

ENERGY SAFETY NETS

KENYA
CASE
STUDY



ACKNOWLEDGEMENTS

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ABBREVIATIONS

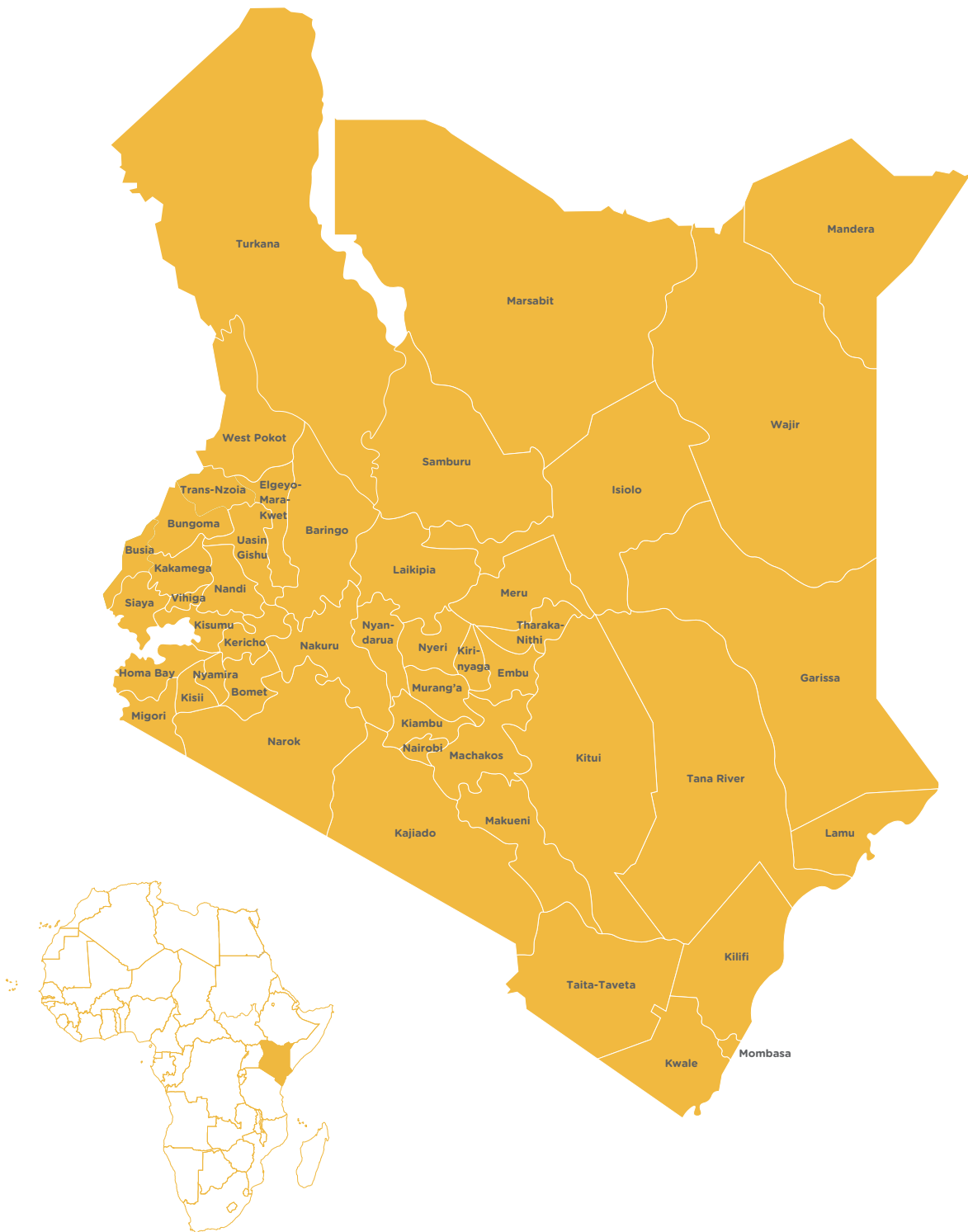
CAFOD	Catholic Agency for Overseas Development
CEDAW	Convention on the Elimination of Discrimination Against Women
CFA	Cash for Assets
CRC	Convention on the Rights of the Child
CRPD	Convention on the Rights of Persons with Disabilities
CT-OVC	Cash Transfer Programme for Orphans and Vulnerable Children
EPRA	Energy and Petroleum Regulatory Authority
ERC	Energy Regulatory Commission
ESN	Energy Safety Net
FFA	Food for Assets
GDP	Gross Domestic Product
GFD	General Food Distribution
GPRBA	Global Partnership on Results-Based Approaches
IBT	Increasing Block Tariff

HSNP	Hunger Safety Net Programme
KEEP	Kenya Electricity Expansion Project
KOSAP	Kenya Off-grid Solar Access Project
KPLC	Kenya Power and Lighting Company
LMCP	Last Mile Connectivity Project
LPG	Liquefied Petroleum Gas
MLSP	Ministry of Labour and Social Protection
MOE	Ministry of Energy
NOCK	National Oil Corporation of Kenya
NSNP	National Safety Net Programme
NSPP	National Social Protection Policy
ODI	Overseas Development Institute
OPCT	Older Persons Cash Transfer Programme
PwSD-CT	Persons with Severe Disabilities Cash Transfer Programme
REA	Rural Electrification Authority
REP	Rural Electrification Programme
REREC	Rural Electrification and Renewable Energy Corporation
SEforALL	Sustainable Energy for All
SEP	Slum Electrification Project
SHS	Solar Home System
UFS-CT	Urban Food Subsidy Cash Transfer Programme
UNICEF	United Nations Children's Fund
VDT	Volume Differentiated Tariff

A note on currency

Kenya uses the Kenyan shilling (KES). For currency conversions, the exchange rate used is an average of the relevant year(s) detailed in the text. Where no year is provided, the report assumes an exchange rate of USD 1 = KES 100.

MAP OF KENYA



EXECUTIVE SUMMARY

Kenya has set ambitious targets as far as access to energy is concerned. Among these are a target to realize universal electrification by 2022 as laid out in the Kenya National Electrification Strategy (KNES) 2018–2022, and to achieve universal access to modern energy in line with SDG7 and SEforALL commitments by 2030. This is in the context of electrification rates of 64 percent (31.7 million people) and only 14 percent of the population (7.0 million people) having access to clean cooking solutions (IEA et al. 2019a). There is an urgent need for measures that ensure that ‘universal access’ reaches even the poorest and most vulnerable members of society. The 2019 Energy Act states that the government has the obligation of facilitating the provision of affordable energy services to all persons in Kenya. The act not only places the responsibility for doing so on the national government but also requires that energy should be affordable. With the national poverty headcount rate at 36.1 percent, there are approximately 16.4 million poor spread across Kenya’s 47 counties with the rural, peri-urban and urban split at 40.1 percent, 27.5 percent and 29.4 percent respectively (KNBS 2016). The top three counties with the largest proportions of poor people include Turkana county at 79.4 percent (860,000 of 1,084,000) followed by Mandera at 77.6 percent (552,000 of 711,000) and Samburu at 75.8 percent (215,000 of 284,000), all considered underserved counties. Nairobi county has the lowest proportion at 16.7 percent but ranks second in absolute figures after Turkana county with 745,000 poor people of a population of 4.5 million.

Social assistance mechanisms that enable poor and vulnerable people to access and use mod-

ern energy services have been defined as energy safety nets (ESNs) (Scott & Pickard 2018). Though the term ‘energy safety net’ is not common in literature, its components can be observed across various types of interventions that have sought to improve access and use of energy for all.

Approach and methodology

This research followed a three-step approach that included: i) a desk review of policies and regulations, stakeholders’ activities and programs, peer-reviewed publications and grey-literature; ii) conducting primary data collection through key informant interviews and holding two stakeholder workshops; and iii) compiling the research findings into a draft report.

Summary of interventions reviewed

After an initial consultative workshop with stakeholders, followed by an in-depth literature review, these were the interventions selected for further research, categorized into two broad spheres: i) electricity access and use that included the Slum Electrification Project (SEP), Last Mile Connectivity Project (LMCP), Lifeline Tariff, Kenya Off-grid Solar Access Project (KOSAP) and the Energy and Cash Plus Initiative (also termed as Mwangaza Mashinani); and ii) cooking technologies and fuels comprising of the Kenya Off-grid Solar Access Project (KOSAP) cooking component and the Mwananchi Gas Project, widely known as Gas Yetu. These interventions have not been tagged as ESNs before. However, this research demonstrates how each program’s implementation approach exhib-

its attributes of ESNs, the overarching unifying attribute being an apparent targeting of poor and vulnerable people as beneficiaries.

- LMCP is the government's policy for household connections and involves extension of low voltage electricity lines from 17,967 selected transformers across the 47 counties to provide connections to about 1,036,000 households within a 600m radius of the transformers. The target beneficiaries contribute approximately USD 150, a subsidized amount below the average actual cost of connection estimated at USD 1,000 per connection, with the option to pay in monthly installments over three years, a figure of USD 4.20 per month.
- Recent tariff reviews (June and November 2018) have seen Kenya shift from an increasing block tariff (IBT) to a volume differentiated tariff (VDT). The lifeline tariff within the current VDT covers households connected to the national grid that consume between 0 to 100 kWh a month based on a three-month moving average. The price is set at USD 0.10/kWh of consumption. Additional levies and taxes are proportionally determined but vary from month to month. Typically, these have added 30-40 percent to the prices that households pay. While this band of lifeline tariff covers about 91 percent of household consumers, comparison of the current tariff against previously implemented tariffs indicate that this is the cheapest tariff for households within Energy and Petroleum Regulatory Authority's (EPRA) subsistence consumption level (i.e. households that consume 10 or less kWh/month).
- KOSAP is a government initiative, supported by the World Bank, aimed at providing access to modern energy (electricity and clean cooking) to 16 marginalized and underserved counties. These areas are isolated from the central grid and are therefore most effectively electrified through off-grid solutions. KOSAP's electrification components aim to electrify about 1.2 million households using mini-grids and stand-alone solar home systems. Its clean

cooking results-based financing facility seeks to enable the sale of 150,000 stoves across eight counties.

- The Slum Electrification Project, implemented by Kenya Power & Lighting Company (KPLC), has connected over 1 million households in urban low-income areas and rural areas to the national grid through the implementation of a subsidy and the adoption of innovative approaches such as the use of single-phase transformers, raised meter boxes and connection ready boards. These innovations addressed stringent connection requirements from the utility, (e.g. the need for permanent structures with formal land registration, right of way consent forms, wiring certificates and a cost prohibitive connection fee of USD 350), that had previously made it difficult for slum residents to get connected. A highly subsidized connection fee of approximately USD 15 (KES 1,160) had previously been charged that could be paid in installments over one year. This project is currently closed though there are conversations to have a subsequent phase if additional funding is secured.
- The Mwananchi Gas Project, implemented by the government through the National Oil Corporation of Kenya (NOCK), aims to promote the uptake of cooking with liquefied petroleum gas (LPG) by providing a filled 6 kg gas cylinder, a burner and a grill at a discounted price to households that would otherwise not be able to afford to adopt LPG cooking solutions. The project is mostly targeted at rural households. Its overall goal is to increase LPG penetration in the country to 70 percent by 2020. The project had, however, been suspended at the time of this research.
- The Energy and Cash Plus Initiative is an innovative pilot project implemented by UNICEF aimed at ensuring vulnerable populations in Kenya can access solar home systems. The project leverages the existing cash transfers under the government's National Safety Net Programme (NSNP) by providing a conditional cash transfer to a targeted 2,000 beneficiaries

in Garissa and Kilifi counties (see map p. 5) as a top up to their existing cash transfers from NSNP. The top up is intended to allow households to purchase in installments a solar lantern or solar home system, without distorting the market. With the first disbursements made in early June 2019, the pilot is expected to yield lessons for scaling up such approaches.

State of social protection policy in Kenya

In Kenya, social protection is entrenched in Article 43 of the Constitution of Kenya 2010 that addresses Economic, Social and Cultural Rights. Article 43(1)(e) states that: 'Every person has a right to social security' while Article 43(3) stipulates that: 'The State shall provide appropriate social security to persons who are unable to support themselves and their dependents.'

Social protection equally contributes to the Country's Vision 2030, which is the government's long-term development blueprint that aims to transform Kenya into an industrialized middle-income country and provide all its citizens with high quality standards of living in a clean and safe environment. As part of implementing the constitutional provision for rights to social security, the country adopted the National Social Protection Policy (NSPP) in 2011 and housed it under what was then called the Ministry of East African Community, Labour and Social Protection (later renamed as the Ministry of Labour and Social Protection) in an attempt to harmonize the different social protection interventions that had previously been run by different ministries such as those of education, health and agriculture. This was accompanied by NSPP Sessional Paper 2014 that outlined measures and strategies in addressing the challenges of providing social security to Kenyan citizens. Based on NSPP, social protection in Kenya is built upon three pillars (social assistance, social security, health insurance) that are governed by the National Social Protection Steering Committee.

Discussions are underway to merge these pillars to avoid duplication but also increase coverage of social protection.

There are eight programs that fall under social assistance mechanisms also referred to as social transfers:

- Older Persons Cash Transfer Programme
- Cash Transfer for Orphans and Vulnerable Children
- Cash Transfer for Persons with Severe Disabilities
- Hunger Safety Net Programme
- Food for Assets
- Cash for Assets
- Urban Food Subsidy Cash Transfer Programme
- General Food Distribution

Of these eight programs, the Older Persons Cash Transfer Programme is the fastest growing and, with more than 300,000 beneficiaries, one of the country's largest social assistance mechanism schemes. Overall, there has been a marked increase in the number of households benefitting from social assistance with the total number increasing six-fold over ten years from about 200,000 in 2007–2008 to 1.2 million in 2017–2018, a figure representing approximately 8 percent of the total poor population. This growth can be attributed to increased government spending on social assistance and consolidation of cash transfer programs in the country.

As part of ongoing reforms in the social protection sector, the ministry has developed a single registry with the aim of consolidating information from the different management information systems for the social protection programs that are currently operated independently by different departments and ministries. This is in an attempt to address the challenge of fragmentation and lack of coherent coordination mechanisms among the various programs. The government has also introduced harmonized targeting to promote inclusivity. Among others, the registry will help with tracking

beneficiaries to ensure that they do not benefit from multiple programs as has been observed in the past; strengthening monitoring and evaluation while reducing duplication of resources across implementing institutions; and elimination of fraud through an improved beneficiary verification process. The registry uses a combination of community-based targeting and proxy means test in its identification of households. These are resources that could be leveraged in implementing effective energy safety nets.

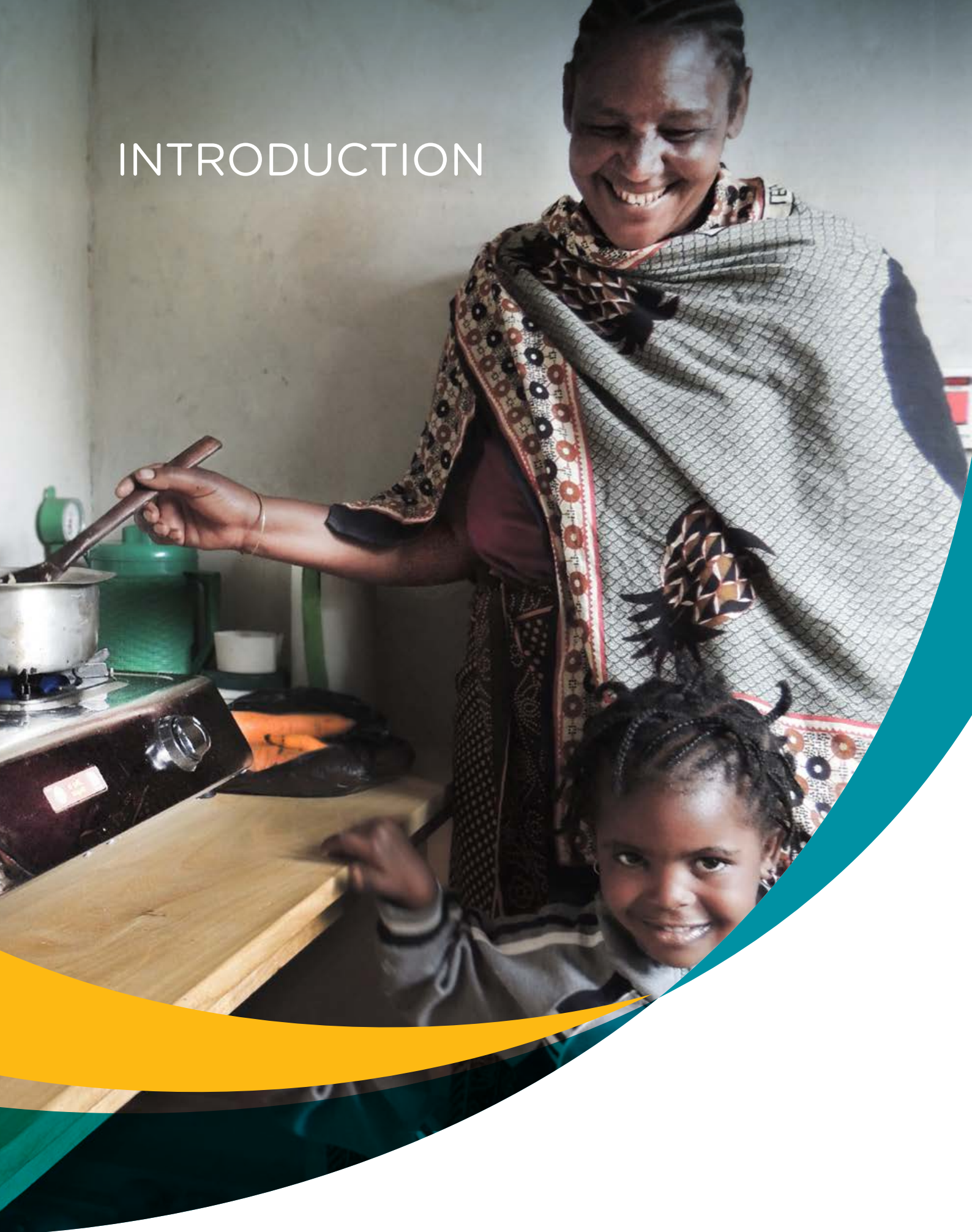
Conclusions and recommendations

The research demonstrates a conscious effort by the Kenyan Government to provide access to and the ability to use modern energy through implementing the highlighted energy sector initiatives that make access and use affordable for the poor and vulnerable. The approach to promote access is, however, inherently different from that of promoting use, a key distinction being that support for access is usually a one-off cost, e.g. slum electrification, while support for use is recurrent, e.g. lifeline tariff. Ensuring the sustainability of recurrent costs requires deliberate longer-term planning, thereby necessitating a calculated distinction between access and use when designing energy safety nets. Nonetheless, there exist linkages between the highlighted energy programs, in and of themselves, and other social assistance mechanisms such as the Ministry of Labour and Social Protection's social assistance work. More

efforts can be made towards strengthening collaboration and coordination of ESNs where preferably the Ministry of Labour and Social Protection coordinates with the Ministry of Energy, which is currently not the case. Overall, sustainability of an ESN is reinforced if it is mainstreamed into an existing institutional framework or national process.

