partnerships opportunities such as trialling of PayGo and micro-finance (chamas, SACCOs, etc.) for eCooking appliances. Use experiences to strengthen e-cooking information fora.
CARITAS-KITUI	To support access to clean energy for local groups including women and youth in Kitui county	Are already engaging in e-cooking demonstrations and awareness creation.	Broader opportunities for e-Cooking and awareness	Work closely to strengthen the e-Cooking fora in Kitui county, create champions to up-scale the e-Cooking and market linkages and generate a model and lessons to be shared to other counties through inter-county fora.
SCODE	To support access to clean energy for local groups including women and youth in Nakuru county	Already completed 2 MECS Challenge Fund Projects (PAYG LPG & Solar eCooking), sold EPCs via CLASP/EnDev RBF, about to begin field trial of CREST Power Stations.	Connections to Nakuru County Government & actors in the national eCooking ecosystem. Sharing experiences with	Showcase SCODE pilot projects to Nakuru County Government Officials. Broker partnerships with appliance manufacturers/distributors.
Women's Groups	To promote livelihood and social safety nets for women.	Key consumers of clean cooking technologies currently practicing social entrepreneurship through chamas, table banking which could support e-Cooking appliance financing.	MECS Challenge Fund Winners (e.g., Bidhaa Sasa and Jikoni Magic) already working with womens' groups to raise awareness and build capacity on e-Cooking. Need support to establish partnerships with appliance distributors. Similar models could work in other parts of the country.	Enable MECS Challenge Fund winners to support more womens' groups by providing training on e-Cooking to others at county/community level. Broker partnerships with appliance manufacturers/distributors.
Clean Cooking Alliance of Kenya	Brings together actors in the clean cooking sector to engage and develop collective voice towards advocating for clean cooking.	The Alliance includes stakeholders or actors who are already promoting clean cooking even though most of the organizations are still associated with traditional improved biomass stoves.	The opportunities existing for transitioning from clean cooking to e-Cooking.	Dialogues with members to convince them to begin integrating e-Cooking in the advocacy and engagements. CCAK members who are already supporting e-Cooking to act as internal champions of the e-Cooking within the Alliance. Connections to actors in the electrification

				sector (e.g., KPLC, mini-grid developers)
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4.3 Stakeholder Influence and Interest

Figure 6 below shows the level of influence and interests for various stakeholders based on the Alignment Interest and Influence Matrix (AIIM). The priority category includes stakeholders with high level influence and high alignment with the e-Cooking outcomes (Category A, top right). These include stakeholders such as KPLC, the Ministry of Energy and county governments among others illustrated in the top right corner of the matrix.

The leading role of KPLC in e-cooking has been highlighted in the previous section. A key point to raise here is that the MECS Kenya programme already working closely with the KPLC to spur e-cooking demonstrations and awareness activities. An MoU between the MECS Kenya programme through ACTS has been developed with a focus on broadening partnership activities including scaling-up demonstrations, capacity building, demand stimulation through communication advocacy, and policy influence, and finance access and entrepreneurship support.

The Ministry of Energy has the direct policy mandate for e-cooking thus key in influencing e-cooking outcome and thus a priority stakeholder. The MECS programme is already working with the Ministry directly through the SETA project aimed at building capacity of counties thus providing an opportunity to integrate e-cooking both in the trainings, county plans as well as the emerging Integrated Energy Plan.

Other priority actors include Ministry of Environment especially the climate change directorate where e-cooking could make a huge impact through greenhouse gas reduction and adaptation aspirations outlined in the country’s climate change plans. A close working relationship with both technology supply actors such as Burn and financing such as ESMAP, CLASP, climate financing entities are useful in building innovative financing mechanism to catalyse e-cooking transition. Overall, stakeholders in this category provide an opportunity for rapid transition into e-cooking and thus will be directly and actively engaged to seize the opportunity.

Category B stakeholders (top left) have high alignment but low influence. This category of stakeholders mainly require brokering new collaborative opportunities to increase their interest in e-cooking. Engaging these stakeholders with e-cooking information, business models and impact stories through national forums will be useful. Category C stakeholders (bottom right) are those with high influence and low alignment and focus will be to persuade and challenge them with our ideas and objectives through evidence-based research. This will be achieved by sharing our output, demonstrations, and showcasing project achievements, impact assessments and engaging them in dissemination activities, and inviting them to areas where we have success stories in project implementation. We will also focus on how we can create demand by also using other strategies for example advertisement through social media, the right target market, and eye-catching incentive packages. Category D stakeholders on the lower left section have low influence and low alignment. They have very little information about the e-cooking while some are completely new. We will not focus on these stakeholders directly, but whenever there is an opportunity, we will focus on encouraging the stakeholders and feeding them with success impact stories as well and strategizing ourselves on where they will be useful in the project. We will not focus on these stakeholders directly but will share aim to raise awareness of the opportunities for e-cooking by disseminating MECS Kenya outputs to them.

