Enhancing Subnational Planning for Accelerating the E-Cooking Transition

Appendix 3. Kenya Case Study

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Kenya Case Study

1. Country Context

1.1 Administrative, Geographic and Socio-economic context

Kenya is a lower-middle-income country in East Africa, with a nominal GDP of approximately $124.5 billion in 2024 and a GDP per capita of about $2,206. The poverty headcount ratio at $3.00[1] in 2022 reached around 47% (World Bank, 2024). According to the Kenya National Bureau of Statistics population projections, the population is estimated to be over 53 million people as of mid-2025, with about 30% living in urban areas in 2024, up from 20% in 2000. The country covers an area of roughly 581,309 km^2 and comprises diverse geographic zones, including high-density highlands in the Central and Western regions, sparsely populated arid and semi-arid lands (ASALs) in the northern and eastern counties, and rapidly growing coastal and urban zones around Nairobi, Mombasa, and other secondary towns.

Kenya's administrative structure follows a two-tier governance system established by the 2010 Constitution, dividing authority between the national government and 47 county governments to ensure effective and efficient public service delivery. Under this devolved system, the counties serve as the primary planning and service delivery units for sub-national development, including certain energy functions (e.g. planning, regulation and licensing of specific types of power plants such as biogas and biomass, county electrification programmes, etc.) as better defined in the Energy Act (2019) (Volker and Klagge, 2022).

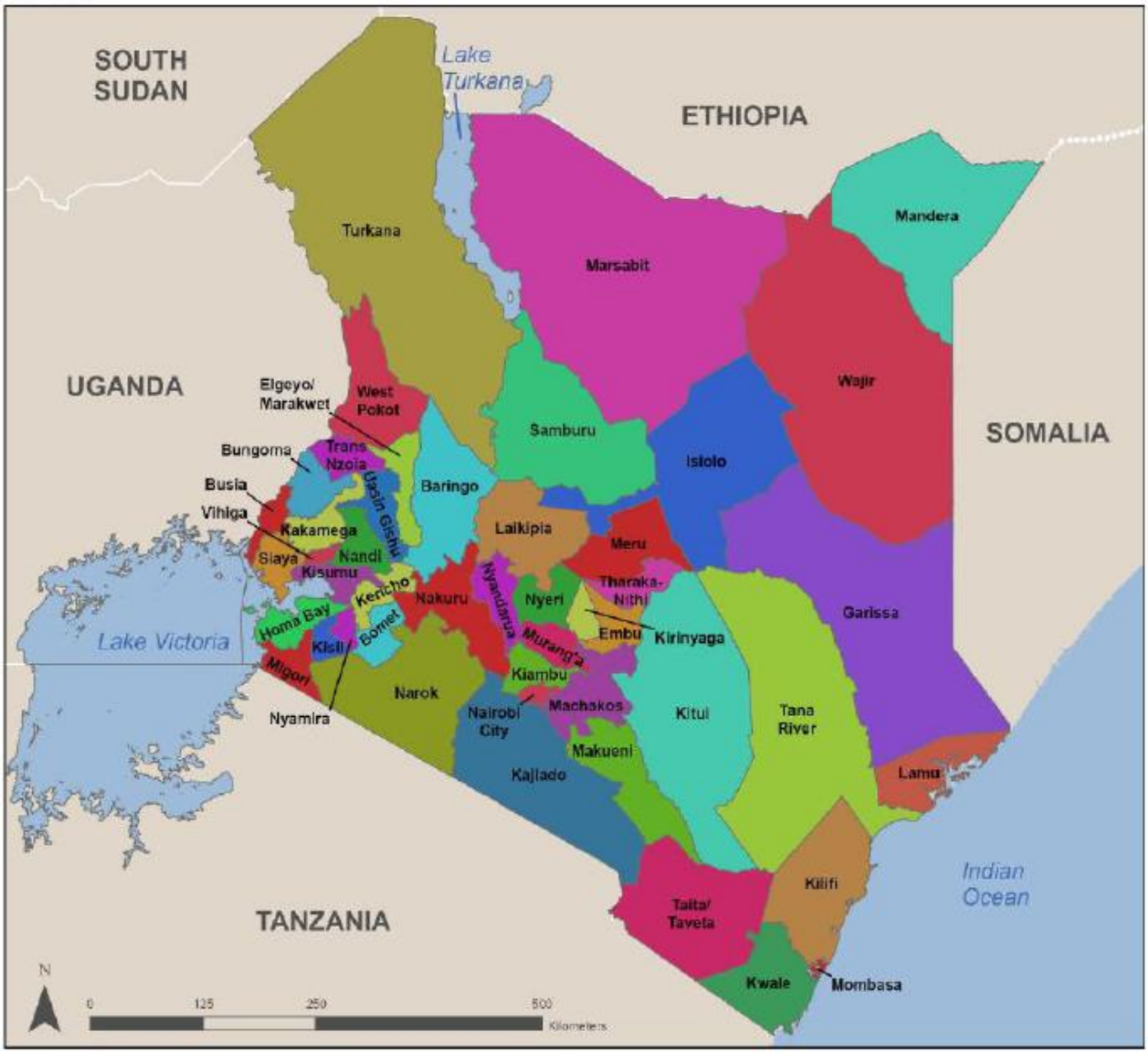
Kenya's population is unevenly distributed across its 47 counties, with the five most populous counties home to one fifth of the national population. Nairobi City County is the most populous with a projected 4.9 million residents in 2025 (KNBS, 2019). The wider Nairobi Metropolitan Area—which extends into neighbouring counties such as Kiambu, Machakos and Kajiado—has an estimated 7 million residents (African Cities, 2025).