Further, cross-cutting issues such as gender mainstreaming and institutionalization of monitoring, verification and research approaches are needed in the implementation of social assistance mechanisms, including ESNs. Besides the Energy and Cash Plus Initiative, none of the programs evaluated was seen to have had conscious gender considerations in its design. (For Energy and Cash Plus, a vulnerability assessment was carried out before the program and among the criteria for selection of a household, preference was given to female-headed or child-headed households, and households with children attending school.) Though substantial data exist on the output indicators of ESN programs, gaps in outcome and impact indicators limit the general understanding of how effective the programs are. A general provision for continuous and periodic independent monitoring, verification, research and testing should be made available to strengthen transparency and compliance, form a basis for continuous learning and improvement, ensure cost-optimization, and guarantee support is focused on the right audience – the poor and vulnerable.

INTRODUCTION



This Energy Safety Nets: Kenya Case Study presents research findings from literature review and case studies to build on the understanding of the opportunities and challenges in using targeted subsidies or social assistance measures to enable very poor people to access modern energy services. The country studies explore the background to the introduction of the social assistance mechanisms, their institutional and procedural characteristics, evidence of their impact and effectiveness in relation to energy access for different social groups, and challenges to their delivery and effectiveness. Through qualitative analysis, the report highlights understanding of the degree to which different mechanisms have been successful while identifying the need for further experimentation, innovation or research. The overall objective of the research is to provide guidance for policy and decision-makers, notably for government personnel, by identifying measures that have been successful in enabling very poor people to access modern energy services, exploring the reasons for their success and challenges encountered.

This country case study – like the other five, covering Brazil, Ghana, India, Indonesia, and Mexico – seeks to answer four research questions:

- What policy measures have been used in Kenya to enable very poor and marginalized people to access and use modern energy services?

- How effective have these measures been in enabling the poorest social groups to access and use modern energy services?
- What links have there been/are there between these measures and wider/other social assistance programs?
- What changes could be made to enhance the effectiveness of existing policy measures in enabling very poor people to access modern energy services?

DEFINING ESNs

Energy safety nets (ESNs) is not common terminology; the term is rarely used in literature. Different working definitions are given for safety nets, specifically ESNs, from alternate sources. The World Bank defines the broader term of social safety nets as ‘non-contributory transfers designed to provide regular and predictable support to targeted poor and vulnerable people’ (World Bank 2015). OECD meanwhile defines safety nets as ‘policies and actions which enhance the capacity of poor people to escape from poverty and better manage risks and shocks’ (OECD 2009). It proves useful to look at social safety mechanisms and their characteristics when trying to understand energy safety nets.

For the purposes of this research, ESNs are defined simply as targeted social assistance mechanisms that enable poor and vulnerable people to access and use modern energy services.

Energy Safety Net (ESN) is an umbrella term for government-led approaches to support very poor and vulnerable people to access essential modern energy services, defined as electricity and clean fuels and technologies for cooking, by closing the affordability gap between market prices and what poor customers can afford to pay.

ESNs can make physical access (i.e. connections) to electricity or clean fuels affordable for poor and vulnerable people, or they can make the unit price of electricity or fuel affordable to consume. ESNs include some form of targeting or eligibility criteria to direct benefits to those who need them.

ENERGY ACCESS RATES IN KENYA

Kenya has set ambitious targets as far as access to energy is concerned. Among these are a target to realize universal electrification by 2022 as laid out in the Kenya National Electrification Strategy 2018–2022, and to achieve universal access to modern energy in line with SDG7 commitments by 2030. This is against electrification rates of 64 percent (31.7 million of the total population of 49.6 million in 2017), with 81 percent of the urban population having access to electricity as compared to 51 percent in the rural areas (IEA et al 2019b), and only 14 percent (7.0 million people) of the population having access to clean cooking solutions (IEA et al 2019b). Given the focus on ‘universal access’, there is a need for measures that ensure that even the poorest and most vulnerable members of society have access. The 2019 Energy Act states that the government has the obligation of facilitating the provision of affordable energy services to all persons in Kenya. In this statement, the act not only places the responsibility of ensuring access on government but also requires that energy should be affordable. In the Kenya

SEforALL Country Action Agenda initially developed in 2014, LPG was identified to have great potential to reduce the number of deaths associated with indoor air pollution from cooking using solid fuels. The Action Agenda outlined the government’s target of attaining 35.5 percent of households using LPG by 2030. Currently, only 19 percent of households use LPG as their primary fuel while 30 percent use LPG as one of their cooking options (CCAK 2019).

SCOPE OF RESEARCH

Following a three-step approach, the research delved into a desk review, conducting primary data collection including key informant interviews and compiling the research findings into a draft report. The desk review included review of policies and regulations, stakeholders’ activities and programs, peer-reviewed publications and grey-literature. Data collection involved a consultative workshop with stakeholders, interviews with targeted key informants and a validation workshop. The key informants provided details relating to the government-aligned initiatives and programs outlined in Figure 1 below.

Figure 1

Initiatives aimed at improving access to energy for poor households

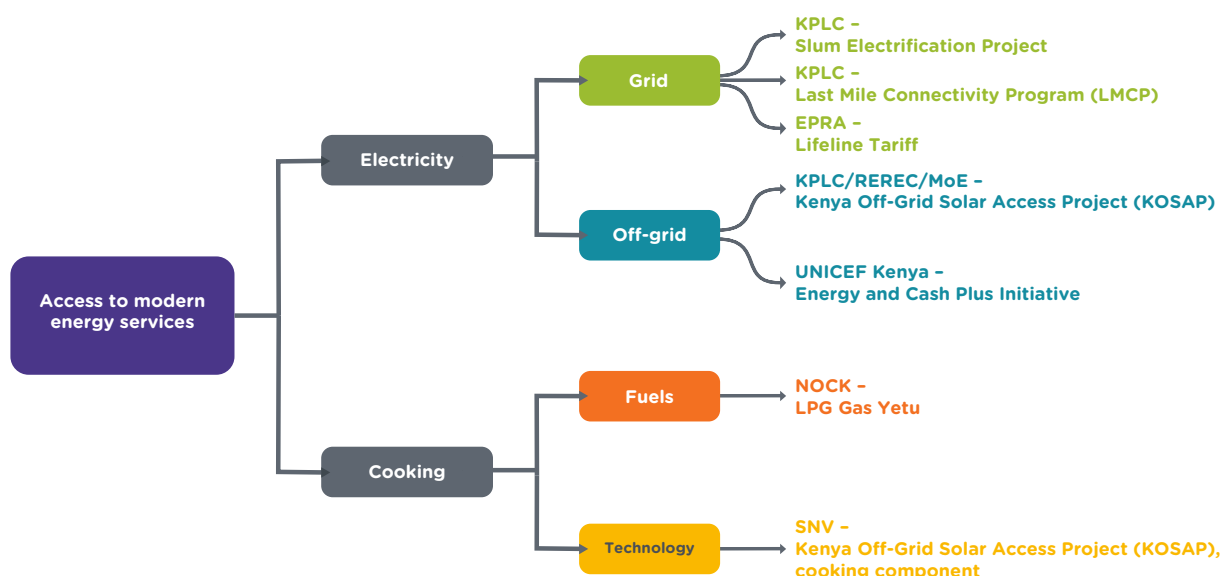


Table 1 further presents these initiatives and programs alongside the institutions running their operations.

A validation workshop with stakeholders from these and other programs across both energy and

social protection sectors was held to share findings from the research and seek additional feedback from those present. The research findings presented in this country report have been synthesized into a country-specific briefing paper and used to inform the multi-country synthesis report.

Table 1
List of government initiatives and programs seeking to increase energy access to the poor

BENEFIT	INSTITUTION
ELECTRICITY	
Slum Electrification Project	Kenya Power and Lighting Company
Last Mile Connectivity Project	Kenya Power and Lighting Company
Lifeline Tariff	Energy and Petroleum Regulatory Authority
Kenya Off-Grid Solar Access Project (KOSAP)	Ministry of Energy / Rural Electrification and Renewable Energy Corporation (RREC)
Energy and Cash Plus Initiative	Garissa and Kilifi County Governments / UNICEF / Energy4Impact
COOKING	
Kenya Off-Grid Solar Access Project (KOSAP), Cooking Component	SNV / Ministry of Energy
Mwananchi Gas Project	National Oil Corporation Kenya

A photograph of a man in a grey and olive green jacket reading a newspaper. He is smiling and looking towards the camera. The room is dimly lit, with a single bright light bulb hanging from the ceiling. In the background, there are posters on the wall, including one for Chelsea F.C. and a clock. The image is framed by a teal and yellow curved graphic at the bottom.

ENERGY ACCESS IN KENYA – A CONTEXTUAL OVERVIEW

INSTITUTIONAL AND POLICY FRAMEWORK

Since the unbundling and reform of the energy sector in 1997, there have been various policies and government initiatives that have been crucial in the development of the energy landscape and in promoting energy access in Kenya. The most significant of these developments has been in the electricity sector with the rate of electrification growing from 19 percent in 2004 to 64 percent in 2017 (World Bank 2019a). Figure 2 below highlights some of the key political and legislative actions that have enabled this rate of development. These are also discussed below.

Development agenda

Kenya's long-term development strategy, Vision 2030, recognizes energy access as a key enabler to achieving its targets. The first implementation phase of the Vision 2030, detailed in the first Medium Term Plan, was targeted at infrastructural developments including rehabilitating road networks and expanding access to electricity and water among other activities. In response to the electricity sector needs, the Government of Kenya prepared the Electricity Access Investment Program 2009-2014 addressing varied sector-wide needs including generation, expanding and upgrading transmission and distribution networks, and extending affordable household access.

Under this strategy, the Kenya Electricity Expansion Project (KEEP) was designed by the World Bank in support of the Kenyan government in 2010. One of the components of KEEP was electricity distribution with the goal of the expansion and upgrading of the distribution network along with the connection of an additional 300,000 customers, 17 percent of whom would be in urban slums under the Slum Electrification Project, a project funded by various entities (World Bank 2018a). The Global Partnership for Results-Based Approaches (GPRBA), formerly the Global Part-

nership for Output-Based Aid (GPOBA), would provide USD 5.15 million towards the slum electrification subcomponent of the program. An additional grant of USD 3 million from the Swedish International Development Agency (SIDA) would later, in 2016, be approved towards the project bringing the total GPRBA funding to USD 8.15 million. The amount provided by GPRBA was matched by a World Bank international development assistance (IDA) credit at a ratio of 1:2 and the deficit per connection met by KPLC. As discussed later, this program had various phases and realized over 1 million connections by the end of 2018.

LMCP has been another key program in realizing connections in Kenya. In creating a new government following the 2013 elections, the Jubilee Coalition Manifesto aimed to achieve universal electricity for all Kenyans by 2020. This goal has now been revised to 2022 under the Kenya National Electrification Strategy 2018-2022. According to the manifesto, among the ways this would be achieved was through introducing "low-interest five-year loans, paid back as part of electricity bills, for households and businesses that want to connect to the national power grid". As discussed later in the report, LMCP was launched in 2015 and is structured in a manner that reflects the Jubilee Coalition Manifesto commitments. The project forms the main approach through which the government is ensuring connections to the national grid.

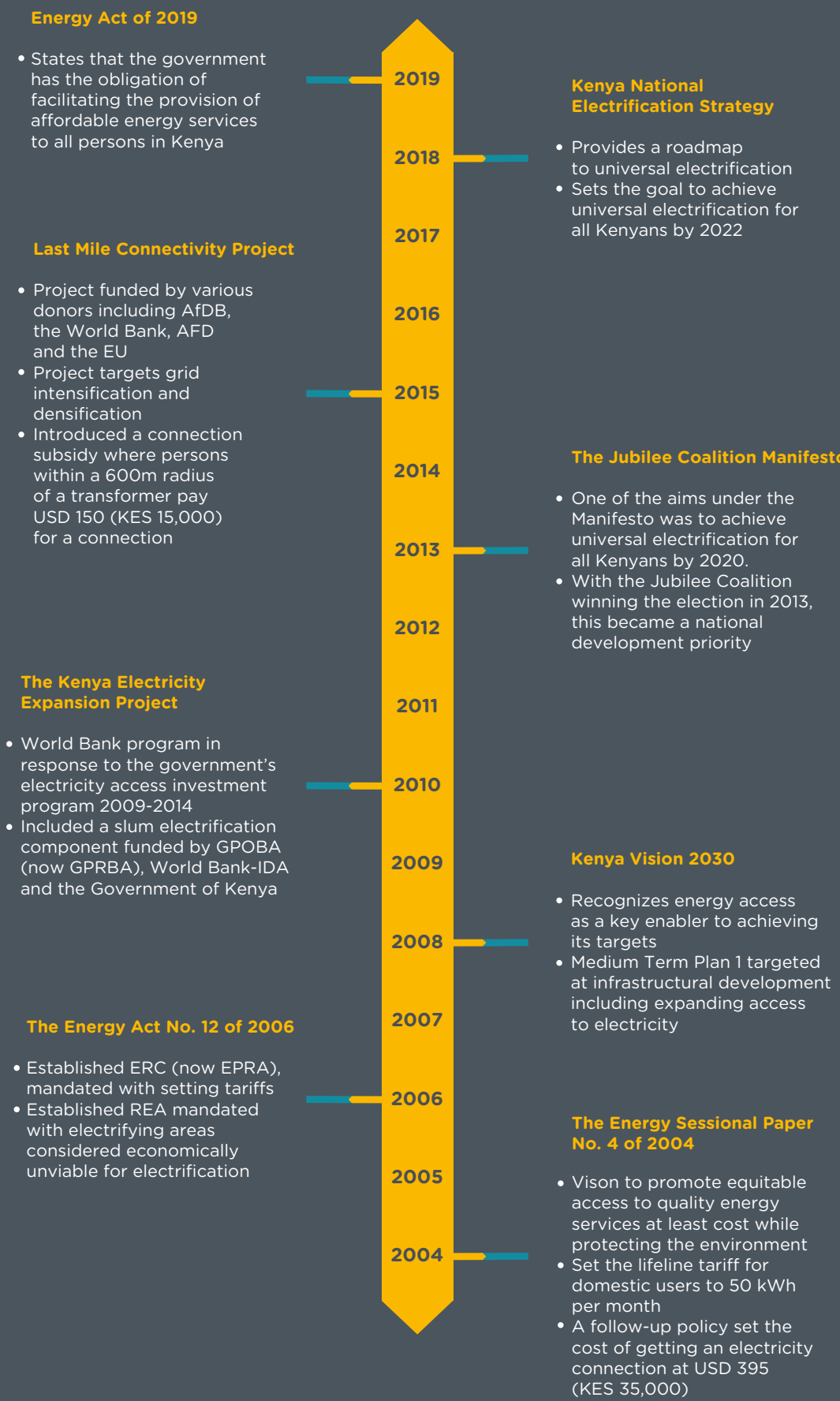
Relevant policy documents

Sessional Paper No.4 2004

Sessional Paper No. 4 of 2004 laid the foundation for energy regulation in Kenya with a vision to 'promote equitable access to quality energy services at least cost while protecting the environment'. One way of achieving this vision was in the formation of the Rural Electrification Authority (REA)¹ to accelerate the pace of rural electrifi-

Figure 2

Overview of policy actions to promote access to electricity in Kenya



cation in the country. The authority was also to oversee the implementation of the Rural Electrification Programme (REP) and help in achieving the government goal of increasing rural electrification status from 4 percent in 2004, to 20 percent in 2010 and 40 percent in 2020. Besides rural electrification, the policy allowed for the continuation of the lifeline tariff for domestic users using up to 50 kWh per month, and recognized that the tariff must at least cover the cost of generation.

Further, the policy promoted use of LPG and biogas as cleaner alternative fuels for cooking at household level and a way of dealing with the environmental concerns associated with use of fuelwood for cooking. The policy also highlighted the importance of publishing energy prices and making this information available as part of recognizing *'every citizen's basic right to be supplied with the minimum energy needs and hence guaranteeing a minimum level of service to vulnerable segments of the society.'* While it is unclear what 'minimum levels of service' entail under this policy, the phrasing of this statement recognizes access to certain levels of energy to be a basic right and goes on to acknowledge that extra effort should be made to ensure even the vulnerable have access.

The paper also proposed the establishment of an independent energy regulator, the Energy Regulatory Commission (ERC), whose mandate was to provide regulatory services including electricity and petroleum price and tariff setting, licensing and permitting, and energy planning among other duties.

Energy Act 2006

The 2006 Energy Act established the Energy Regulatory Commission (now EPRA) and outlined its mandate including providing legal oversight to the sector. Since then, ERC has overseen tariff setting including revision of the lifeline tariff that is aimed at ensuring poor households that have

access to electricity can sustainably use and pay for their energy consumption. The act also mandated the REA to implement the REP and manage its fund. This fund was intended to support electrification of areas 'considered economically unviable for electrification by licensees'. The REP Fund is sourced from a levy of up to 5 percent of the electricity consumed in the country, budgets appropriated by Parliament, donations, grants and loans, interests from bank deposits, and through other programs approved by the Ministry.

Energy Act 2019

The 2019 Energy Act states that the government has the obligation of facilitating the provision of *affordable* energy services to all persons in Kenya by 2030, and requires development of a strategy that is 'fair, transparent and equitable' to ensure all households are electrified. The act, as written, recognizes affordability to be at the center of energy services provision. It is therefore necessary to consider the initiatives that the government has in place to ensure affordability for all, which includes the poorest members of society.