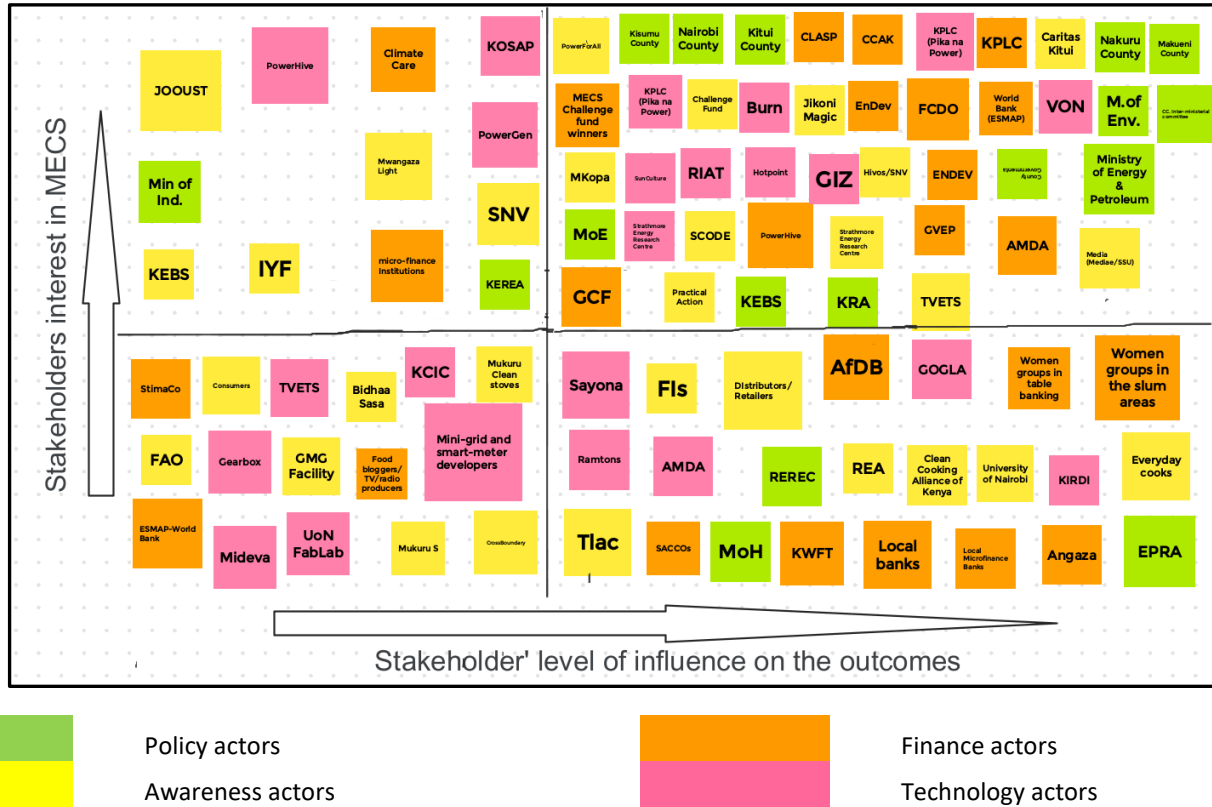


Figure 6: Illustration of the Alignment Interest and Influence Matrix



5. Engagement activities

This section details the specific interventions that will make up the MECS Kenya Stakeholder Engagement Strategy- building on the full list of entry points identified in section 4. The proposed engagements in this section are largely specific to MECS Kenya programme targeting stakeholders who have more influence on the e-cooking outcomes. Additionally, the MECS Kenya programme has already built a good relationship with some of these actors and thus is in a position to influence them in order to reach the programme outcomes. This section contains a full list of proposed interventions that the MECS Kenya team could make, which lays the foundation for a workplan for the interventions that MECS Kenya will prioritise and actually make. The remaining interventions can also be adopted by other stakeholders interested in supporting the development of the e-cooking sector in Kenya. The engagements will happen at various levels as defined by a bottom-up framework that allows for local consumer mobilization, impact stories to emerge to stimulate adoption of e-cooking in policy and practice. It is however worth noting that the stakeholder landscape is rapidly changing and so is the influence patterns. There will be need for continuous surveillance of the changing stakeholder landscape so as to identify emerging engagement opportunities.