Other densely populated counties with major urban centres include Mombasa County with Mombasa city (~1.2 million), Nakuru County (~2.1 million total, with ~570,000 in Nakuru city), Kisumu County (~1.15 million total, with ~398,000 in Kisumu city), and Uasin Gishu County (~1.2 million, with ~476,000 in Eldoret city). By contrast, northern and north-eastern ASAL counties such as Turkana, Marsabit, Samburu, Wajir and Mandera – some of the 14

[1] (2021 PPP)

underserved counties[2] - collectively represent 72% of the country's total land area and 20% of the country's population. They remain sparsely populated despite higher percentage growth rates in projections (KNBS, 2023). This creates a clear spatial pattern: Kenya's population is heavily concentrated in a Coast–Nairobi–Rift Valley–Lake Victoria corridor, while vast ASAL regions remain low-density with dispersed populations.

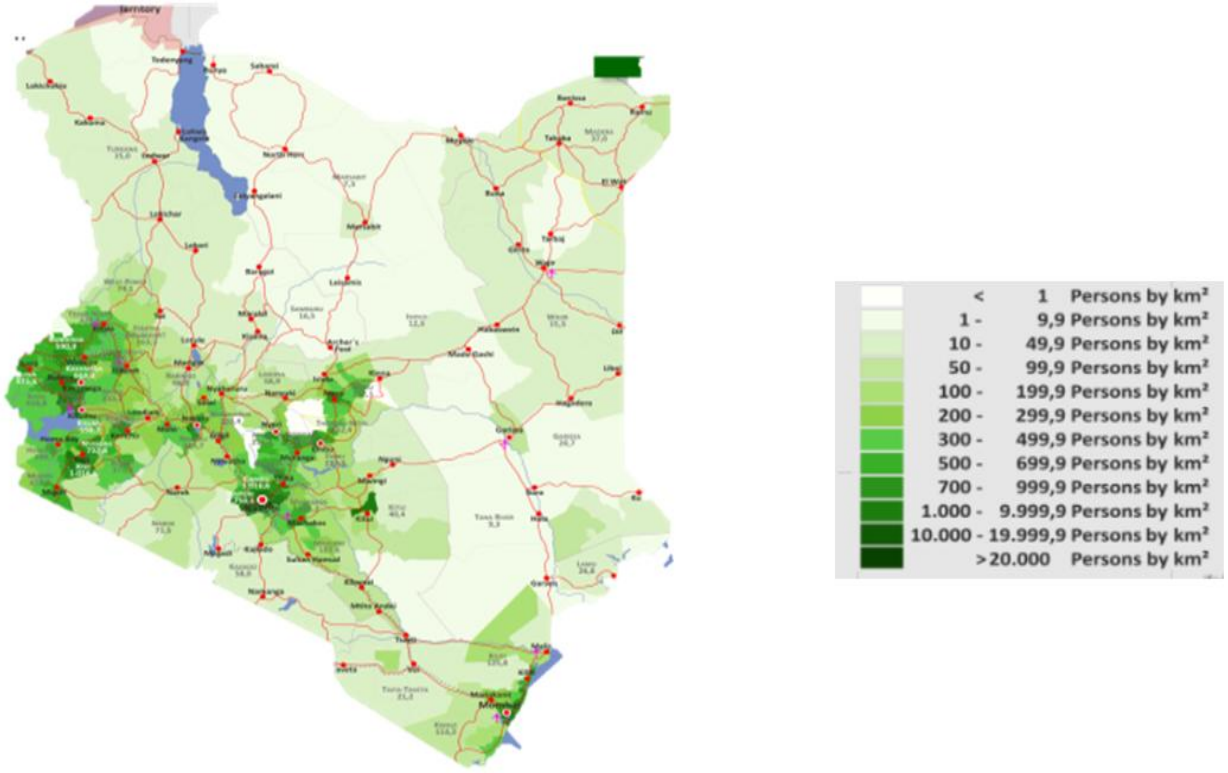
Figure 1: Kenya counties administrative map (KNBS, 2022)