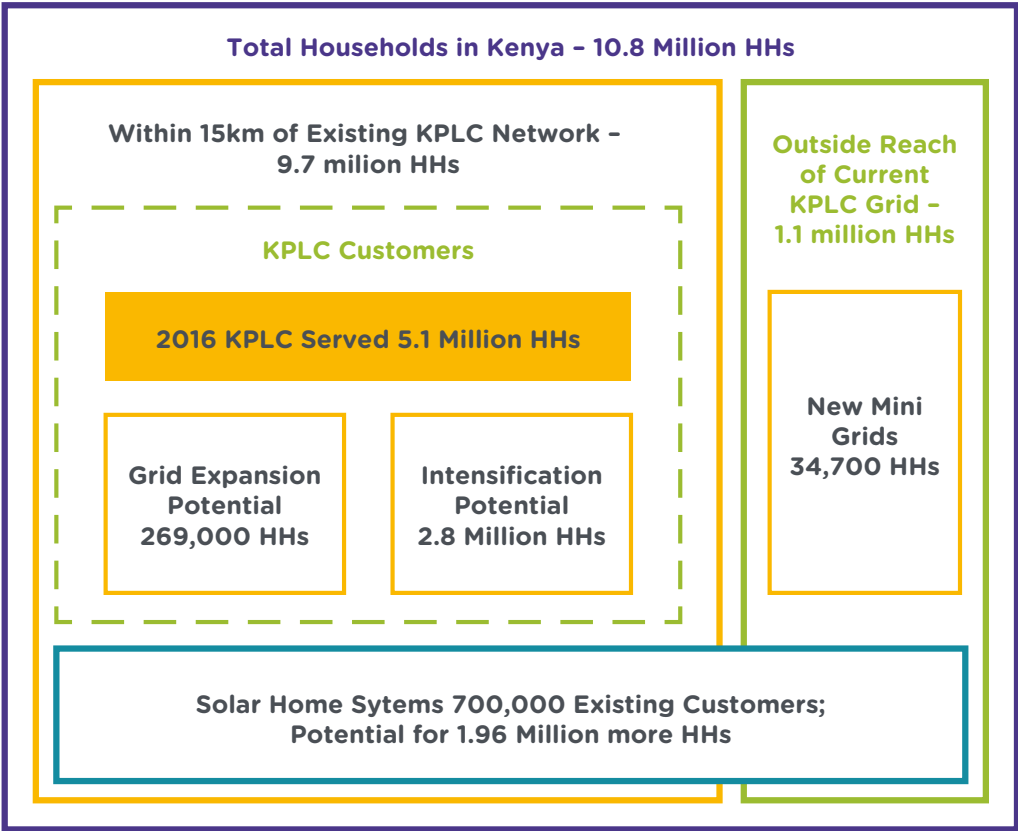
The act also establishes the Rural Electrification and Renewable Energy Corporation (RE-REC) that replaces REA but with more responsibilities including developing and updating the rural electrification master plans in consultation with county governments; developing and updating the renewable energy master plan taking into account county specific needs and the principle of equity in the development of renewable energy resources; supporting establishment of energy centers in the counties; and developing, promoting, managing and conducting research on renewable energy options. On retail tariffs, the act states that 'all tariffs charged for electrical energy supplied shall be just and reasonable'.

Kenya National Electrification Strategy

The Kenya National Electrification Strategy (KNES) 2018-2022 serves as a 'roadmap to universal electricity access by identifying the least cost and most effective solutions for electrification coverage given available supply options and demand for energy service.' Through this strategy, Kenya hopes to achieve universal electrification by 2022. The strategy identifies three options in ensuring that the non-electrified population in the country has access to electricity. These are: grid intensification and densification, grid expansion, and off-grid supply solutions (mini-grids and standalone systems). Grid densification is through

installation of additional transformers on existing medium-voltage lines to connect housing clusters within 600 meters of these distribution transformers while grid intensification involves extending short (up to 2 km) medium voltage lines and additional transformers to connect more consumers. To achieve universal electrification in Kenya requires a connection target of 5.7 million households (total households in Kenya minus Kenya Power customers) as summarized in Figure 3 below. Electrifying these households requires a budget of USD 2.3 – 3.5 billion of public investment assuming cost per grid connection ranges between USD 1,000 and USD 1,500 per connection (Government of Kenya 2018).

Figure 3
Least-Cost Household Electrification Strategy in Grid and Off-Grid Areas for Current Population



Source: Government of Kenya 2018

EXPERIENCE WITH ENERGY SAFETY NETS IN KENYA



The previous chapter laid out a contextual overview of the energy scene in Kenya. This section provides a review of interventions led by the government that have resulted in increasing access to electricity as well as access to modern cooking technologies and fuels for marginalized and poor households. These interventions are considered energy safety nets (ESNs) because they incorporate components that benefit the poor and disadvantaged households in ways that improve their access and use of energy. The following projects and initiatives are highlighted:

- (i) Slum Electrification Project (SEP), a sub-component of KEEP and designed to promote electrification in urban low-income areas and rural areas
- (ii) The Last Mile Connectivity Project (LMCP) that aims at affordably connecting Kenyans to the grid mostly through grid densification in the first phase and grid intensification in later phases
- (iii) Lifeline Tariff in which low income households that consume less than the calculated subsistence level consumption in a month pay lower per kWh than households above this level
- (iv) Kenya Off-grid Solar Access Project (KOSAP) with the relevant subcomponents being:
 - Electrifying 14 underserved counties through use of mini-grids and standalone solar systems to electrify households and public facilities.
 - A clean cooking subcomponent that aims to support a transition from low-efficiency baseline stoves to cleaner higher efficiency improved stoves in eight counties.
- (v) Mwananchi Gas Project (also known as Gas Yetu) that worked (until its recent suspension) to increase affordability of complete 6 Kg LPG connections to poor households through price subsidies by the government.

Each intervention presents a unique experience. Highlighted are the background, institu-

tional and procedural characteristics, impact, effectiveness, challenges and lessons from their implementation.

Among the listed interventions, a few have a nationwide reach including the LMCP, the Lifeline Tariff and the Mwananchi Gas Project. The Slum Electrification Project and the Mwananchi Gas Project specifically target households with higher incidences of poverty.

Though LMCP may not directly target poorer households, its delivery approach has seen a significant number of these households become beneficiaries. Figure 4 illustrates the spread of these interventions across the 47 counties. The nationwide projects mentioned broadly cover the entire country. The poverty rate per county as shown in Figure 5 provides some context for the geography of various interventions.

THE SLUM ELECTRIFICATION PROJECT

Pre-project status

Kenya Power has very stringent connection requirements that made it difficult for slum residents to get connected. Among these wereⁱⁱ a policy to connect only permanent (mortar-based) or semi-permanent (wood) structures with formal land registration, provisions that are difficult to obtain in slums; route maps and right of way consent forms that are difficult to secure given the unplanned nature of slums; load requirements and wiring certificates which, in addition to the connection fee of KES 35,000, (about USD 395),ⁱⁱⁱ made it cost prohibitive to get a connection (Kenya Power 2019; Karakezi 2008). As a result, less than 1 percent of slum residents at the time of the program design could access legal KPLC connections (World Bank 2018c).

Slums are, however, often within proximity of affluent settled areas or industrial zones in response

Figure 4

The geographical spread of selected nationwide ESN interventions: the Lifeline Tariff, LMCP and Mwananchi Gas Project

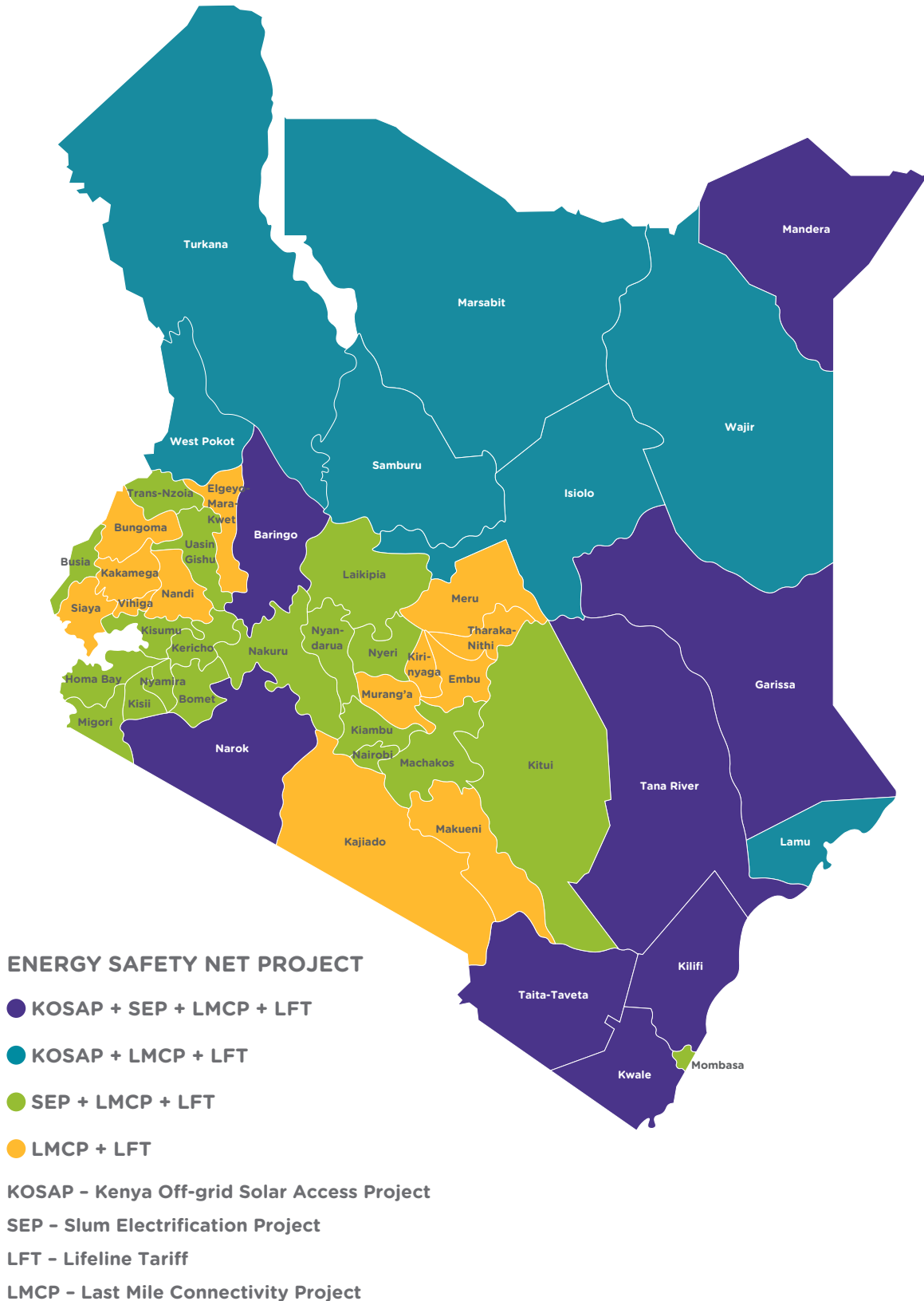
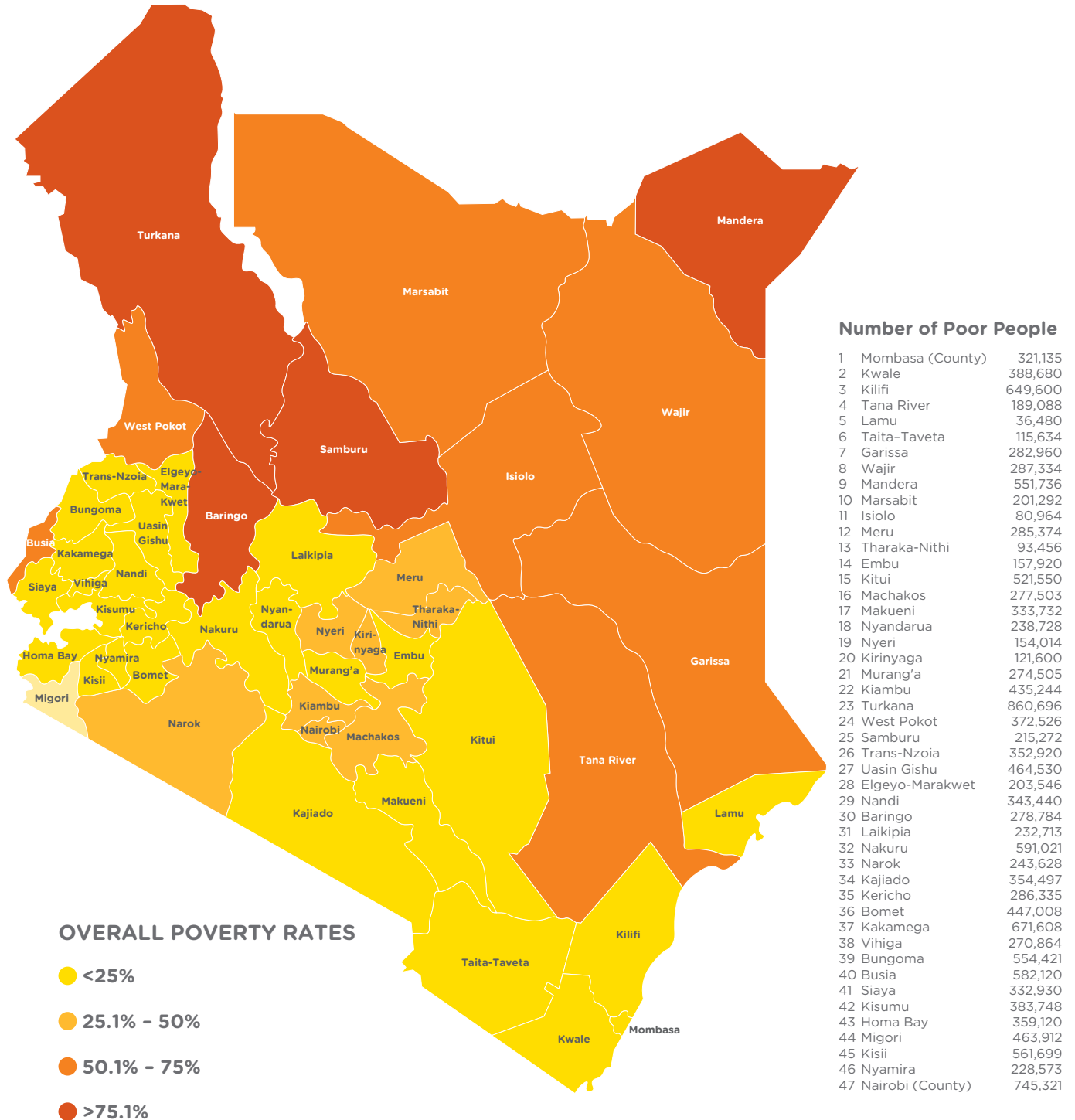


Figure 5

Overall poverty headcount rate across the 47 counties



to labor needs (they are a source of casual laborers for industries and domestic worker for affluent residential areas). Such areas are very likely connected to KPLC and therefore electricity lines tend to run across or adjacent to the slums. This architecture has, over the years, made it possible for slum residents to illegally tap into the electricity network. A 2006 World Bank report indicated that 22 percent of slum households had an electricity connection, some of which were through an illegal connection (World Bank 2006). Additionally, Karekezi (2008) found that the majority of houses using electricity in Kibera, Nairobi's largest informal settlement, tapped their power through an illegal connection despite their being in proximity of KPLC transformers and transmission lines.

These illegal connections are controlled by what are commonly referred to as 'Cartels' and tend to be more expensive per unit consumed and of a poorer quality (due to the type of wiring used) than legal connections (GPRBA 2016). KPLC has, on numerous occasions, attempted to legalize these connections to curb their negative impacts (revenue losses to KPLC, risk of

fires in slums due to the poor quality of wiring, and grid instability due to overloading) without much success (World Bank 2018c). SEP implemented under KEEP, however, introduced innovations that made it possible to connect slum residents as discussed below.

Implementation

KPLC's SEP was jointly funded through GPRBA, World Bank IDA, and through KPLC as part of the larger KEEP intervention. The project provided an electricity connection subsidy to low-income households in informal settlements that would otherwise be unable to pay the full cost for a legal connection. The program addressed the high upfront cost of connection through a results-based subsidy approach. Structured in phases, slum residents were required to pay a connection fee of KES 1,160 or approximately USD 15. The fee could be paid upfront or be recovered from pre-paid electricity tokens purchased over a period of one year. Table 2 summarizes the amounts contributed by the various parties towards meeting the connection costs and the target number of connections.

Table 2
Funding value (US\$) of SEP under KEEP

FUNDING GROUP	USD COST PER HOUSEHOLD CONNECTION	
	INITIAL	REVISED
Household	15	15
KPLC	155	510
IDA	150	250
GPRBA	75	125
Total connection cost (USD)¹	395	900
Target number of beneficiaries	66,000	40,000

There have been two main phases of SEP under KEEP. The initial phase (2011-2014) had a target of connecting 66,000 households in selected low-income urban areas in Nairobi, Kisumu, Thika and Nyeri. These were slums that had rampant illegal connections and well-established cartels. This, coupled with 2012–2013 being an election period in the country, made it difficult for KPLC to connect customers; 2,264 connections were realized in this time against a target of 50,000. These types of slums came to be classified as ‘hard slums’ and needed an innovative approach to making connections; ‘soft slums’ were those without existing or emerging cartels (World Bank 2018c). The project redesign reevaluated the costs and resulted in the cost of a connection rising to an estimated USD 900, which was considered more realistic than the initial estimate of USD 395 (World Bank 2016). As seen in Table 2, KPLC bore the largest share of this cost.

The project redesign incorporated various considerations to deal with some of the limitations seen in low income settlements:

1. The project used single-phase transformers erected on single concrete poles and connected to a maximum of 17 households. The limitation on the number of households was expected to promote a sense of ownership and therefore

mitigate against transformer vandalism and illegal power connections. It also limited revenue losses to KPLC in case of transformer failure. Concrete poles mitigated the risk of fire.