Figure 7 below provides a framework summary the MECS Kenya intervention strategy aimed at strengthening the linkage between clean cooking actors and the electrification sectors through the e-cooking agenda (Fig 7). A detailed description of specific activities is outlined in Table 4 below, which will form the basis for the MECS Kenya workplan. Summarily, the specific engagements intend to build on ongoing efforts by key actors towards promoting e-cooking. As already noted in the stakeholder analysis, a key area of intervention lies in the need to strengthen the connection between the well-developed clean cooking and electrification sectors to support the development of the emerging eCooking sector. This can be implemented at different levels including strengthening the policy, technological and financial and information flows as enablers to this strategic linkage.

Framework for facilitating the integration of the clean cooking & electrification sectors in Kenya

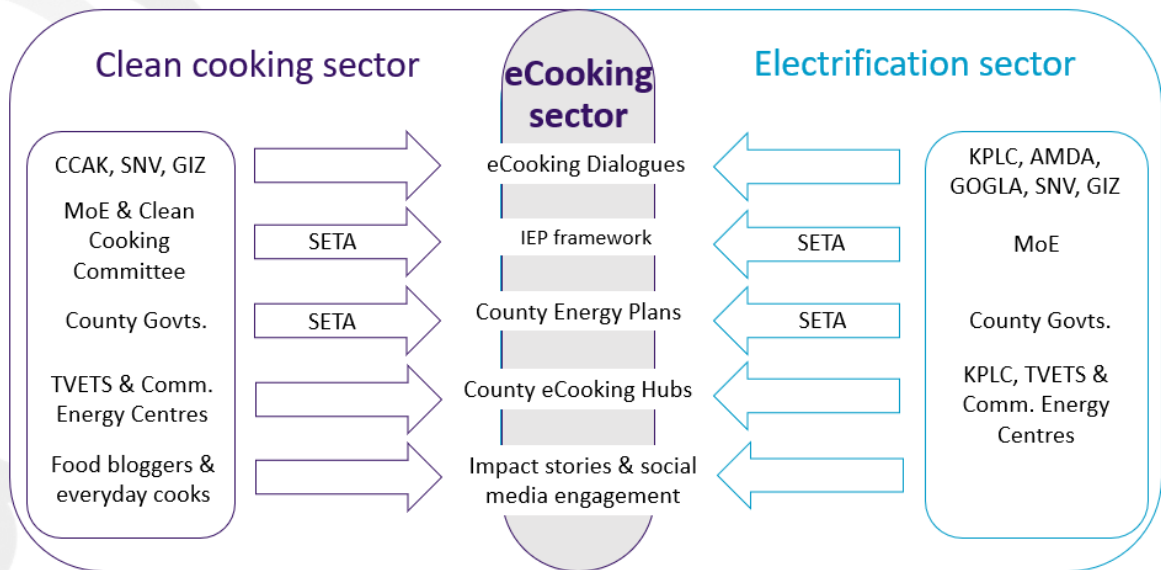


Figure 7: Framework for MECS Kenya’s strategic interventions to bring together the clean cooking and electrification sectors.

5.1 Changing perceptions and public opinion around cooking with electricity (Steven [i])

5.1.1 KPLC's Pika na Power

There is an opportunity to substantially increase the impact of the Pika na Power programme by supporting KPLC to create a modular framework that can enable them to expand into different parts of the country by understanding local cooking culture, mitigating the financial risk for consumers, and learning from the experience of the early adopters of eCooking.

The framework will enable Kenya Power to tackle the widespread perceptions that electricity is too expensive for cooking and that food cooked with electricity just doesn't taste the same by empowering potential users to trial eCooking at home through a combination of demonstration, consumer financing and subsidised electricity during an initial trial period with the option to return the device at the end of the trial if the consumer is not satisfied. A range of consumer financing solutions can be explored by sharing experiences from private sector trialling of PayGo and micro-finance (chamas, SACCOs, etc.) for eCooking appliances, e.g. (Burn, MKopa, Bidhaa Sasa, Jikoni Magic) and brokering partnerships with third party asset financiers.

The framework will be designed so that it can be easily replicated in other parts of the country by training local eCooking champions at KPLC's demonstration centre at Electricity House in Nairobi. These champions can create demand, make sales, and offer after-sales service in their local area. It will enable Kenya Power to learn from the experiences of the innovators and early adopters who have already purchased electric cooking appliances by reviewing their customer billing information to assess whether their electricity consumption has actually increased. It will also capture their qualitative experience with these new cooking devices, both positive and negative, to understand what works and what needs further refinement. Finally, it will also enable cooks who've already adopted eCooking to share their experiences with others who have yet to try via a range of impact stories.