[2] The 14 underserved counties—Mandera, Wajir, Garissa, Tana River, Samburu, Isiolo, Marsabit, Narok, West Pokot, Turkana, Taita Taveta, Kwale, Kilifi, and Lamu—are defined in the MTF as counties with structurally low access to electricity and clean cooking, characterised by very low grid coverage, high shares of Tier 0 households, dispersed populations, weak infrastructure, and persistent service deficits.

According to data from the Kenya National Bureau of Statistics (KNBS, 2023), Nairobi County remains Kenya's economic powerhouse, contributing approximately $29 billion in Gross County Product (GCP) in 2023 (~25% of total GDP for Kenya) and ranking highest in GCP per capita (StatsKenya.com, 2025). The next largest counties by economic output include Nakuru County, Kiambu and Mombasa County, all contributing around $5.4-6.2 billion in GCP. On a per-capita basis, after Nairobi, the highest incomes are in Mombasa County and a small number of counties in central Kenya (e.g., Nyeri, Nyandarua) signalling both strong urban service centres and wealthy agricultural highlands (KNBS, 2024). There is an uneven distribution of wealth, with a range of counties, especially in the sparsely populated ASAL region, showing low GCP per capita.

Figure 2: Kenya population density by sub-county (Geo-Ref.net)



Access to formal financial services in Kenya has increased markedly—from 26.7% in 2006 to 84.8% in 2024 (KNBS Economic Survey, 2025). This progress has been driven mainly by mobile money expansion and the wider reach of financial providers. Inclusion is highest in urban counties such as Nairobi, Kirinyaga, Nyeri and Kiambu (all >90%), while several counties—including Turkana (66%), West Pokot (48%), Migori (73%) and Narok (73%)—record some of the lowest levels of formal access (FinAccess, 2024). These disparities matter for the cooking transition, as higher inclusion enables households to save digitally, access microcredit, and make flexible payments that help to reduce upfront costs for

modern cooking solutions. Kenya's mature mobile money ecosystem has also enabled one of the most successful widespread uses of PAYGO in the energy sector, meaning many households are already accustomed to paying small digital instalments. This same infrastructure is increasingly applied to cooking appliances through pay-as-you-cook models (KNeCS, 2024), providing a practical foundation for scaling affordable e-cooking within national plans.