2. To mitigate meter tampering, deal with the challenge of a lack of route maps and consent for right-of way attributed to limited space, and land tenure concerns in slums, KPLC introduced meter boxes that included the circuit breaker that would be hoisted on a concrete pole. Multiple meter boxes were placed on a single pole as seen in Figure 6 and wires pulled directly to the houses.
3. KPLC also waived many of the requirements that were needed to get a connection, including proof of property ownership and wiring certificates. The KPLC ready meter board was introduced to deal with the requirement of in-door wiring. This mitigated the concern that costs associated with wiring were a limitation to getting an electricity connection though estimates for the cost savings for households were not available. As seen in Figure 7, the meter board includes a bulb, a socket and the customer interface unit (CIU).
4. The project used pre-paid meters where the prepayment tokens were readily purchased from approved KPLC vendors or purchased via designated mobile-money platforms. The tokens are a code that is keyed into the CIU and allows users to purchase tokens for as low as KES 10 (about USD 0.10)

Figure 6

Meter boxes



Figure 7

KPLC ready meter board



5. Adaptive approaches were used to deal with social and political challenges in slums that had illegal connections controlled by cartels. Overcoming resistance from the cartels often involved negotiations, which delayed implementation, and casual employment of local young people in the electrification process, which added unforeseen costs. KPLC also worked with the local chiefs to get tenants to complete required paperwork, and even worked with one cartel to displace a rival (World Bank 2018c).

With the increased cost per connection, the target number of connections was lowered to 40,000 households and the grant support by GPRBA and IDA increased (Phase 1 – Revised). KPLC managed a total of 40,323 connections by 2016 (World Bank 2016). Following successful implementation, an additional USD 68 million was approved under KEEP, a portion of which was used for SEP and the project was extended until 2017 (KPLC 2016). A total of 177,895 slum households were connected by the end of the project implementation phase (World Bank 2018a). While World Bank funding may have come to an end, KPLC (with financial support from the government) has continued with connections under this model specifically targeted at low-income urban areas and dense rural settlements achieving over 1,000,000 connections, 60 percent of which previously had illegal connections (World Bank 2018c). A post-implementation survey showed that consumers connected under this model considered the KPLC supply to be cheaper, safer and more reliable than the illegal connections previously used (World Bank 2018c).

However, interviews with KPLC indicated that there was a concern over non-vending meters. These are meters that had been installed but were not being topped up, meaning that they

were not in use and there was a likelihood that consumers had reverted to illegal connections. As highlighted under discussions on lifeline tariffs below, accumulating standing charges billed monthly presented a key challenge to continued access to electricity, beyond the up-front connection.

It may be concluded that the GPRBA model was successful in realizing connections to the poor though questions on its effectiveness and efficiency from a KPLC standpoint arise. Documentation of costs needed to evaluate use of resources, particularly cost itemization, is not publicly available. GPRBA reports the cost of a connection at USD 900 (revised up from USD 395) while discussions with KPLC pointed to a selection approach where houses whose quotation for a connection exceeded KES 20,000, or about USD 200, were disqualified from this program and connected under LMCP instead (World Bank 2016). Further, as mentioned, households had the option of paying connection fees in installments.

Given the high incidence of non-vending meters (there are about 900,000 non-vending meters in total out of 5 million pre-paid meters installed by KPLC so far; more than 50 percent of the non-vending meters were originally connected through SEP),^{iv} KPLC runs the risk of bad debt if these meters are not reactivated and is likely experiencing revenue losses where the non-vending households have reverted to illegal connections. While KPLC has currently discontinued this model due to the financial limitations of providing such a significant subsidy, experiences gained present key lessons for consideration in the design of programs aimed at ensuring electricity connection for the poorest. Future programs such as the World Bank's Kenya Electricity System Improvement Project^v should factor in these lessons.

LAST MILE CONNECTIVITY PROJECT (LMCP)

The Ministry of Energy described the LMCP as “an initiative [...] aiming to ensure affordable electricity connections to households and achieving over 70 percent connectivity by 2017 and universal access by 2020” (Ministry of Energy 2019b). The project was to be implemented over four phases. The first phase, financed by the Government of Kenya and the African Development Bank at a cost of KES 13.5 billion (about USD 132 million), involved extending low-voltage electricity lines to reach households within 600 meters of a transformer, a distance cut-off based on technical viability of the connection (KPLC n.d.a). A total of 5,320 transformers across all 47 counties were identified for the first phase. The distribution of these transformers was based on the Constituency Development Fund (CDF) distribution formulae, one of the country’s resource allocation formulae that seeks to ensure equitable distribution of resources (KPLC 20 n.d.b). Additionally, KPLC would also connect households within a 600 million proximity of transformers installed through the Rural Electrification Program at public institutions in the first and second phases.

Conducted concurrently with the SEP, qualifying households under SEP were not part of the LMCP.

The beneficiaries’ contribution fee for a connection under LMCP is KES 15,000 (approximately USD 150). This is a subsidized amount with the estimated actual cost per connection rising in successive estimates to KES 100,000 (USD 1,000) (World Bank 2018c). Connection to the grid is on a voluntary basis – through completing an application form and wiring the house – and all households within a 600m radius of a transformer have the option to connect regardless of whether they have paid the contribution fee or not, thanks to LMCP. Those unable to pay the fee upfront are required to complete and sign a *Stima* (Swahili for electricity) loan application form. This allows for a monthly deduction of KES 416 (about USD 4) from the electricity bill over a period of three years (USD 48 per year) to cover the contribution fee. The *Stima* loans are made possible by a revolving fund set up in 2010 with funding from the Agence Française de Développement (AFD) through credit and grant to the government which is then lent and/or on-granted to KPLC (KPLC 2018). The loans are interest-free though a 5 percent administration fee is charged.

Table 3

LMCP Implementation Phases

PHASE	FUNDING ENTITY	AMOUNT (US\$)	# TARGET CUSTOMERS	INTERVENTION
1	AfDB	150 million	225,000	Maximize electricity connections around 5,320 existing distribution transformers across the counties
2	AfDB	150 million	314,200	Maximize electricity connections around 4,856 existing distribution transformers across the counties
3	World Bank	150 million	200,000	Maximizing power connections on 3,200 existing distribution transformers; installation of 1,000 new transformers with priority given to areas with high growth potential
4	Agence Française de Développement (AFD), the European Union, and the European Investment Bank (EIB)	220 million	296,600	Maximizing 4,591 existing distribution transformers and installation of 353 new transformers; installation of 1,000 transformers on existing medium-voltage lines under the Transformer Densification Project

Source: KPLC 2018 Annual Report

Unlike under the GPRBA approach, applicants are required to submit all relevant documents needed for new connection applications.^{vi}

The two key features that differentiate LMCP from past electrification efforts with regard to making connection to electricity more affordable are:

1. The subsidized connection cost at KES 15,000 (USD 150) that is less than half the previous subsidized cost of KES 35,000 (USD 395)
2. The option for Stima loans that allow payment of the installation fee over 36 months

While a USD 150 (KES 15,000) connection may still be out of reach for the poorest in a community, these measures ensure that more people who are under-grid can now connect to electricity. Figure 8 shows the strong growth in connections in recent years, which include those added under the LMCP and SEP subsidy schemes (KPLC 2018; KPLC 2017).

THE LIFELINE TARIFF

Lifeline tariffs are a social protection mechanism used to address equity concerns by ensuring vulnerable groups have access to a certain level of service at discounted rates. They are a form of electricity subsidy that can be provided by governments from the tax base or cross-subsidized within a particular consumer class. While there are multiple tariff structures, the table below characterizes the two designs that have been used in Kenya most recently.

In Kenya, the lifeline tariff has been a long running policy tool implemented by the government to benefit poor and marginalized consumers. These tariffs are determined by EPRA, which is mandated to set, review and adjust electric power tariffs and tariff structures. The lifeline rate assumes that poorer households consume less electricity than average and sets

Figure 8
Number of new connections per year

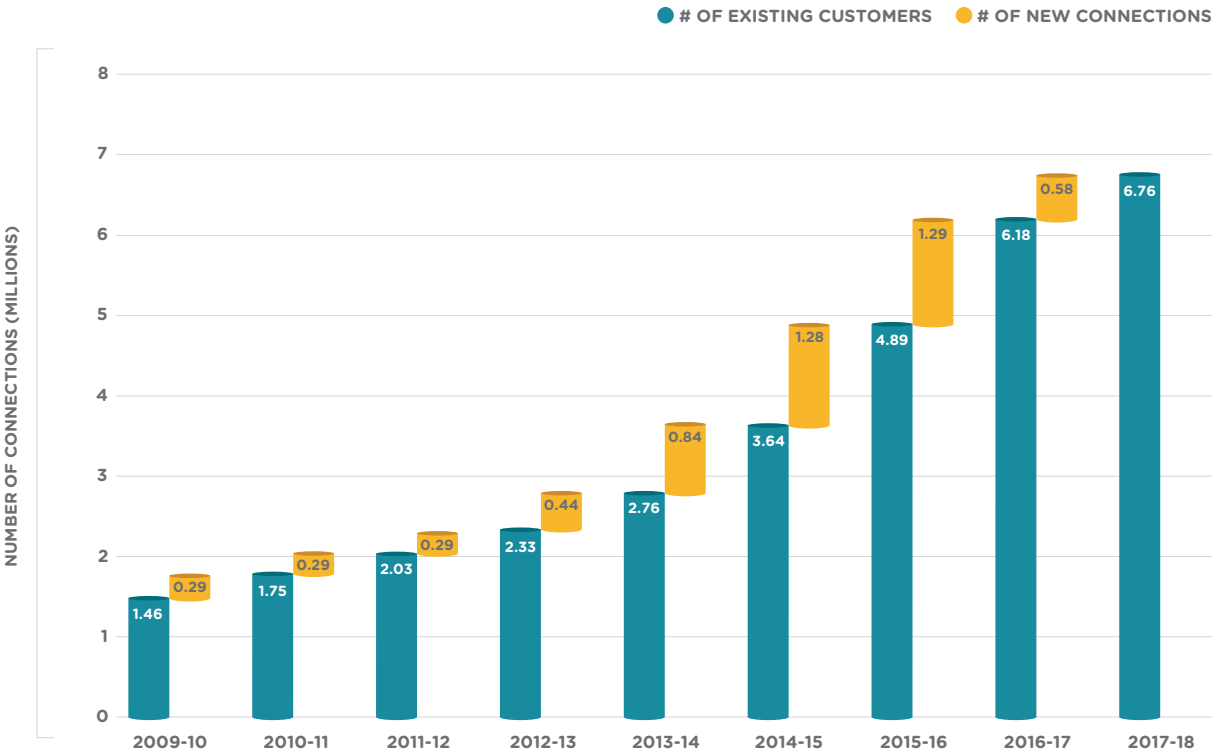


Table 4

Comparison between increasing block tariff (IBT) and volume differentiated tariff (VDT)

IBT	VDT
Volumetric tariff where consumption above a certain band is charged higher	Volumetric tariff where consumers are classified in different consumption bands and charged different tariffs, with higher consumers paying more
All consumers benefit from the lowered cost of the first band (subsistence level)	Due to differentiated consumption bands, subsidized tariffs can be targeted at those in the lowest consumption bands

a threshold for what adequate consumption should be. Based on consultations with the REA, a minimum subsistence threshold is determined as the equivalent of monthly consumption in a house that has one socket and two light bulbs only. Given the Kenyan context where the poor are likely to live in single room residences and powering needs are mostly restricted to mobile phone charging and powering basic radios, these basic provisions may be considered reasonable. The REA estimates this subsistence level of consumption at about 10 kWh. In practice a broader set of factors appear to be used when setting the threshold consumption level for the lifeline tariff.

Increasing block tariff (IBT)

The lifeline tariff has evolved and undergone several iterations over time as seen in Figure 9. Up until June 2018, electricity tariffs were based on the IBT structure. This included energy charges (per kWh-charge) and a monthly fixed charge of approximately KES 120 that was increased to approximately KES 150 as of 2013. The threshold had been unchanged for the previous ten years and covered consumers within the 0 – 50 kWh per month consumption band. Consumers within this band were charged a below-cost^{vii} price of USD 0.025, with higher consuming households charged more on units above the threshold (KES 12.8 – 20.1).

Consumers found it difficult to understand how much they were paying for electricity, as the load-

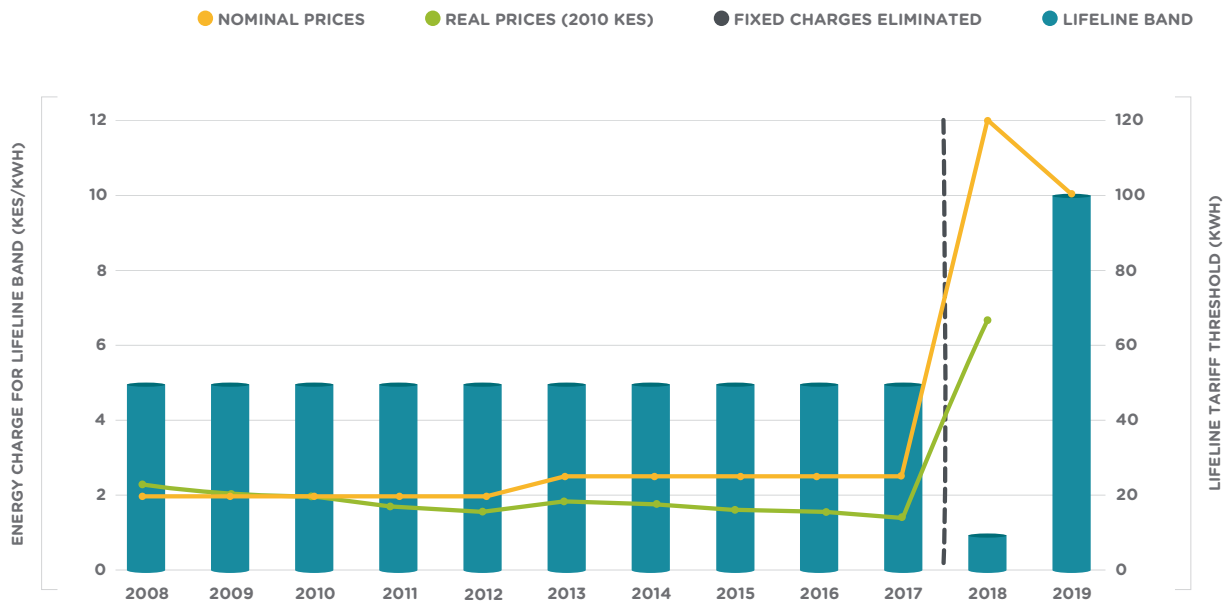
ing of the fixed charge onto the first payment in each month (sometimes, of multiple payments) meant that the price paid appeared to vary between payments.^{viii} The fixed charge also resulted in non-vending meters for consumers on the pre-paid system since it would greatly eat into their initial unit purchase for the month. This was especially significant among households connected under SEP – the tariff’s monthly standing charge of KES 150 was about 13 percent of the cost of getting a connection (KES 1,160), which discouraged some people from continued topping up of electricity tokens. Additionally, the standing charge would accumulate over months of non-consumption, further making it difficult to resume electricity usage.

Volume differentiated tariff (VDT)

Based on challenges raised by the public on the complexity of the IBT and concerns over non-vending pre-paid meters, EPRA revised the tariff structure in 2018 to increase transparency and clarity. The current lifeline tariff applied to domestic consumers is volume differentiated and is set at USD 0.10 (KES 10) per kWh for 0 – 100 kWh; consumers above the 100 kWh band are charged USD 0.16 (KES 15.8) per kWh. The tariff eliminates fixed charges that were folded into the existing pass-through costs (taxes and levies) charged in addition to the lifeline costs as a proportion of consumption. Typically, these charges are about 30–40 percent of the total cost (i.e. a household on the current lifeline tariff will pay

Figure 9

Evolution of the electricity lifeline tariff in Kenya



Note: These rates do not include taxes and levies nor the fixed charges (in place until 2017). Nominal prices are average cost per kWh excluding taxes and levies. In 2018, Kenya moved from an IBT with a fixed monthly charge of KES 150 and a KES 2.50 charge on the first 0 – 50kWh consumption band (lifeline, in green) to a VDT where the fixed charges were dropped and the lifeline band set at 0 – 10kWh. The lifeline tariff at 10kWh/month was valid from 1st August 2018 to 31st October 2018 before EPRA reviewed this upwards to 100kWh and dropped the price from KES 12/kWh to KES 10/kWh.

USD 0.13 – 0.14 / KES 13 – 14 per kWh). Consumers within the lifeline band are determined through a three-month moving average ensuring dynamic targeting of the subsidies. Increasing the lifeline threshold to 100 kWh a month expanded access to the lifeline tariff to 91 percent of customers. This approach reaches all low-income households that are connected but also indicates that a large proportion of the tariff is claimed by non-poor households. This suggests the policy favored errors of inclusion (supporting those who may not need it) rather than errors of exclusion (leaving out those who do).

Various studies have shown that VDT can be a more progressive and efficient method that ensures better targeting and reductions in costs associated with subsidy schemes, but this is greatly dependent on the inherent design of the tariff structure (IMF 2013; Fuente 2015). As seen in the comparison in Figure 10, the application of VDT

from the previous IBT structure resulted in costlier electricity prices for Kenyans at every consumption band except for those consuming the minimum subsistence amount (10 kWh per month).

Using World Bank analysis, the current lifeline rate is deemed to be affordable for the very poor in Kenya. The World Bank has found that electricity may be considered affordable if a household spends 5 percent (or less) of household income to access 30 kWh a month (World Bank 2017b). At current prices, 30 kWh a month would cost approximately KES 400, or about USD 4.^{ix} Based on the international poverty line and an average household size of five people, this cost, by our estimates,^x is less than 3 percent of household expenditure of the poor in Kenya—meeting the definition of affordable.