5.1.2 County eCooking Hubs

There is an opportunity to build on the County Energy Centres that are already under development by the County Governments, TVETS and Community Energy Centres to act as e-cooking hubs where e-cooking information and technologies can be showcased. The eCooking Hubs will aim to build on existing partnerships to strengthen the eCooking fora counties, create champions to up-scale the eCooking and market linkages and generate a model and lessons to be shared to other counties through inter-county for and with local communities. It is important to note that the MECS Kenya team will mainly play a facilitative role by using existing systems to catalyse practical interactions. As such, counties in close working relationship with KPLC will continue to run the demonstrations even after the end of the MECS Kenya project.

The activities from the eCooking Hubs can generate experiences, awareness, impact stories, policy briefs and training briefs. This evidence will then be used to convene dialogues and inform media campaigns towards enhanced adoption of e-cooking and policy change. This evidence will specifically feed into the monthly e-cooking dialogues (see below) as well as the development of the county energy plans (see below).

5.1.2.1 County Energy Centres

The county governments are expected to establish County Energy Centres as part of the devolution process to anchor various ongoing clean energy initiatives within communities and institutions. They are recognised as the go-to places for energy information at the county level. Specifically, the eCooking hubs can be used as platforms for testing different e-cooking technologies and business

models to establish what works in each county context. The eCooking Hubs will aim to spur demand for electricity across the county amongst both households and institutions and act as a platform to bring together key actors to strengthen the demand-supply linkages to work together quickly to scale up e-cooking.

The County eCooking Hubs can dovetail with KPLC's county-level expansion, enabling them to connect with a broader range of stakeholders at the county level. To facilitate the operations of the e-cooking hub and generate more evidence for awareness creation, market surveys and research will be undertaken in the various counties to understand the market opportunities and gaps that need to be filled. The eCooking Hubs can also be used to anchor capacity building and training on e-cooking with the aim of creating e-cooking champions who can continue to create demand and support consumers within their local contexts. The Hubs can also act as platforms to trial innovative consumer financing mechanisms that can enable consumers to purchase the appliances on a pay-as-you-use basis by offering a direct link to households, community groups, and institutions across the county.

5.1.2.2 TVETS and Community Energy Centres (RIAT, CARITAS, SCODE)

TVETS provide opportunities to develop local technical skills for e-cooking appliances including capacity for local manufacturing. They are increasingly attracting new innovations and high number students. Some TVETS, such as RIAT, are already piloting clean energy courses, including clean cooking even though the focus is on e-cooking is still lacking. There is an opportunity to support the development of an e-cooking curriculum to be mainstreamed in the TVETS with the aim of building a mass of technicians for e-cooking appliances by collaborating in enhancing e-cooking through supporting demonstrations and training technicians on e-cooking appliances and strengthening opportunities for local manufacturing and maintenance of e-cooking appliances. This can enable the mobilization of resources and facilitate the promotion of e-cooking through lecturers and students.

Community Energy Centres such as SCODE and CARITAS have been actively pursuing eCooking through pilot projects and commercial sales of eCooking appliances. These organisations are directly connected to communities and are well connected with the reality on the ground. MECS Kenya could support with experience in advocacy, advisory, and technology brokerage and by promoting peer to peer learning between organisations.

5.1.3 Impact stories and social media engagement

The MECS Kenya team has an important role to play in media engagement and sensitization. At various opportunities, the team has already (and will continue to) engaged with the media through news pieces, opinion briefs and national TV programmes such as *Shamba shape-up*. By consolidating existing content from social media and developing a set of impact stories that can showcase the real impact of cooking with electricity, the MECS Kenya team can position energy-efficient appliances as aspirational products for modern Kenyan cooks.

Several food bloggers, e.g., [Jikoni Magic](#), [Nimoh's Kitchen](#) have already been supported by MECS to produce content on eCooking for their social media channels. Jikoni Magic is also retailing EPCs and [supporting appliance testing programmes](#). MECS has also supported content featuring EPCs on the prime time TV show [Shamba Shape Up series 10](#) and 11. Lots of content has now been produced, but is scattered across many platforms and in need of consolidation. There is a need to strengthen media engagement through stronger and more convincing impact stories.