1.2 Energy context

Background

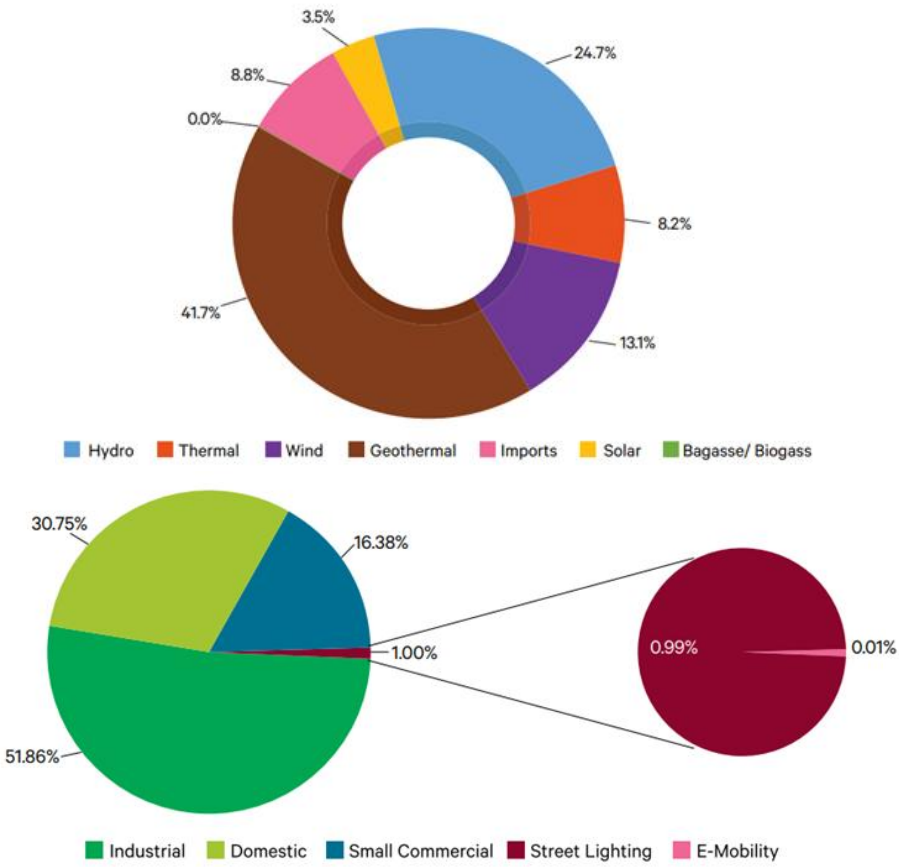
Kenya's energy access landscape is defined by a dichotomy: while electricity access is relatively high (76% by 2022), for cooking, almost 70% of the population remains reliant on traditional or polluting fuels, predominantly firewood.

Based on December 2024 data, Kenya's total installed electricity capacity was 3.1 GW, with around 80% derived from renewable sources. Geothermal energy holds the largest share of this capacity at 30% (944 MW). The second largest contributor is hydropower at 28% (839 MW) with wind and solar PV also contributing respectively 435 MW (14%) and 210 MW (7%). Non-renewable thermal power accounts for 18% (565 MW), primarily utilized for meeting peak demand and providing voltage support. Including captive power (575 MW – mostly solar PV 47% and bioenergy 28%) and reported off-grid capacity (45 MW), total generation capacity reaches 3.1 GW. Additionally, the capacity mix includes 200 MW of contracted imports (EPRA, 2025).

In actual electricity generation, geothermal share is even higher — roughly 40% of Kenya's total output in recent years. Geothermal provides a stable baseload to the grid, with the ability to operate continuously regardless of weather, which helps stabilize supply even as variable renewables (wind, solar) increase. However, EPRA also reports that curtailment remains a challenge, with several hundred GWh of available generation not dispatched in 2024, largely because geothermal plants cannot ramp down easily during low-demand night periods, leading to oversupply conditions and reduced dispatch from other plants—especially wind and some geothermal units.

Electricity demand in 2023 was around 10.5 TWh, around a third of which was consumed in the residential sector (IEA, 2025). Most of the electricity is used in the Nairobi region (≈ 44 %), followed by the Coast (~18 %) and Rift Valley (~14 %) regions, reflecting population density, access levels and economic activity patterns (EPRA, 2025).