The lifeline band is set at 100 kWh, which is more than three times the 30 kWh level that the World

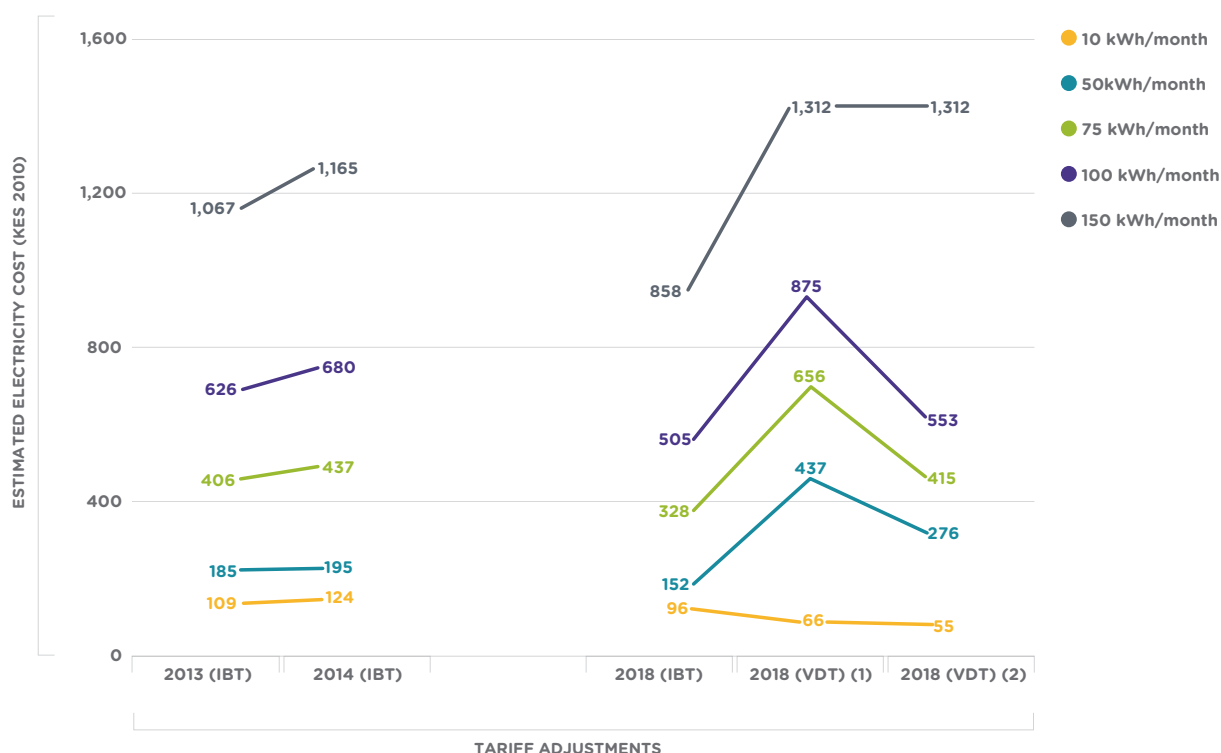
Table 5

Recent tariff structures (nominal prices)

	MONTHLY STANDING CHARGE	FIRST BAND		SECOND BAND	
		AMOUNT (kWh)	UNIT PRICE	AMOUNT (kWh)	UNIT PRICE
2013 (IBT)	USD 1.50 / KES 120				USD 0.135 / KES 11.6
2014 (IBT)	USD 1.75 / KES 150	0 - 50	USD 0.25 / KES 2.5	50 - 1500	USD 0.155 / KES 13.7
2018 (IBT)	USD 1.50 / KES 150				USD 0.126 / KES 12.8
2018 (VDT) (1)	-	0 - 10	USD 0.118 / KES 12.0	> 10	
2018 (VDT) (2)	-	0 - 100	USD 0.99 / KES 10	> 100	USD 0.156 / KES 15.8

Figure 10

Changes in consumer electricity costs for different levels of consumption



Note: Estimated electricity cost in real prices (KES 2010) at different monthly consumption levels (kWh) under the various tariff schemes. These prices do not include taxes and fuel levies (that are proportional and vary month to month) but do include fixed costs.



Bank estimates for subsistence consumption, meaning the benefit reaches beyond the very poor.

One recommendation would be that the Government of Kenya consider lowering the band to only accommodate households that consume at the subsistence level.

KENYA OFF-GRID SOLAR ACCESS PROJECT (KOSAP)

To meet the goal of universal access by 2022, the Government of Kenya recognizes the need for a shift from the traditional grid-driven approach to one that accelerates electrification through various diversified least cost means. In partnership with the World Bank, the government launched

the Kenya Off-grid Solar Access Project (KOSAP), a government initiative aimed at increasing access to modern energy services, both electricity and cooking solutions, to households, businesses, and community and public facilities in marginalized and underserved counties. KOSAP initially covered 14 counties, but the scope has since been expanded to cover other counties including Baringo and Kitui.^{xi} The program will be implemented in counties under the larger North and Northeastern Development Initiative, a USD 1 billion Government of Kenya and World Bank initiative to increase investments in the north and northeastern parts of Kenya that are lagging behind socio-economically. These areas are isolated from the central grid and would be more effectively served by off-grid solutions.

KOSAP is financed by the World Bank under a USD 150 million debt facility and intends to electrify about 277,000 households.

The Ministry of Energy, KPLC and REREC will implement the project in four components over a five-year period (2018-2023):

Component 1:	USD 40M	Mini-grids for Community Facilities, Enterprises, and Households
Component 2:	USD 48M	(A) Stand-alone Solar Systems and (B) Clean Cooking Solutions for Households
Component 3:	USD 40M	Stand-alone Solar Systems and Solar Water Pumps for Community Facilities
Component 4:	USD 22M	Implementation Support and Capacity Building Implementation Support and Capacity Building

The program aims to reach more than 1.2 million beneficiaries through 151 mini-grids and 250,000 solar home systems (SHSs). In addition, 1,097 community facilities including 784 health facilities, 207 secondary and tertiary education institutions and 106 public offices will be provided with improved electricity service. It will also provide 150,000 clean cooking devices and 380 solar pumping systems (World Bank 2017a; Ministry of Energy 2019a).

Given that the program is in its early stages, there is little publicly available information such as modalities for the selection of beneficiary households, and pricing of the SHS and cookstoves, among others. The emphasis to make the

program affordable to rural households requires a clear mechanism to allocate subsidies for which the national electrification strategy (KNES) suggests an intra-sector financing mechanism such as a levy (Ministry of Energy 2018). It estimates this subsidy to be an annual amount of USD 19.5 million for both mini-grids and SHS.

Mini-grids and stand-alone solar home systems (components 1 & 2A)

Under the mini-grid component, USD 40 million will be used to develop 151 mini grids for rural electrification through a private-public partnership model. To ensure affordability, the mini-grid customers will be charged at the uniform national tariff that applies cross-subsidization across electricity sources (i.e. KPLC grid customers will contribute approximately USD 0.003/kWh to cover the USD 19.5 million subsidy mentioned above). Consumers will therefore mainly fall within the lifeline tariff band enjoying subsidized electricity costs. Project documents also mention that subsidies will be provided per connection, but it is unclear what the connection costs will be and what proportion will be borne by the consumers. It is probable that the connection fee will be similar to the amount charged under the LMCP, which is the current government policy for realizing domestic connections.

KOSAP will also set up a debt financing and results-based financing facility for enterprises supplying SHS. These will establish connections in 250,000 households in the KOSAP territory areas. Few specifics relating to the size of SHS available have been released. The scheme aims to address affordability concerns by permitting households to pay for the systems in installments.

Clean cooking solutions facility (component 2B)

This subcomponent aims to promote cleaner household cooking technologies and fuels by supporting the transition from baseline low-ef-

efficiency stoves. A results-based financing facility will be used to facilitate the sale of 150,000 stoves across eight counties. This facility will be disbursed in three different scenarios:

- a. *Ex-ante* awards for investments that will generate market awareness, sales distribution networks particularly among women-led sales agents, and training and operating expenses directly related to customer acquisition
- b. *Ex-ante* awards for inventory acquisition from eligible cookstove manufacturers
- c. *Ex-post* incentives that are paid per cookstove sold.

The primary goal of this subcomponent is to establish a self-propelling industry by the end of the program. The above measures are expected to incentivize clean cookstove distributors to establish sustainable supply chains in the eight underserved counties. The facility will provide a subsidy to businesses with the intention of these businesses then passing along lower prices to consumers. KOSAP is providing both incentives (essentially subsidies) and debt (mainly for working capital) for entrepreneurs.

THE MWANANCHI GAS PROJECT (GAS YETU)

The Mwananchi Gas Project, also referred to as Gas Yetu, is an initiative led by the Government of Kenya through the National Oil Corporation of Kenya. The project was initiated in 2017 and aims to promote the uptake of LPG systems by providing a filled 6 kg cylinder, burner and grill at a discounted price to households that would otherwise not be able to afford LPG-based cooking solutions. The overall goal is to increase LPG penetration to 70 percent by 2020.

The project design includes distribution of complete cylinders at a discounted price of KES

2,000 (USD 19.34) from the market price of KES 4,500 (USD 43.52). The government would provide a subsidy on the initial cost of the cylinder and ensure development of last mile distribution channels where the distribution model involves working with at least one distributor per sub-county. Individuals would register themselves at the chief's office with their identification cards, present their registration forms and identification cards at distribution points, pay KES 2,000 and collect their gas cylinder. The project would seek to involve more entrepreneurs in the supply chain especially women, youth and people with disabilities.

At the time of this study, a pilot test was conducted in Kajiado (the north sub-county) and Machakos County. Reports from the media suggest that the project suffered difficulties in ensuring identified beneficiaries received the correct number of cylinders. An official statement from the Ministry suggests that the reasons for suspension remain unclear. If implemented as envisioned, the project would have significant impact on LPG penetration and usage.

The Government of Kenya has implemented projects that have, with or without an explicit intention, promoted access to modern energy services for the poor. However, deliberately targeting poor and marginalized households to improve their access to electricity and improved cooking options, especially in the case of non-contributory schemes, requires heavy investment on the part of the project implementors. Market-driven approaches are unlikely to deliver these types of intervention that are a much better fit for the day-to-day operations of the government, as seen from a social protection angle. The follow-up sections of this report review the state of social protection in the country and investigate how social protection can intersect with increasing energy access and energy use for the poor.

STATE OF SOCIAL PROTECTION POLICY IN KENYA



LEGISLATIVE AND POLICY FRAMEWORK

In Kenya, social protection is entrenched in Article 43 of the 2010 Constitution of Kenya, which addresses Economic, Social and Cultural Rights. Article 43(1)E states that ‘Every person has a right to social security’ while Article 43(3) stipulates that, ‘The State shall provide appropriate social security to persons who are unable to support themselves and their dependents.’ Further, the country has, over the years, had various legislative actions in its implementation of social protection measures that range from the set-up of the National Social Security Fund in 1965 to its being amended in 1987 to the Sessional Paper No. 2 of 2014 on National Social Protection. This is summarized in Figure 13. Social protection equally contributes to the Country’s Vision 2030, the government’s long-term development blueprint that aims to transform Kenya into an industrialized middle-income country and provide all its citizens with high quality standards of living in a clean and safe environment. Additionally, Kenya has ratified several international conventions that promote use of social assistance to address the risks that certain populations face. These are summarized in Figure 11 (Malombe n.d.).

As part of implementing the constitutional provision for rights to social security, the country adopted the National Social Protection Policy (NSPP) in 2011 and housed it within the Ministry of Labour in an attempt to harmonize the different social protection interventions that had previously been run by different ministries such as the Ministry of Education, the Ministry of Health and the Ministry of Agriculture. This was accompanied by NSPP Sessional Paper 2014 that outlined measures and strategies in addressing the challenges of providing social security to Kenyan citizens. While there had previously been various forms of social protection programs in the country, NSPP was the first policy document to define social protection as ‘policies and actions, including legislative measures, that enhance the capacity of and opportunities for the poor and vulnerable to improve and sustain their lives, livelihoods, and welfare, that enable income-earners and their dependents to maintain a reasonable level of income through decent work, and that ensure access to affordable healthcare, social security, and social assistance’. This definition, however, has been contested and is considered limiting as it confines the definition of social security to contributory social protection schemes (Government of Kenya 2017). The definition of so-

Figure 11

Summary of international conventions on social protection ratified by GOK

<p>Convention on Rights of the Child (CRC)</p>	<ul style="list-style-type: none"> • Ratified in 1989 • Establishes the economic, social and political rights of children including non-discrimination, right to survival and development and respect for the views of the child.
<p>Convention on the Elimination of Discrimination Against Women (CEDAW)</p>	<ul style="list-style-type: none"> • Ratified in 1984 • Defines what constitutes discrimination against women and sets up an agenda for national action to end such discrimination.
<p>Convention on the Rights of Persons with Disabilities (CRPD)</p>	<ul style="list-style-type: none"> • Ratified in 2008 • Promotes, protects and ensures the full and equal enjoyment of all human rights and fundamental freedoms by all persons with disabilities.
<p>Social Protection Floors Recommendation</p>	<ul style="list-style-type: none"> • Ratified in 2012 • Commitment to guarantee income security to address risks along the lifecycle, from childhood into old age.

cial assistance is thus considered to be evolving with the aim of covering all other schemes that might not be contributory.

In addition to the National Social Protection Policy, there is the 2013 Social Assistance Act. The main objective of this piece of legislation was to establish the National Social Assistance Authority (NSAA) and to provide for the rendering of social assistance to persons in need. However, the act has not been fully implemented as some of its provisions contradict those of the National Social Protection Policy of 2011. For example, the act establishes the National Social Assistance Authority (NSAA) as the overseer of all social protection in the country whereas the policy mandates the National Social Protection Council (now the National Social Protection Committee) as the manager and the administrator of social protection in the country. A review of the act is ongoing.

STRUCTURE OF SOCIAL PROTECTION IN KENYA

The overall goal of social protection is to ensure that all Kenyans live in dignity and exploit their human capabilities for their own social and economic development. Based on NSPP, social protection in Kenya is built upon three pillars (see Figure 12) that are governed by the National Social Protection Steering Committee. Discussions are however

underway to merge these pillars to avoid duplication and also to increase coverage of social protection by including other programs such as the universal coverage for persons aged 70+ in the country. Social protection in Kenya includes contributory and tax-financed mechanisms (Government of Kenya 2012). Contributory schemes such as the National Social Security Fund (NSSF) and the National Hospital Insurance Fund (NHIF) target the formal workforce. Informal sector workers may opt into these mechanisms for which the contributions are lower than those of the formal sector and for which the government provides subsidies. Tax-based schemes are mostly funded by the government and form part of the national budget. In the 2018–2019 budget, the Government of Kenya allocated KES 33 billion to the State Department for Social Protection, of which KES 26.4 billion went to National Social Safety Nets and KES 4.4 billion to the Hunger Safety Net Programme (Development Initiatives 2018).

As a fulfillment of the 2012 Social Protection Floors Recommendation, Kenya designed its social protection mechanisms to address life cycle risks, covering various stages of life from childhood to old age. This is illustrated in Figure 14.

National poverty in Kenya is estimated to be at 36 percent with approximately 4.5 million^{xii} households living on less than USD 1.34 (KES 134) per