There is also an opportunity to analyse and engage with the discourse around electric cooking on social media to understand and influence public perceptions, e.g. [Let's Cook Kenyan Meals Facebook group](#) with 2m members. Several discussions have been initiated on social media relating to electric

cooking, creating an opportunity to analyse the popular discourse around electric cooking and feed in strategic evidence and impact stories from the MECS Kenya portfolio.

The Kenya Power & Lighting Company Plc.
@KenyaPower

Did you know electric pressure cookers help in preparing foods faster than other cooking methods?

Use smarter cooking techniques as they are safer, cheaper, save time and energy.



Kenya Power and Energy and Petroleum Regulatory Authority

10:45 AM · Sep 13, 2021 · Twitter Web App

7 Retweets 1 Quote Tweet 11 Likes

Eliud kipchoge @eliud_kirimi · Sep 13
Replying to @KenyaPower @KenyaPower_Care and @EPRA_Ke
This is a good idea, how many watts does it consume

Vicky @VeeChengo · Sep 14
Hi Eliud, please find some research we've done on this here:
mecs.org.uk/wp-content/upl...

Show replies

Dennis @okoth_dennis · Sep 13
Replying to @KenyaPower @KenyaPower_Care and @EPRA_Ke
This will leave many with uncooked food mkiona mawingu za hapa na pia then automatic blackouts!!

Executivechef 🇰🇪 🇨🇰 🇨🇳 @ItSspragga · Sep 13
Replying to @KenyaPower @KenyaPower_Care and @EPRA_Ke
I can confident oppose that

Nyakwar Seda @Benjaminoketch1 · Sep 13
Replying to @KenyaPower @KenyaPower_Care and @EPRA_Ke
Unaeza pika ugali nayo pia

Figure 8: An example of social media conversations on electric cooking

MECS Kenya supported the Global LEAP Awards Usability Testing in Nairobi, which was accompanied by a set of exceptional impact stories detailing the experience of the product testers who participated in the study ([Agnes' Story](#), [Margret's Story](#), [Video](#)). By collating these existing stories on a central platform and developing high quality, engaging content such as this for other ongoing projects, MECS Kenya could amplify their impact by telling the stories of change and inspiring others to follow.

GLOBAL LEAP AWARDS ELECTRIC PRESSURE COOKER USABILITY TESTING

SUPERUSER: AGNES KALYONGE

Entering Agnes Kalyonge's kitchen, you know you are in the presence of a cook. The small space is filled with gleaming pots and pans, alongside an imposing five-burner stove, a large refrigerator, and a dishwasher — a rare appliance in Kenyan kitchens. But the imposing collection of electric pressure cookers may be the most surprising find. "Right now I am drowning in pressure cookers in this house!" she laughs. "I have so many models. I started just buying, going more complex with every purchase."

Agnes is a food blogger who focuses on clean cooking, photographing, and filming the EPC dishes she creates from her modest apartment in Nairobi, Kenya. Her speciality is Kenyan food, with a twist for example matumbo (tripe) in the style of Indian butter chicken. "I decided to stick true to my



Figure 9: Agnes Kalyonge's story at the Global Leap Awards

5.2 Setting an integrated agenda by reframing electricity access and clean cooking as a single problem that can be tackled more effectively together (Steven [ii])

5.2.1 Connecting eCooking into the climate agenda

The MECS Kenya work can also build into the ongoing engagements at the UNFCCC Conference of Parties (COP 26), such as the Africa-led events led by the Africa Research and Impact Network in collaboration with the UK Research and Innovation. The MECS work and significance of e-cooking in climate change mitigation and adaptation will be showcased. MECS partners in Kenya (e.g., Climate Care) working on carbon accounting methodology for e-cooking will be linked into these events.

MECS Kenya could support the application of the new streamlined Gold Standard methodology for appraisal of eCooking projects with smart metering under development by MECS. For example, to enable mini-grid developers to pilot dedicated cooking tariffs subsidised with carbon finance to enable eCooking appliance manufacturers and distributors to subsidise appliance costs. Leverage the county eCooking Hubs to enable partners at the County level to access green financing for e-cooking as a mechanism for climate mitigation at the community level. This could include targeted capacity building and partnership brokerage for applications for GCF funding.

The Ministry of Environment through the Climate Change Action Plan envisages clean cooking as an opportunity for reduced GHG emissions but lacks capacity for emissions reduction verification from clean cooking. There is a need to strengthen the e-cooking voice as a low carbon pathway for implementation of NDCs. MECS Kenya will work closely with Climate Care to introduce the e-cooking GHGs accounting in the NDC implementation and updating and create linkages with the climate financing.