Figure 3: Electricity generation mix and demand by sector (EPRA, 2024)



Kenya's electricity sector still faces ongoing challenges regarding reliability with both system average interruption duration index (SAIDI) and the customer average outage duration index (CAIDI) exceeding regulatory targets (see more in the section Electricity Networks, Reliability & Coverage).

Kenya has currently no oil and gas production and no operational refinery and the country imports all finished oil products including subsidized LPG, which is mostly used for cooking.

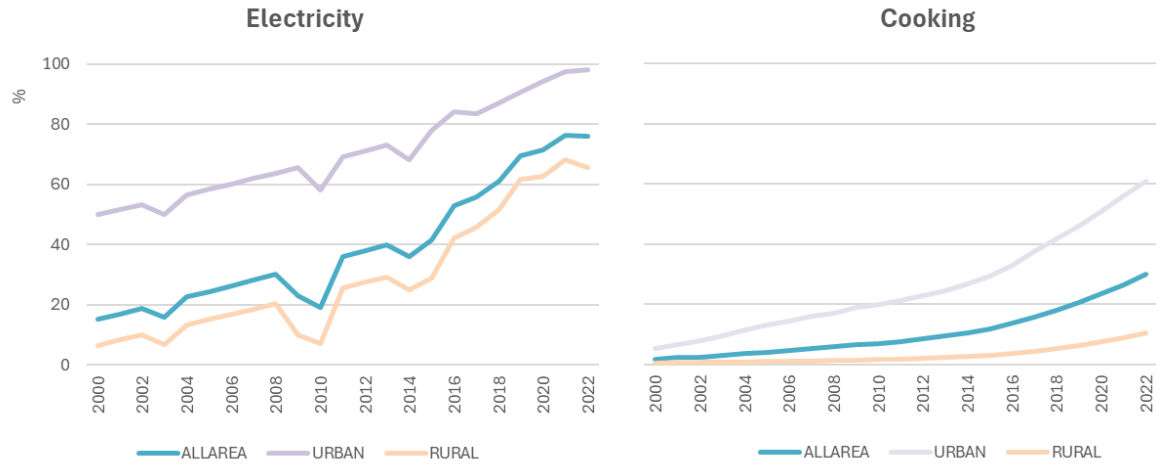
Access to electricity and clean cooking

In 2022, Kenya's national electricity access reached 76%, up from just 30% a decade earlier (Figure 4). Around 55% of households have access via the grid or mini-grids, which could in theory support e-cooking, while the remaining 20% via off-grid solutions of different size and levels—mainly solar based systems (spanning from solar lanterns to larger solar home systems)—reflecting one of the continent's most advanced and dynamic off-grid solar markets.

Access remains highly unequal: 98% in urban areas versus 66% in rural areas. Clean-cooking access is far lower. Firewood (50%) and charcoal (13%) are the primary fuels used for cooking. The population with access to clean cooking stands today just above 30%