Figure 12

Pillars of social protection in Kenya



Figure 13

Summary of social protection policies in Kenya

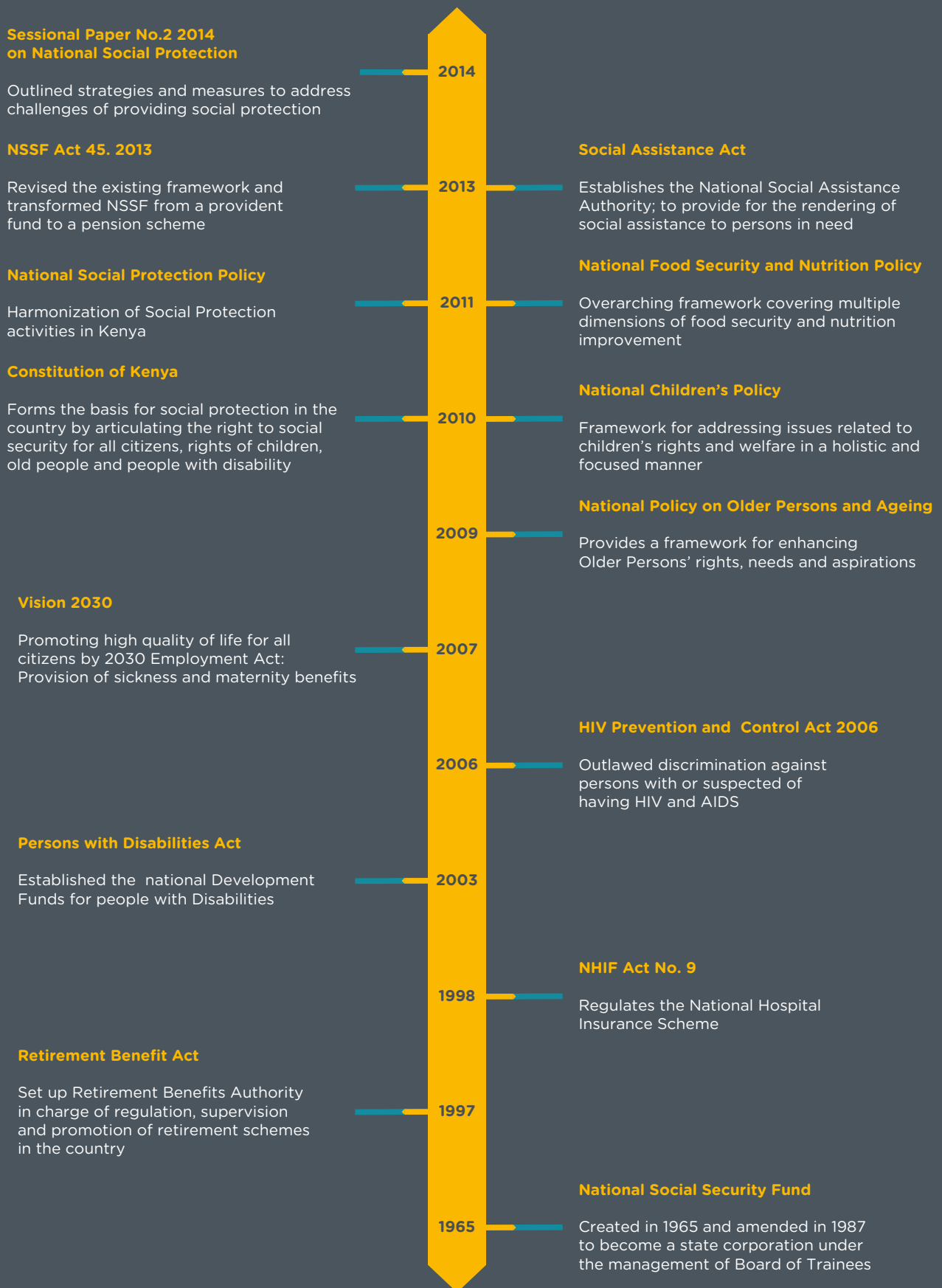
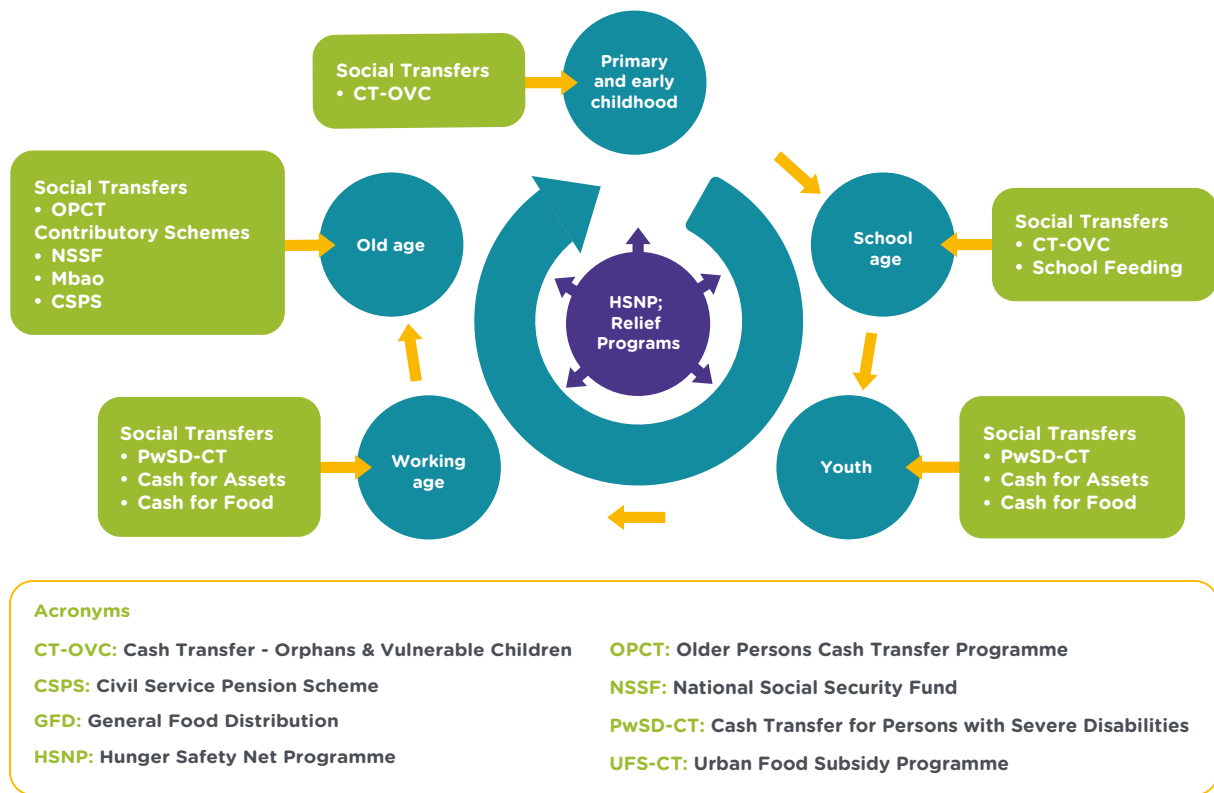


Figure 14

Kenya's national social security system, mapped across the lifecycle



Source: Kenya Social Protection Sector Review, 2017

day (Government of Kenya 2017). Poverty varies, however, from one county to another and national social protection has mainly been targeting counties with the highest poverty incidence. As of 2018, more than 1 million households (8 percent^{xiii} of total households) were in receipt of a regular and predictable social assistance transfer (UNICEF 2018). Cash transfers made up 87 percent of the social assistance and accounted for 0.4 percent of the country's GDP (UNICEF 2018). Food, under the Hunger Safety Net Programme, was also a significant proportion of social assistance.

SOCIAL ASSISTANCE PROGRAMS IN KENYA

There has been a marked increase in the number of households benefiting from social assistance with the total number increasing six-fold over

ten years from about 200,000 in 2007–2008 to 1.2 million in 2017–2018 (see Figure 15). This growth can be attributed to increased government spending on social assistance and consolidation of cash transfer programs in the country.

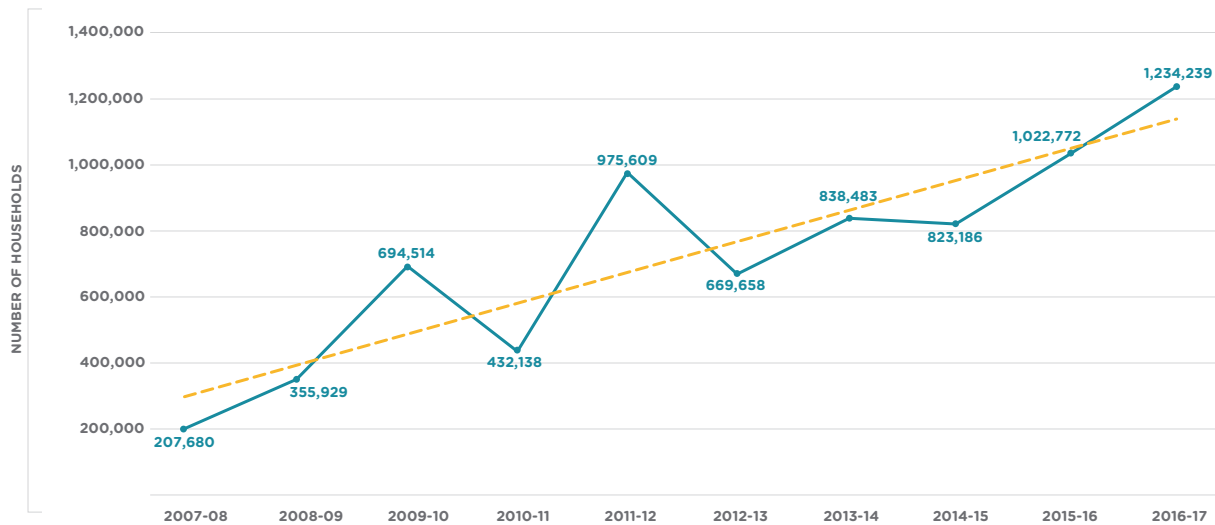
There are eight programs that fall under social assistance mechanisms, also referred to as social transfers as shown in Figure 16.

These include

- Older Persons Cash Transfer Programme
- Cash Transfer for Orphans and Vulnerable Children
- Cash Transfer for Persons with Severe Disabilities
- Hunger Safety Net Programme (HSNP)
- Food for Assets (FFA)
- Cash for Assets (CFA)
- Urban Food Subsidy Cash Transfer Programme
- General Food Distribution

Figure 15

Number of beneficiary households of social assistance in Kenya 2007-2016



Source: Kenya Social Protection Sector Review, 2017

Of these programs, the Older Persons Cash Transfer is both the fastest growing and one of the largest schemes with more than 300,000 beneficiaries.

The unconditional CFA/FFA transfers are designed as general transfer schemes for those living in poverty. They allow for immediate food assistance through vouchers or cash transfers but have a long-term goal of building resilience through asset creation. This may include rehabilitating barren lands, installing irrigation systems, and/or diversifying crops to increase food security.

Creation of the National Safety Net Programme

Four of these programs – those for Orphans and Vulnerable Children, Older Persons, Persons with Severe Disabilities, and the HSNP – were clustered to form the National Safety Net Programme in 2013. They are administered by the Social Assistance Unit under the Ministry for Labour and Social Protection. Three of the National Safety Net programs are fully funded by the government while HSNP is part-

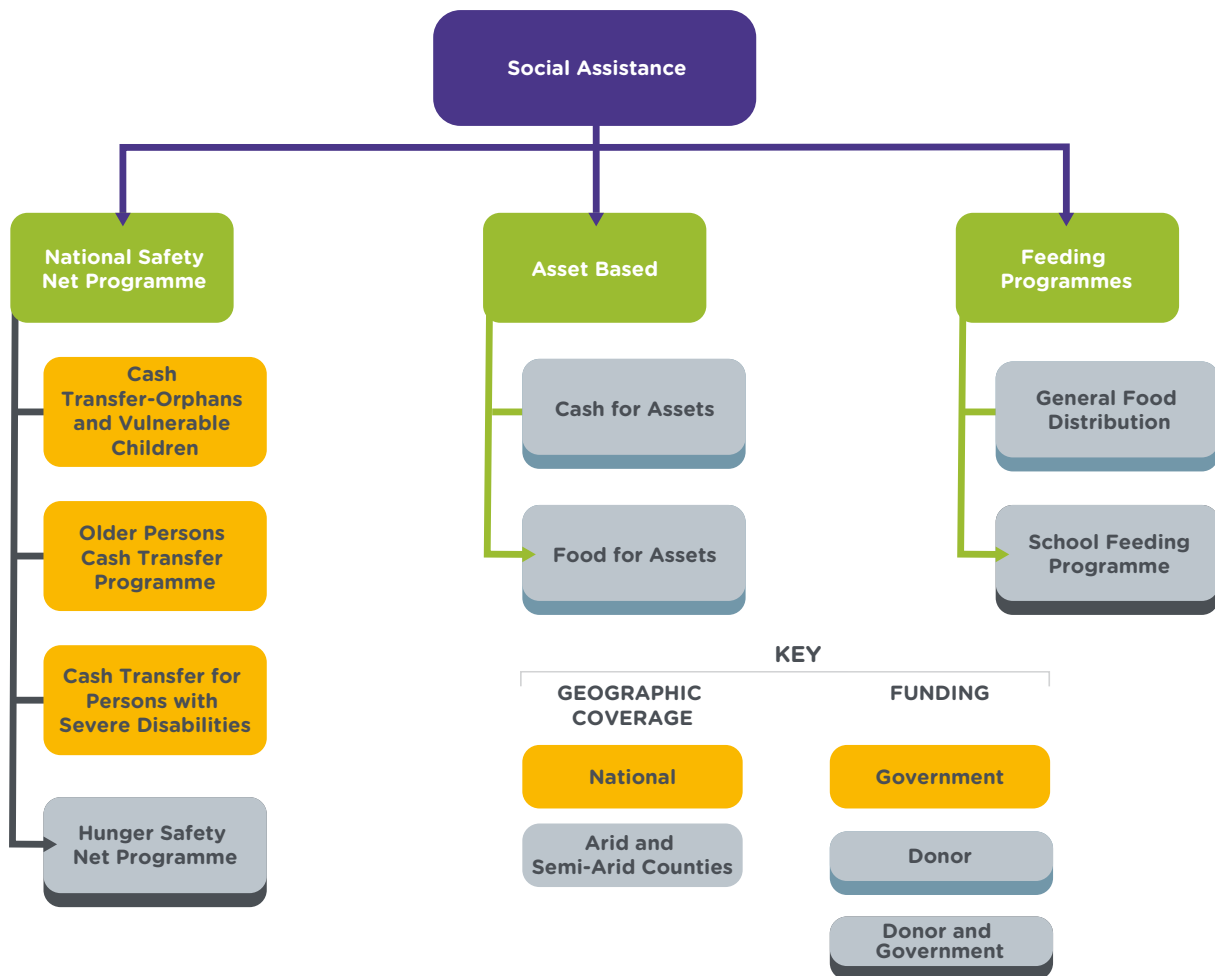
ly funded by the UK Department for International Development (DFID). The National Safety Net Programme has expanded to account for more than half of the total beneficiaries that have received social assistance transfer in the country.

The three conditional government-funded cash transfers – for orphans and vulnerable children, older persons, and those with severe disabilities – have a wide geographic coverage, present in all 47 counties in Kenya. Others, like CFA and FFA are in the arid and semi-arid areas, and HSNP is in four northern counties: Turkana, Mandera, Marsabit and Wajir, which are among the poorest counties in Kenya.

While most safety net programs are at the national level, with devolution, counties have also started developing their own social assistance schemes. For example, Kakamega County has established a cash transfer program for pregnant and lactating women with the aim of improving newborn and maternal health. The cash transfer under this program is disbursed bimonthly for 18 months and totals USD 120 (KES 12,000).

Figure 16

Examples of social assistance mechanisms



IMPLEMENTATION OF SOCIAL ASSISTANCE IN KENYA

The National Social Protection Steering Committee (NSPSC) is the overseer and coordinator of all social protection interventions in Kenya. However, the conditional cash transfer programs, which include the NSNP, also referred to as the *Inua Jamii* Programme, is administered through the recently formed Social Assistance Unit under the Ministry of Labour and Social Protection. Other social protection programs, however, remain scattered across other ministries including the Ministry of Education, the Ministry of Agriculture, and the Ministry of Devolution and Planning.

As part of the ongoing reforms in the social protection sector, the Ministry of Labour and Social Protection has developed a single registry with the aim of consolidating information from the different management information systems for the social protection programs that are currently operated independently by different departments and ministries. This is an attempt to address the challenge of fragmentation and lack of coherent coordination mechanisms among the various programs. The registry has the capacity to provide information on beneficiaries, including tracing them to ensure that they do not benefit from multiple programs as has been observed in the past; strengthening monitoring and evaluation while reducing duplication of resources across

Table 6**Overview of National Safety Net Programme disbursement for 2016**

SCHEME	RESPONSIBLE AGENCY	TARGET GROUP	NUMBER OF REGISTERED BENEFICIARY HOUSEHOLDS	TRANSFER VALUE PER MONTH		ACTUAL SPEND IN 2016	
				USD	KES	USD (million)	KES (billion)
Cash Transfer - Orphans and Vulnerable Children	Social Assistance Unit at Ministry of Labour	Household with orphans or vulnerable children	362,232	20	2,000	83.4	8.34
Older Persons Cash Transfer	Social Assistance Unit at Ministry of Labour	Household with member aged 65+	320,636	20	2,000	66.2	6.62
Cash Transfer for Persons with Severe Disabilities	Social Assistance Unit at Ministry of Labour	Households including persons with severe disabilities (adults and children)	41,374	20	2,000	11.2	1.12
Hunger Safety Net Program	National Drought Management Authority at Ministry of Devolution and Planning	Poorest households in Turkana, Marsabit, Mandera and Wajir counties	101,630	27	2,700	49.8	4.98

implementing institutions, and elimination of fraud through an improved verification process (NSPS n.d.).

As a way of eliminating the risks associated with fraud, the government has also adopted an electronic system for payments to beneficiaries. Households are given a bank card that contain their biometric data and they use this with the approved service providers to access funds.

Targeting

Lack of universalism in targeting has been a main drawback in the implementation of safety net programs in Kenya as most of the country's social assistance programs have employed geographic targeting focusing on areas with the highest poverty rates and not necessarily on counties with the highest number of poor populations.

Using geographic targeting, households in arid and semi-arid counties are three times more likely to benefit from social assistance than households

in other counties. A proxy means test is also used in combination with geographic targeting. To address the limitations and inefficiencies rising from targeting, and to promote inclusivity, the government introduced a harmonized targeting tool in 2011 that uses a combination of community-based targeting approaches and proxy means testing in its identification of households. This process begins with a geographical selection of counties, sub-counties, locations and sub-locations where the program will be implemented and the distribution of beneficiaries across these administrative units. This selection is based on the most recent data available from the Kenya Integrated Household Budget Survey and the national population. The number of beneficiaries to be targeted is guided by the program expansion plan that is developed at the national level.

Once the geographic locations have been identified using county-level poverty indices, potential beneficiaries (poor and vulnerable households) are listed. These households are identified through a community participatory approach

where community members put forth names of households that they consider as qualifying for the assistance. A two-week period is provided for community members to either add names to or drop them from the list. This is followed by community-based screening to see if the correct households have been selected. Upon confirmation, a proxy means test assessment of households is conducted based on primary data (household surveys). Households below the set threshold are enrolled as program beneficiaries.

The 2017 *Operations Manual for Consolidated Cash Transfer Programme* sets principles for household targeting, that include:

- Ensuring households are benefiting from only one program
- Ensuring caregivers do not represent more than one house
- Refraining from any error, fraud and corruption (EFC) practices
- Ensuring the participation of community and community structures
- Guaranteeing inclusivity of all citizens irrespective of social and cultural origins.

Figure 17 highlights the percentage of the overall poor population that the NSNP (Inua Jamii) had reached as of 2017. Based on the numbers of beneficiaries reached, it can be seen that aggregate numbers of the poor that are reached do not differ drastically across the 47 counties. However, counties with the highest populations of the overall poor show the lowest percentage reach. For instance, the counties with the highest reach (more than 14 percent) have relatively smaller populations of poor, almost four times lower than those of Turkana and Nairobi. Figure 18 provides a clear picture of the population of the overall poor who have yet to benefit from the program. Notwithstanding all the development projects that are being undertaken in the largest urban county, Nairobi comes second after Turkana with the highest number of overall poor households.

This demonstrates that perhaps an alternative targeting mechanism that considers not only proportions but also absolute populations of the poor per county should be incorporated.

Financing

The government of Kenya allocated USD 310 million (KES 31 billion) to the social safety nets program for the 2019/2020 financial year. This is a slight drop compared to the 2018–2019 financial year for which USD 330 million (KES 33 billion) was allocated. Among the four national safety net programs, Hunger Safety Net saw the greatest budget reduction, with the 2019–2020 budget allocation dropping by almost half (see Figure 19).