5.2.2 Inter-ministerial Clean Cooking Committee

MECS Kenya could work with existing inter-ministerial clean cooking committee to extend remit into the electricity sector. They are aware of the transformational potential of e-cooking and are interested in solutions with multi-sectoral benefits, but still lack evidence on how e-cooking could promote such multi-sectoral benefits. They need policy foresight evidence on the multi-sectoral benefits of e-cooking. This could be supported by developing a policy scenario analysis that could enable the committee to make evidence-based decisions on how to create an enabling policy framework for e-Cooking.

5.3 Building an eCooking community of practice and brokering strategic partnerships between the clean cooking and electrification sectors (Steven [iii])

5.3.1 County level eCooking challenge funds

The MECS programme has already run many challenge fund projects in Kenya, proving the value of this mechanism for supporting the private sector to explore the emerging opportunities around eCooking. A similar mechanism could be run through the County eCooking Hubs to enable local actors to explore local opportunities. The challenge fund could be specifically designed to facilitate partnerships between actors in the clean cooking and electrification sectors through joint projects or staff exchange programmes. It could be accompanied by a capacity building programme for training and empowering local champions to start up innovative new eCooking businesses in their local area.

5.3.2 eCooking dialogues

MECS Kenya is convening monthly eCooking Dialogues, with the aim of bringing together actors in the clean cooking and electrification sectors to share their experiences with eCooking and foster the development of a community of practice around eCooking. The analysis above has highlighted that there is a clear need for a coordination of various actors to create a clear understanding of the e-

cooking landscape and opportunities for interventions. The dialogues will be a mixture of virtual and in person events, with presentations, panel discussions, site visits and live cooking demonstrations.

Coordination of actors within the emerging e-cooking landscape is central to enabling the financial, technological, information and policy connections between the clean cooking and electrification sector required to take e-cooking to scale. The MECS Kenya programme will play a central coordination role by creating a national e-cooking knowledge platform that links to the county e-cooking hubs. The platform should include data, research, stakeholders, programmes etc. on e-cooking and coordinates exchanges via the eCooking Dialogues. There is need for a coordination of various actors to create a clear understanding of the e-cooking landscape and opportunities for interventions.

The eCooking Dialogues specifically target key stakeholder groups within Kenya's clean cooking and electrification sectors. These include policy makers, such as the Ministry of Energy, Council of Governors, the senate, and parliament committees on energy. They also include industry associations, such as CCAK (Clean Cookstoves Association of Kenya), AMDA (African Mini-grid Developers Association), GOGLA (Global Off-grid Lighting Association) and KAM (Kenya Association of Manufacturers). By engaging in the monthly e-cooking dialogues individuals within these organisations can learn about the emerging opportunities for eCooking and become vocal champions within their organisation, which can then advocate for eCooking amongst its membership.

5.4 Developing capacity within the county and national governments to allow them to effectively integrate the planning for electrification and clean cooking (Steven [iv])

5.4.1 SETA (Sustainable Energy Technical Assistance) and the Integrated Energy Planning (IEP) framework

The MECS Kenya team is playing a central role in the implementation of key energy planning frameworks at both the County and National level that offer ideal entry points for embedding eCooking within an integrated energy planning framework. The evidence generated and experience on awareness creation, impact stories and technology development are crucial for e-cooking policy change. E-cooking policies are central in creating synergies between clean cooking and electrification interventions. Emerging policy opportunities such as the Integrated Energy Plans provide framework through which electrification initiatives can be linked up more closely to e-cooking. Continuous evidence-based policy dialogues, policy foresight analysis and policy advisories could support the development and implementation of e-cooking centered policies both at the county level e.g., via county energy plans and at national e.g., via the IEP, national support programmes such as the EU-SETA project, which offer a real opportunity to strengthen the E-cooking narrative in these policy domains.

The SETA project provides institutional and other support to public and private stakeholders of the Kenyan energy sector in the identification, planning and implementation of renewable energy, energy access and energy efficiency projects. The project aims to equip County Governments with the knowledge and skills to effectively develop County Energy Plans. The IEP framework was developed by the Ministry of Energy to guide the development of County Energy Plans to ensure they are compatible with national energy strategy and with each other.

5.5 Changing institutions at the county, national and international levels to create an enabling environment that can support the growth of the emerging eCooking sector in Kenya (Steven [v])

5.5.1 County Energy Plans

The development of County Energy Plans is a key entry point for influencing County Governments to develop integrated energy policy that cuts across the clean cooking and electrification sectors. There is currently a lack of awareness of e-Cooking as a viable solution amongst county-level energy planners. Through the SETA project, the MECS Kenya team can build capacity within specific County Governments to explore the opportunities and challenges for eCooking in their County and develop a County Energy Plan that effectively integrates the planning for clean cooking and electricity access.