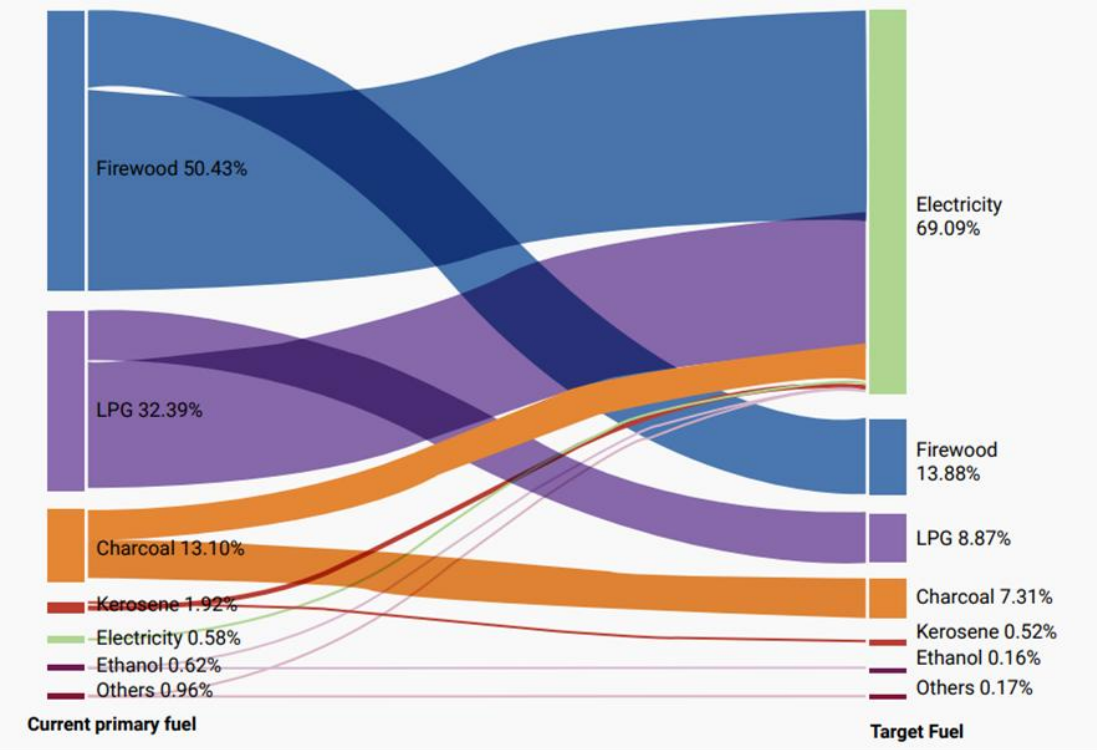
nationally (61% urban, 10% rural), mostly LPG. The share of households primarily cooking with electricity remains below 1%. However, 25% of households own an e-cooking appliance. This is a solid starting point for the transition to electric cooking, but the breakdown reveals that only a fraction (4% of all households) possess complete e-cooking solutions, indicating that for the majority of these owners, e-cooking is limited to supplementary tasks like boiling water or reheating (KNeCS, 2024).

Figure 4: Electricity and clean cooking access rates (Tracking SDG 7)



The national ambition, outlined in the Kenya National Cooking Transition Strategy (KNCTS), is to achieve universal access to clean cooking by 2028 (IEA, 2024). This goal is driven by a Composite Policy Scenario (CP-S) targeting a fuel stack adoption of at least 50% LPG, 30% bioethanol, and 10% electricity (e-cooking). The Kenya National electric Cooking Strategy (KNeCS)illustrates the current distribution of households by primary cooking fuels and a potential high e-cooking transition pathway, as shown in the figure below. This underscores a significant opportunity for interventions aimed at scaling eCooking solutions. While ethanol accounted for a low national household penetration in terms of primary cooking fuel (below 1%) in 2022 according to the Demographic and Health Survey, it has demonstrated a rapid, and scaled uptake in the past few years in urban areas such as Nairobi, Mombasa, Kisumu, and Nakuru (MIGA, 2024). Ethanol is now used by over 1.3 million households and approaching 10% of Kenyan households, though not all use it necessarily as a main source. This success is largely attributed to disruptive, tech-enabled business models (KOKO Networks), which bypass traditional distribution challenges by using 'Fuel ATM' dispensers in local shops for mobile-money-based, small-quantity refilling of fuel canisters.

Figure 5: The potential to transition to eCooking based on Tier 3+ electricity access in 2023 (KNeCS, 2024)