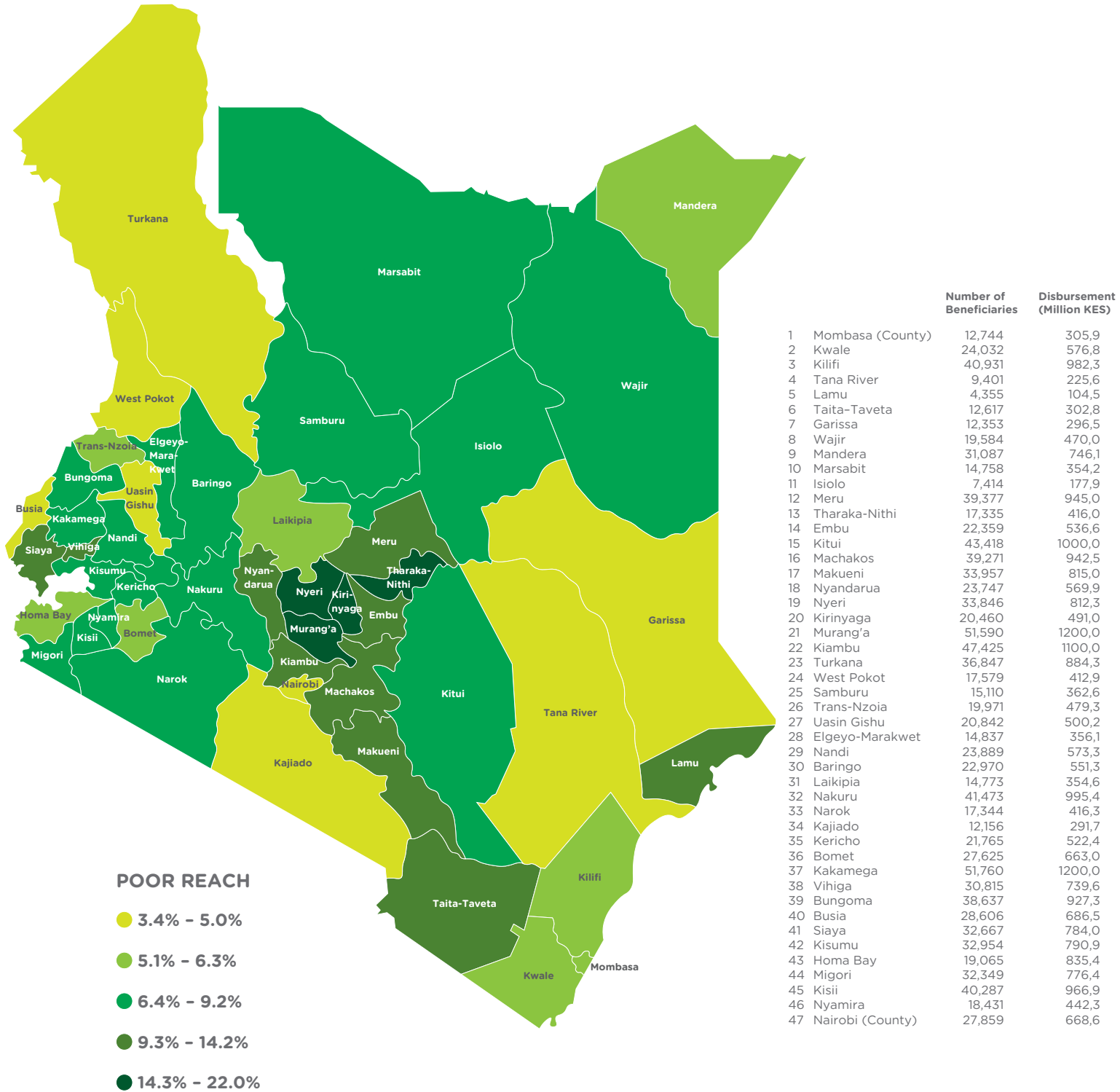
Besides government funding, social assistance has benefited from funding by non-state actors including the World Bank, DFID, the Australian Government, UNICEF, and the World Food Programme among others. The World Bank, through a loan of USD 60 million, supported the Cash Transfer for Orphans and Vulnerable Children between 2009 and 2016 (Government of Kenya 2017).

Currently, the World Bank is supporting social protection in the country through two projects funded under concessional loans:

- (i) The Program for Results. This program has been running since 2013, and is aimed at reforming the sector and ensuring efficiency within the NSNP. Among other things, the program was envisaged to develop a harmonized tool for targeting, establish electronic payments, expand NSSP in the north and northeastern counties, create a National Drought Emergency Fund, and create a decentralized grievance and case management system. The total budget was USD 289 million of which approximately USD 200 million had been disbursed as of February 2019 (World Bank 2018b).

Figure 17

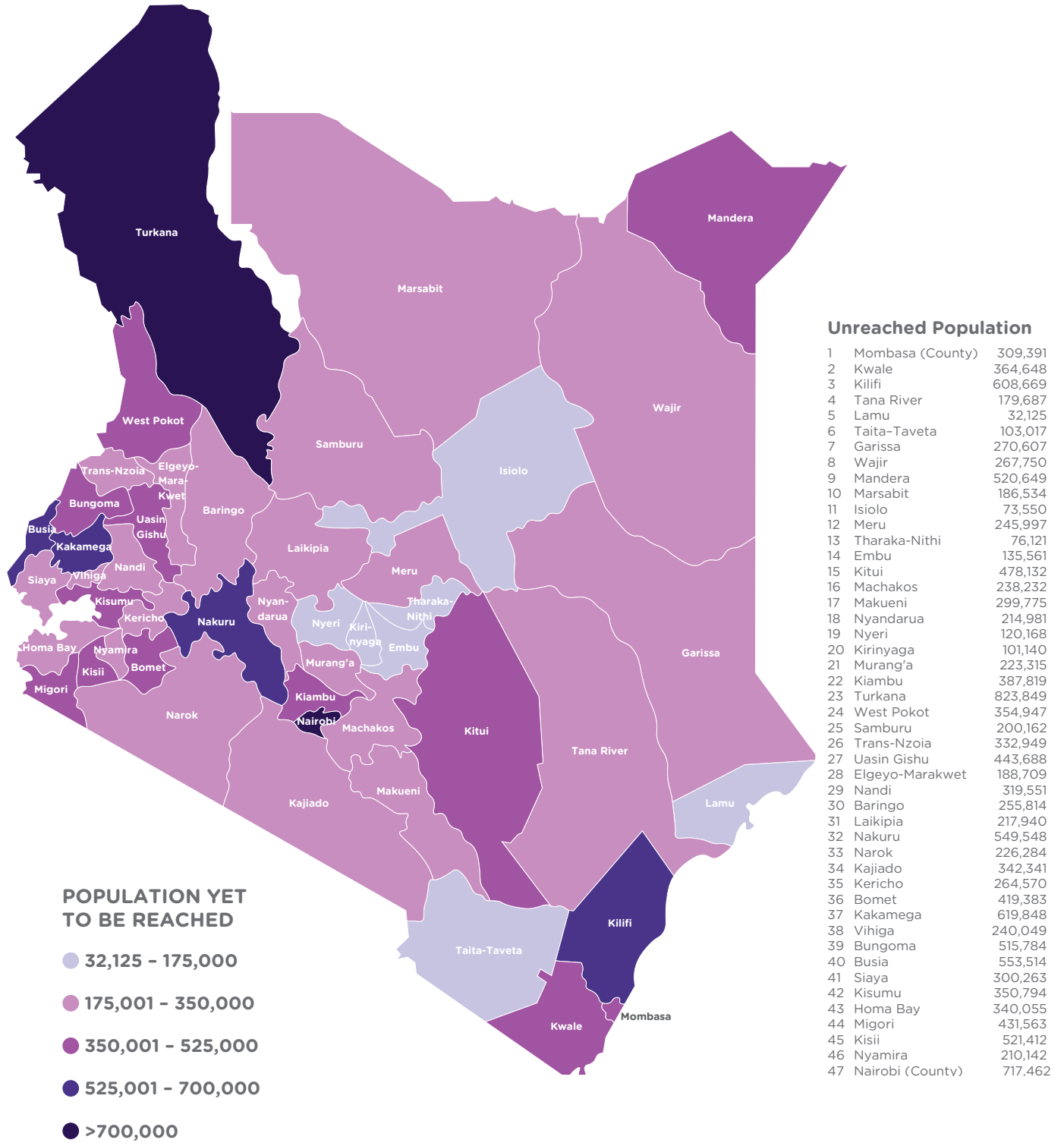
Proportion of overall poor population reached by NSNP (Inua Jamii Programme)



Source: Authors 2019

Figure 18

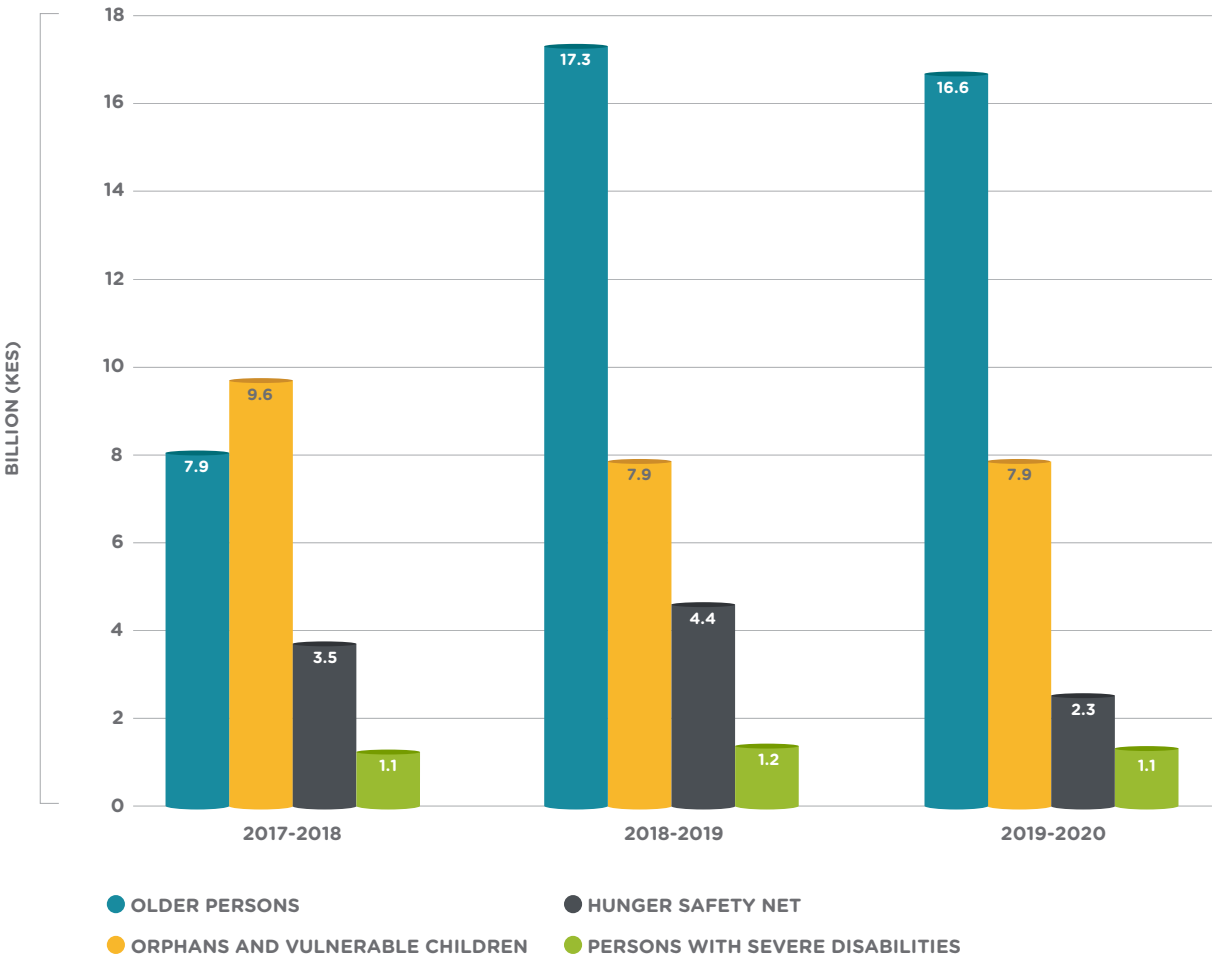
Actual population yet to be served by NSNP (Inua Jamii Programme)



Source: Authors 2019

Figure 19

Government Budget for Social Assistance 2017-2020



(ii) The Kenya Social and Economic Inclusion Project (KSEIP). KSEIP is a five year program that began in 2018 and aims at strengthening delivery systems for enhanced access to social and economic inclusion services and shock-responsive safety nets for poor and vulnerable households. The program, with a total budget of USD 1.3 billion (USD 250 million loan from the World Bank and co-financing from the World Food Programme (WFP) and DFID among others), is being implemented in three sub-components: (a) strengthening Social Protection Delivery Systems; (b) increasing access to social and economic inclusion interventions that

will contribute to the government’s goal of universal health coverage by improving NSNP beneficiaries’ access to the National Hospital Insurance Fund and expanding nutrition-sensitive safety net services to additional counties; and (c) improving the shock responsiveness of safety net systems (World Bank 2019b). Other financial contributors have included UNICEF, which provided close to USD 38 million (KES 3 billion) from 2007/08 to 2012/13, and WFP, which has been funding the Cash for Assets and the Food For Assets Programmes in arid and semi-arid countries (World Bank 2019b).

LINKAGES



LINKAGE BETWEEN ESNs AND SOCIAL PROTECTION PROGRAMS

Linkage between SEP, LMCP and Lifeline Tariff

There are clear linkages between SEP, LMCP and the Lifeline Tariff, the three electricity access-focused Energy Safety Nets (ESNs). While it is unclear whether the programming has been deliberate or by chance, these ESNs address issues of both access and use, and demonstrate collaboration between the institutions that run them. SEP and LMCP, implemented by KPLC, help to address the otherwise prohibitive costs of getting a connection while the Lifeline Tariff, set by EPRA, ensures continued use of electricity. Interviews with MoE, EPRA and KPLC indicate that implementation of these policies has been iterative, based on key lessons learnt over time.

SEP, for example, went through various adaptations in its approach to connections before realizing the success it was able to achieve in providing over 1 million connections to households in low-income areas. Among these adaptations was the need to classify slums based on their operating dynamics and employ slum-specific approaches (meter boxes and ready boards) to realize connections. Additionally, there are lessons from SEP implementation that were seen to directly affect the evolution of the lifeline tariff.

As earlier mentioned, Kenya transitioned from an IBT with standing charges to a VDT in June 2018. Based on stakeholder consultations, one of the factors influencing this transition was high incidence of non-vending machines attributed to accumulated standing charges. While a household may have paid KES 1,160 (USD 15) for a SEP connection, they were subject to the electricity tariff of the day that included a monthly standing charge of KES 150 about (USD 1.50), a charge that accumulated whether meters were in use or not. At about 13 percent of the connection fee,

this was a notably high cost that, according to KPLC, contributed to discontinued use of electricity, and the further accumulating costs resulted in multiple non-vending meters; this unpaid debt appears to rest with KPLC. The revised tariff (as of November 2018), introduced a lifeline tariff that is based on a moving average where persons whose three-month average is below 100 kWh fall under the lifeline tariff of KES 10 (about USD 0.10) per kWh. Consequently, accounting for taxes and levies, one can buy about nine units of electricity for KES 150 (USD 1.50) under the current lifeline tariff.

NSNP lessons for ESN targeting

There are lessons to be learnt in the targeting of government-driven ESNs from the NSNP. Besides the SEP that specifically targets households based on their poverty level (slums being the proxy indicator for poverty), other energy interventions employ a geographic approach in targeting often either hard-to-reach, rural or marginalized areas. The Lifeline Tariff is unique in that it is intended to address the cost of using electricity for those connected to the national grid. However, as earlier highlighted, about 91 percent of domestic consumers fall under the tariff's lifeline consumption band, pointing to the need for more effective targeting in the tariff design to address financial constraints for the poorer members of society. While these interventions make it easier for people to access an electricity connection or improved cooking solutions, it is likely that there is a demographic that needs greater subsidies to access modern energy that is missed due to this broad scope targeting.

In contrast, the NSNP has clearly defined principles that guide beneficiary targeting, allowing it to reach very specific groups of people – orphans and vulnerable children, the elderly, people with severe disabilities, etc. In this, there is a lesson for the Ministry of Energy to critically think of who the energy poor and vulnerable are (starting from

the demographics considered under the NSNP as an easy first step) and implement deliberately targeted approaches to ensure they have access to modern energy.

Leveraging NSNP structures in implementing ESNs

As seen, the Government of Kenya has been implementing the NSNP with support from various institutions. From NSNP's significantly developed structures (including the development and operations of a cash transfer operation toolkit that includes tested implementation methods in targeting the recipients, enrolment, recertification, payment, grievance handling, overall monitoring and evaluation, and reporting) and lessons learnt over time, NSNP provides valuable insights on running safety nets. For example, the move from use of hard cash transfers to electronic cash transfers has significantly reduced administrative costs and proven to be useful during reconciliation and monitoring of budgetary expenditures. Community involvement, which has been integrated into the targeting process, is proving to be key in dealing with omission and inclusion errors. There is therefore room to leverage such already existing mechanisms to implement ESNs with the aim of ensuring access to modern energy for all.

It is with this observation that UNICEF is running the Energy and Cash Plus Initiative to pilot the viability of using mechanisms under general social assistance mechanisms to channel funds intended for energy access. The pilot, discussed below, is expected to yield lessons on behavioral patterns such as payment for the appliance, household expenditures, and communication, among others that remain key in designing interventions and that will hopefully inform future programming intended to reach the very poor with energy access. This initiative, which is the first cash transfer in the country targeted toward provision of energy, will offer practical lessons on how ESNs can be integrated into the overall social safety nets in the country. These

lessons are especially important in designing programs that target access to modern energy for cooking that is lagging significantly in comparison to access to energy for lighting.

THE ENERGY AND CASH PLUS INITIATIVE

The Energy and Cash Plus Initiative, also referred to as Mwangaza Mashinani, a Swahili phrase loosely translated to 'light for the marginalized areas', is an innovative pilot project by UNICEF Kenya that was launched in August 2018 and that aims to enable access to energy for off-grid, marginalized households in Kenya. The initiative is unique in that it is designed to integrate with the government's NSNP. The Energy and Cash Plus Initiative seeks to achieve progress on the government's universal energy access goal by reaching the most vulnerable and disadvantaged households through integration with the NSNP's tried and tested cash transfer system. Selected beneficiaries will receive a top-up on current cash transfers received under the NSNP Cash Transfer programs, with which they can purchase a solar lantern or basic solar home system (SHS) of their choice from pre-qualified suppliers.