5.5.2 Ministry of Energy

Even though the Ministry of Energy has become a vocal champion for clean cooking and e-cooking specifically at high level global events, e-cooking still not properly entrenched in the national energy policies and plans. However, the Integrated Energy Planning (IEP) framework currently under development provides a key opportunity to do so. MECS Kenya can support this process by developing and disseminating a range of knowledge products on the emerging opportunities for eCooking that can enable the Ministry to make evidence-based decisions. These include working papers, policy briefs and policy scenario analyses. By working with the Ministry to integrate eCooking into the IEP, this will create the guiding framework for the counties to explore the opportunities eCooking in their counties and integrating eCooking into their County Energy Plans.

5.5.3 Development partners

Many of Kenya's key development partners, such as GIZ and SNV, have begun to see the emerging opportunities for eCooking in Kenya. Many of these organisations have been actively engaged in both the clean cooking and electrification sectors in Kenya over several decades but are only now starting to see the value in integrating their energy access programming. By playing a central coordinating role, for example by including them in the eCooking dialogues and sharing the MECS Kenya working papers, policy briefs and policy scenario analyses, the MECS Kenya team can influence the allocation of Kenya's substantial development assistance budgets and enable coordinated action to bring together the clean cooking and electrification sectors.

6. Specific interventions

Further analysis of the potential interventions that the MECS Kenya team could make to accelerate the convergence of the clean cooking and electrification sectors and strengthen the nascent eCooking market reveals the following priority actions:

- Support KPLC to develop a modular framework that can enable them to expand into the MECS Kenya Counties and beyond by empowering local champions, evaluating the experience of the early adopters of eCooking, connecting with the private sector to offer a range of appliances with consumer financing options and tailoring content to local cooking culture.
- Establish County eCooking Hubs in each of the MECS Kenya Counties (Nairobi, Kitui, Kisumu and Nakuru) that build upon existing or planned County Energy Centres, TVETs and Community Energy Centres
- Develop and disseminate a series of impact stories from ongoing MECS projects in Kenya.
- Actively engage with the discourse around eCooking on popular social media platforms such as Twitter and the Let's Cook Kenyan Meals Facebook Group.
- Identify and support Kenyan organisations to implement projects using the new streamlined Gold Standard methodology for eCooking with smart-metering and develop collaborative bids for GCF funding.
- Support the Ministry of Environment to integrate eCooking into the next Climate Change Action Plan.
- Support the existing inter-ministerial clean cooking committee to extend its remit into the electricity sector
- Implement a set of eCooking Challenge Funds designed to bring together actors from the clean cooking and electrification sectors in each of the focus Counties (Nairobi, Kitui, Kisumu and Nakuru) via the eCooking Hubs.
- Convene a series of monthly eCooking dialogues bringing together key actors in Kenya's clean cooking and electrification sectors and share experiences with eCooking.
- Consolidate existing MECS Kenya content in project reports and on social media and make it more accessible to key stakeholders via the MECS Kenya project web site, a MECS Kenya powerpoint presentation and share the latest developments via a newsletter and a series of blogs.
- Leverage ACTS' role in the SETA programme influence energy policy in Kenya by providing strategic input that can enable policy makers to understand how to effectively integrate the planning for electrification and clean cooking and make evidence-based decisions that can support the growth of the emerging eCooking sector.
- Develop a set of working papers, policy briefs and policy scenario analyses to inform County/National level energy planners and development partners about the emerging opportunities for eCooking.
- Support MECS Kenya Counties (Kisumu, Nakuru, Kitui and Nairobi) to develop County Energy Plans inclusive of eCooking.
- Develop a set of Clean Cooking and Electrification County Profiles highlighting the emerging opportunities for eCooking in each of the MECS Kenya Counties.

7. Monitoring, Evaluation and Learning (MEL) Plan

Stakeholder engagement is a continuous process anchored on continuous surveillance of changing stakeholder landscape and associated opportunities. The MECS Kenya MEL framework will focus on two key elements:

1. Reflecting on the experiences emerging from the engagement processes and distilling the key learnings.
2. Stakeholder landscape surveillance, tracking the progress of each individual stakeholder's journey towards the intersectional space between the clean cooking and electrification sectors (using the Venn diagram in Fig 4), any changes in their influence and interests (using the AIMM matrix in Fig 5), as well as identifying any new stakeholders and associated opportunities.