Mwangaza Mashinani is being implemented in Garissa and Kilifi (see map p. 5), two underserved counties of interest to UNICEF because of their high levels of child poverty.

After aligning its household targeting and delivery framework to NSNP operations, additional criteria for household selection under this initiative are:

- the household should have a child who is attending school
- the household should not have access, as of that time of selection, to either grid or off-grid electrification options
- the household should have at least four members

- the household should be willing to contribute at least 10 percent of the cost of the solar system.

Additional considerations are whether the household is female-headed or child-headed and within a location that has limited sources of livelihood, and/or experiences high levels of instability along with high rates of cases of rape and early pregnancies.

Following household selection, the initiative will carry out the disbursements and monitoring of program progress over a period of 12 months. UNICEF Kenya has contracted Energy 4 Impact (E4I) to provide consultancy support for the duration of the pilot. The organization is partnering with Somali Aid and the Busara Centre for Behavioral Economics to implement the project and identify lessons respectively, and is to work with the respective county governments to identify and enroll an initial 2,000 beneficiary households based on the stated program criteria.

UNICEF's primary goals for the initiative are to provide SHSs and lanterns to disadvantaged households, reduce indoor pollution from continued use of firewood in the house – at times relied on for lighting – while reducing occurrence of respiratory diseases in the members of the household, and to improve resilience of the households by providing an avenue to improve their livelihood through income earning opportunities such as phone charging. Ultimately, the project aims to investigate how improving household access to energy for lighting impacts quality of health, quality of life and learning for children, and the household's sense of ownership for purchased SHSs resulting from the 10 percent contribution fee. The households will put down a 10 percent deposit for the solar product and the balance can be paid in full or in six installments, in tandem with the six disbursements received. For optimal outcomes, solar devices with at least three lights have been selected. The products are pay-as-you-go enabled to allow payment in instalments and the system can be disabled if

payment is not made. Figure 20 is an illustration of the selected devices.

For this pilot, E4I seeks to investigate the effect of top-up cash transfer on the solar products market, observing distortions if any, and recording occurrence of product leakage, where a household would sell off the solar lantern or SHS after the program to recover the cash. Somali Aid, the partnering organization that will lead the implementation of the initiative, is an NGO with operations in Garissa and Wajir counties and has had previous experience working with these two county governments on cash transfer programs. In addition to working with pilot implementation, the NGO will assist selected households to receive support to maximize use of the systems and explore opportunities for productive use and income generating activities. Busara Centre for Behavioral Economics, the partnering organization tasked with identifying lessons, is a research and advisory firm that helps clients understand human behavior and design solutions to develop products, and in this case, programs and policies. Their role in the partnership will be mainly to conduct qualitative studies on the behavioral intentions of the potential recipients. More particularly, Busara has been enlisted to develop the Social Behavior Change Communication (SBCC) Strategy that will be employed during this project, and in case of project scale-up. The key goals of the SBCC are to: (i) promote the initial uptake of solar products; (ii) encourage timely and regular repayment of SHS/ SL installments through conditional cash transfers; (iii) encourage sustained use of solar energy; and (iv) develop skills amongst community leaders for implementation of behavioral science and M&E tasks to ensure sustainability of program at scale.

The pilot began disbursements in early June 2019. Continuous monitoring and evaluation will provide lessons for program scale-up. UNICEF hopes to influence the national government to take up and scale the initiative to other counties at the end of the 20-month pilot.

Figure 20

Solar devices available under the Mwangaza Mashinani Pilot

BIOLITE



DLIGHT D31



SUNKING HOME 120



SUNKING PRO



CONCLUSIONS AND RECOMMENDATIONS



CONCLUSIONS

The Government of Kenya has implemented several energy access initiatives benefiting the poor and underserved.

Social protection is enshrined in the 2010 Constitution of Kenya that states that “every person has a right to social security” and that “the State shall provide appropriate social security to persons who are unable to support themselves or their dependents.” In line with ensuring the well-being of all, including the poor and vulnerable, the government has initiated several energy access programs. Its energy and petroleum policies and laws, as stated in Sessional Paper No. 4 2004 and reiterated in the 2019 Energy Act, declare that it is every citizen’s basic right to have minimum energy needs. Although ‘minimum energy needs’ is not clearly defined in either, the stated intention has anchored several national and sub-national initiatives targeting the poor and marginalized. LMCP, an initiative that provides affordable electricity connections to households, is one of the electrification programs that has resulted from this intention. KOSAP appropriates cost-effective approaches including mini-grids and stand-alone systems for electrification complementing grid extension efforts and also promotes the uptake of higher efficiency improved stoves for cooking. SEP, within the wider KEEP, focused on improving electrification in low-income areas. As far as energy use is concerned, the EPRA has instituted an electricity supply lifeline tariff that enables households that consume less than 100 kWh per month to pay a lower rate per unit.

Energy Safety Nets that promote access (connection) are inherently different from those that promote use (consumption).

Utilizing energy typically involves the acquisition of assets or devices that convert energy into energy services, and the continuous con-

sumption of an energy carrier including fuels. The former includes, for example, a meter connection to the national electricity grid and an LPG tank or a cookstove, while the latter includes recurrent purchase of electricity or cooking fuels. While the two are complementary, their delivery is inherently differently. A key distinction is that the access ESNs are usually one-off costs (e.g. upfront capital for slum electrification) while use ESNs are recurrent (e.g. subsidies provided monthly via a lifeline tariff). Ensuring the sustainability of recurrent costs requires deliberate longer-term planning. Among the poor and vulnerable, access does not guarantee use and provisions for use do not always translate to access.

Mismatches between energy access objectives and urgent recipients’ needs remains one of the biggest challenges to sustainable ownership.

Poor households are perpetually vulnerable to social and economic shocks due to a lack of resources and limited or non-existent systems and structures that could cushion them during such times. When in need, for example, due to a health emergency, such households could resort to selling existing assets including livestock and household appliances. Assets susceptible to disposal under such circumstances include those that enable them to access and use energy. There have been cases where assets such as cookstoves or solar PV systems distributed freely or with subsidies among the poor are sold due to other urgent and competing priorities (asset leakage). This remains one of the biggest challenges in attaining universal access to affordable, reliable, sustainable and modern energy as part of this will involve the acquisition of assets or appliances among the poor. In extreme cases, these appliances may be the most valuable assets at a household’s disposal and will remain dispensable during periods of shock.

There are linkages and similarities between energy programs and other social assistance mechanisms.

The energy programs discussed within this report are guided by the overall objective of improving energy access to the different clusters of people. SEP, LMCP and KOSAP seek to advance universal access to electricity among low-income, underserved and marginalized households respectively. Targeting within the National Social Security System for example includes the urban food subsidy program that benefits the urban poor who are also targeted by energy programs such as SEP; The 16 underserved counties under KOSAP overlap with the high priority regions under the various components of the NSNP. Apart from the

lifeline tariff, the outlook towards the definition of the “poor and vulnerable” are aligned under various ESN programs and general social safety net programs. The Energy and Cash Plus initiative presents a unique linkage where it is embedded into the NSNP. This directly links the Ministry of Energy’s efforts to improve energy access with the Ministry of Labour and Social Protection’s social assistance work.

Similarities between the programs are centered on their need to improve selection and targeting, ensure sustainability, minimize leakages, measure impact, and determine appropriate cost thresholds for the intervention. Definitional ambiguities remain unresolved especially in characterizing types of safety nets (e.g. transfor-



mational vs transitional, promoting access vs use, outcome-based vs impact-based measures), the poor, and energy poverty. However, while the thinking around these definitions needs to be refined and aligned, it should not be a deterrent towards actual implementation.

National ESN programs promoting access to improved and clean cooking remain limited in scope relative to those that promote access to electricity.

Besides the suspended Mwananchi Gas Project, there are no national programs that promote access to improved and clean cooking solutions among the poor and vulnerable. More generally, the government has sought to improve access and use of LPG across the country, but this has not been with a targeted focus on the poor. KOSAP has a clean cooking component that targets eight counties in Kenya but with a limited budget of about USD 5 million, the scope of the intervention remains constrained. There are initiatives led by development agencies, non-profits and sub-national governments but these are localized efforts. National ESN programs in Kenya are disproportionately focused on electrification, especially in view of the ultra-low access to clean cooking solutions estimated at 14 percent. Delivery of electric energy requires use of modern technologies that are largely standardized, unlike cooking solutions/ technologies that range from traditional forms to modern solutions. Electrification also has the option of leveraging large centralized approaches that have been tried and tested for decades – an advantage lacking in the cooking sector. These are some considerations when designing ESNs that promote clean and improved cooking solutions.

In some cases, the delivery of services was not cost optimal.

To maximize the benefits of the limited resources allocated to promoting energy access and use among the poor and vulnerable, the need to opti-

mize subsidy structures such that they are as high as necessary to achieve the much-needed impact but remain as low as possible, is imperative. Although implementation costs are expected to vary across countries and programs, this study notes that the reported average price per connection under SEP was relatively high when compared to similar initiatives. Measures to promote cost-competitiveness in procurement of the services need to be continuously strengthened to efficiently scale such programs. Lessons gathered from initial phases should inform subsequent phases towards optimizing cost, quality and efficiency of delivery.

Overall, the sustainability of an ESN is reinforced if it is mainstreamed into an existing institutional framework or national process.

The reviewed ESNs show potential of reaching very large populations of unserved poor households with modern energy services. A key lesson from general social safety nets is that social assistance outside of emergency response should be consistent and predictable. To achieve this, ESN programs will undoubtedly be strengthened by being incorporated into existing institutional frameworks and planning processes. These include the national budgeting processes or cross-subsidy programs that safeguard their long-term sustainability. Mainstreaming ESNs into an existing institutional framework as is the case with the NSNP ensures that not only is the ESN implemented for a much longer period and reaching a greater target, but that there is also room for learning and improvement within a predictable environment.

There is need to strengthen the tracking of outcomes and impacts.

Data on the number of beneficiaries, the distribution of beneficiaries, total funds disbursed, total number of connections attained, and other output-based indicators are readily available

from government agencies in charge of social safety nets and ESNs. There are, however, major gaps in outcome and impact indicators that limit the general understanding of how effective the programs are. Basic questions cannot be readily answered, such as: “What are the most common uses of funds received under the cash transfer program?”; “Does access to electricity impact income generation among users?”; “What are the unintended consequences – systemic and at the user level – of social and energy safety net programs?”. Addressing these and other questions will improve the design, delivery and tracking of energy and social safety nets.

There is a notable lack of gender-sensitive planning and implementation.

Cross-cutting issues such as gender mainstreaming are needed in the successful implementation and tracking of ESNs and broader social assistance mechanisms. Besides the Energy and Cash Plus Initiative, none of the ESN programs reviewed were seen to consciously consider gender aspects in their design or operations. For Energy and Cash Plus, a vulnerability assessment was carried out before the program and among the criteria for selection of a household, preference was given to woman-headed or child-headed households and households with school-age children.

POLICY RECOMMENDATIONS

Acknowledge the distinction between access ESNs and use ESNs.

Tracking energy access has for a long time taken a binary approach, considering groups with an electric power connection or cooking solution as on-grid or served and those without as off-grid, unconnected or unserved. The World Bank led Multi-Tier Framework aims to provide a higher resolution approach to distinguishing access with a step-wise definition that combines access

and use as complementary halves. Designing ESNs requires a deliberate distinction between these two halves as those that promote access and those that promote use. In many instances, both types of interventions are needed concurrently, although in some cases, poor households may already have an affordable and suitable energy source (e.g. firewood) and only require an improved stove (access) or may have a connection (SEP) and only require subsidies to consistently use electricity. There are clear differences between these two groups of ESNs. Also, there is a need to determine whether the assistance provided is transitional (intervening for a period then the beneficiary reverts to their initial state) or transformational (the beneficiary is no longer energy poor/vulnerable).

Strengthen collaboration and coordination of ESN programs.

Experiences from implementing general social safety nets emphasizes the need to coordinate ongoing and planned initiatives to minimize the risk of duplication. The Ministry of Labour and Social Protection started the Single Registry Initiative to address this concern. Under this program, households receiving conditional cash transfers are all registered under this platform to avoid cases where households receive cash transfers from more than one source. Various ESN programs are being implemented by numerous national, sub-national and non-profit agencies with the potential of overlapping across geographies and/or demographics. These need to be coordinated, preferably under the Ministry of Labour and Social Protection with a co-chair from the Ministry of Energy. Planning and implementing actors need to be aware of past, current and upcoming initiatives that could benefit or influence their initiatives. The Ministry of Labour and Social Protection is positioned at the apex as far as implementation of social assistance mechanisms is concerned and therefore wields the required convening power.

Effect continuous and periodic independent monitoring, verification and research.

All programs need to budget for and explicitly include measures to provide for independent monitoring and verification. A general provision for research and testing should be made. This is not only to strengthen transparency and compliance but to also form a basis for continuous learning and improvement. In addition to the focus on output indicators, deliberate efforts should be placed on outcome and impact indicators. There are general assumptions associated with various energy programs that need to be empirically tested such as the assumption that use of improved cookstoves reduces the exposure to indoor air pollution; that electrification improves income generation among recipients; that lighting solutions increase opportunities for study and therefore improve the academic performance of school-age children. This deliberate learning will ensure, for example, that ESN programs result in access and sustainable use.

Key research questions include: i) What are the impacts of LMCP and SEP on the financial health of the national utility; ii) What are the most common uses of funds received under the various cash transfer programs of the NSNP; iii) What are the potential impacts of KOSAP on the cookstove markets in the underserved counties; iv) What are the critical factors of success for an energy safety net intervention; v) How can ESN programs minimize market distortion when promoting access and use among the poor; and vi) How can the lifeline tariff be better structured to extend preferential benefits to the poor?

Revise the structure and targeting of the lifeline tariff.

The structure of the lifeline tariff was adjusted in July 2018 and later reviewed in November of the same year. Now, more than nine in every ten Kenya Power domestic customers benefits from

this consumption block that covers customers who consume less than 100 kWh of electricity per month. Since lifeline tariffs are subsidies targeting the poor with a highly discounted first block of consumption, this broad bracket reaches beyond this group. This implies that there is room to provide affordable electricity for many of the domestic users while creating another level for the poor. There is a need to better target this benefit to impact those that need it the most. An alternative approach to optimize this safety net, albeit costlier and more complicated to implement, would be to maintain this wide bracket and provide electricity vouchers to the poor and vulnerable.

Adopt cost-optimization options and appropriate innovative financing tools.

Benchmarking the cost of implementation with similar programs in other regions and countries is important to ensure that the delivery of ESNs is efficient. Where practical and necessary, open and transparent requests for competitive services and product bids should be used to determine reasonable price points. This is especially relevant when deploying energy assets (e.g. stoves and solar PV systems) or facilitating connections to a national grid or decentralized grid. Public sector funding places an emphasis on inputs and activities with perceived linkages to the desired outcomes and impacts. There is now a growing consensus that Results Based Approaches (RBA) including Result Based Financing (RBF) have the potential to improve resource allocation by addressing inefficiencies, providing a stronger focus on much needed results and crowding-in private sector investments. Unlike conventional forms of finance, RBA focuses on investing against predetermined results. There are several advantages to this approach including transferring part of the risk to the implementing partner, promoting transparency and accountability, improving effectiveness by focusing on results and perhaps most important, supporting innovations and allowing flexibility on pathways to achieving results.

Anchor ESNs in subnational, national or international policies and institutional frameworks.

Lessons from social safety net programs emphasize a need to anchor these interventions in national and international policies. The same should be done for ESNs to strengthen their sustainability. These however must be based on needs from the perspectives of the recipients and implementers of these programs to avoid creating policies that constrain innovation and agility in delivering these services. Policies and institutions should seek to improve the efficiency, effectiveness and scale of ESN programs.

Include gender mainstreaming in energy regulations.

It is useful to find out how gender plays out when it comes to households planning for energy resource acquisition, expenditure and use. Access to energy has been seen to impact different genders differently. Arne Jacobson (2007) notes in his research that for households that acquired solar home systems, contrary to the expectation that the children benefited the most from the improved light source, the system was mostly used to watch news on television by the men in the house. A gender lens should therefore be incorporated in the planning, programming, monitoring and evaluation of energy interventions to capture these insights. One way to do this would be the implementation of the gender mainstreaming regulation introduced under the 2019 Energy Act.

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Endnotes

- i Under the 2019 Energy Act, REA was restructured to include an additional renewable energy mandate, as the Rural Electrification and Renewable Energy Corporation (REREC).
- ii These were the requirements at the time of the project design that remain to date with slight edits. Consent from the owner of the property is now required in place of the formal land registration documents.
- iii This was the connection fee prior to the launch of the LMCP; the connection fee under the LMCP is approximately USD 150 (KES 15,000), a cost that is still high for slum dwellers.
- iv As reported during consultations with KPLC and attributed to accumulating standing charges. As highlighted under the Lifeline Tariff section, this played a role in the revision of the electricity tariff.
- v KESIP is currently under preparation; includes a slum electrification component in recognition of challenges with providing connections in slums.
- vi This includes an identification document, a sketch of the route leading to the premises where electricity supply is required, wiring certificates, a supply contract form and consent from the owner of the property.
- vii Current generation costs are USD 0.10 (KES 10.6) per kWh
- viii This was an issue affecting prepaid customers when purchasing units several times within the month. The initial purchase included the deduction of the fixed charge resulting in fewer units (kWh) compared to subsequent purchases in the same month.
- ix This assumes pass-through taxes and levies of 35 percent.
- x Based on private consumption PPP conversion data (<https://data.worldbank.org/indicator/PA.NUS.PRVT.PP>).
- xi Kenya's Commission on Revenue Allocation has defined 14 out of the 47 counties in Kenya as 'marginalized areas', also known as 'underserved counties'. These counties collectively represent 72 percent of the country's total land area and 20 percent of the country's population and form the target area of KOSAP. They include: West Pokot, Turkana, Marsabit, Samburu, Isiolo, Mandera, Wajir, Garissa, Tana River, Lamu, Kilifi, Kwale, Taita Taveta and Narok counties. The scope has since been expanded to include Baringo and Kitui counties as well.
- xii There about 12 million households in Kenya based on estimates by UNICEF. (UNICEF, 2018)
- xiii There about 12 million households in Kenya based on estimates by UNICEF. (UNICEF, 2018)

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