Data on these two elements will be gathered through documenting experiences and various stakeholder perspectives and careful review on how stakeholders engage during the various convenings. An online stakeholder list has been created and will be continually updated throughout the duration of the project. A report summarising the key engagements and resulting learnings will be provided alongside the quarterly project reporting.

The MECS Kenya team have been meeting on a bi-weekly basis and have recently introduced a bi-weekly co-working day, both of which offer ideal opportunities for monitoring, evaluation, and learning. During these convenings, time is specifically set aside for reflection, allowing the team to take stock of progress to date, identify any challenges and collaboratively agree on action to be taken. These reflection sessions also provide an opportunity to review each of the key stakeholders' journey from the clean cooking and/or electrification sectors towards the shared eCooking space.

8. References

- ESMAP. (2020). *The State of Access to Modern Energy Cooking Services (English)*. . Washington, D.C. : World Bank Group. Retrieved from <http://documents.worldbank.org/curated/en/937141600195758792/The-State-of-Access-to-Modern-Energy-Cooking-Services>
- Fazal, R. (2019). *What needs to be done to cut the high cost of electricity in Kenya*. Retrieved from <https://www.standardmedia.co.ke/article/2001317508/what-needs-to-be-done-to-cut-the-cost-of-power-in-kenya>
- GLPGP . (2019). National Feasibility Assessment: LPG for Clean Cooking in Kenya. New York: The Global LPG Partnership.
- GOK. (2017). Implementation of the agenda 2030 for sustainable development in Kenya June, 2017 . Nairobi, Kenya. : Ministry of devolution and planning.
- GOK. (2019). The Petroleum (Liquefied Petroleum Gas) Regulations.
- Joubert, M. (2014). Developing a stakeholder engagement and science communication plan. . DRUSSA Handbook Series.
- KPLC. (2017). *Annual report and financial statements for the year ended 30 June 2017*. Nairobi: KPLC. Retrieved from <http://kplc.co.ke/AR2017/KPLC%202016%20-%202017%20Annual%20Report-.pdf>
- Leary, J., Kalyonge, A., & Kalyonge, M. (2020). *Electric Pressure Cookers (EPCs) in Kenya: a huge untapped opportunity*. UKMECS. Retrieved from <https://www.mecs.org.uk/uncategorized/ecps-in-kenya-a-huge-almost-completely-untapped-opportunity/>
- Oimeke, R. (2020, May 26). New LPG rules will ensure safety for all consumers. Retrieved from <https://www.businessdailyafrica.com/analysis/ideas/New-LPG-rules-will-ensure-safety-for-all-consumers/4259414-5436648-1294us8/index.html>. 26/5/2020
- Okoth, E. (2020a). *How too much energy generation short-circuited Kenya Power*. Retrieved from <https://nation.africa/kenya/business/how-too-much-energy-generation-short-circuited-kenya-power-1925156>
- Philbin, S. (2017). Investigating the Application of Project Management Principles to Research Projects –An Exploratory Study. *Research Gate*. Retrieved from https://www.researchgate.net/publication/338951482_Investigating_the_Application_of_Project_Management_Principles_to_Research_projects_An_exploratory_study
- Pound , D. (2004). Stakeholder Dialogue – a good practice approach to participation.Training Manual. Dialogue Matters.
- Pumps Africa. (2019). *Kenya: Construction of US\$75m liquefied petroleum gas plant begins in Mombasa*. Retrieved from <https://www.pumps-africa.com/kenya-construction-of-us75m-liquefied-petroleum-gas-plant-begins-in-mombasa/>
- ROK (Republic of Kenya). (2019). *The Energy (Liquefied Petroleum Gas) Regulations*. Nairobi, Kenya: Government Printer.
- ROK. (2020). The Tax Laws (Amendment) Act, 2020.

UNFCCC . (2020). *Nationally Determined Contributions (NDCs)*. Retrieved from <https://unfccc.int/process-and-meetings/the-paris-agreement/nationally-determined-contributions-ndcs>.

Vereshchagina, V., Gstrein, M., & Teufel , B. (2020). Analysis of the Stakeholder Engagement in the Deployment of Renewables and.

Young, J., Shaxson, L., Jones, H., Hearn, S., Datta, A., & Cassidy, C. (2014). *ROMA: Guide to Policy Engagement and Influence*. London: Overseas Development Institute.

Young, J., Shaxson, L., Jones, H., Hearn, S., Datta, A., & Cassidy, C. (2014). *ROMA: Guide to Policy Engagement and Influence*. London: Overseas Development Institute.