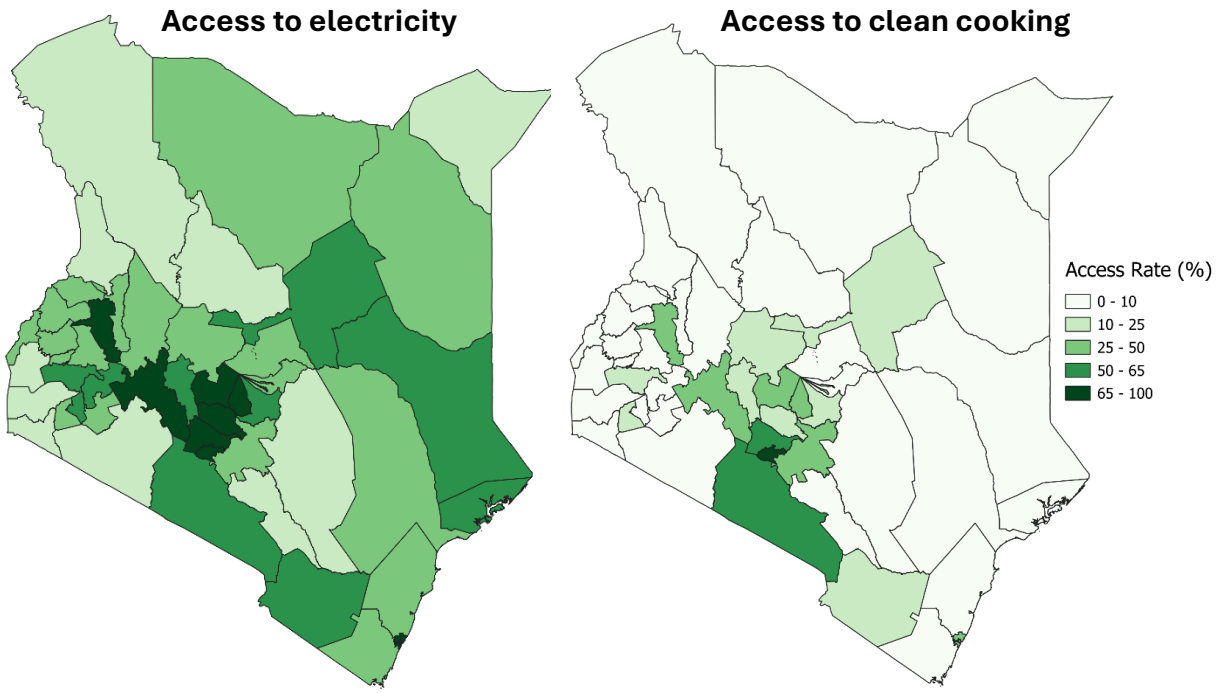


Energy access geographical disparities are stark (Figure 6). Counties in and around the Nairobi Metropolitan Area show the highest access rates: Nairobi (near-universal electricity access and ~80% clean cooking), Kiambu, and parts of Kajiado perform well above national averages. Much of the Central and Coastal regions (e.g., Mombasa, Kilifi, Kwale) also maintain relatively high electricity access, though clean cooking use remains uneven. In contrast, the ASAL counties—notably Turkana, Marsabit, Mandera, Wajir, Samburu, West Pokot, and Tana River—show the lowest access levels, often below 30–40% for electricity and under 5% for clean cooking, with heavy reliance on traditional fuels. Rift Valley counties present a mixed picture: urbanised areas like Nakuru and Uasin Gishu perform relatively strongly, while more rural counties such as Baringo, Bomet, and Elgeyo-Marakwet remain closer to the lower national band for modern energy access. Electric cooking penetration is consistently near zero across all counties, including those with high electricity access—highlighting that electrification alone has not translated into meaningful adoption of e-cooking.

These disparities translate into uneven e-cooking potential. Urban and semi-urban counties with stronger grid access—such as Nairobi, Nakuru, Kakamega, Meru and Bungoma—account for around 1.83 million households (21% of the national clean cooking deficit, reflecting their large and dense populations, rather than weaker access). At the same time,

their relatively strong electricity infrastructure – with many households already reaching Tier 3+ electricity access (KNeCS, 2024) – means they offer high potential the strongest near-term opportunity to reach large numbers of people efficiently through e-cooking. Counties such as Nyeri, Kisumu, Machakos and Baringo also show greater readiness and are already integrating clean cooking goals in their local plans (KNCTS, 2024). In contrast other counties including Mandera, Wajir, Marsabit and Turkana—face the lowest short-term potential due to low electricity access, limited grid reliability, and widespread dependence on small off-grid solar systems that cannot power e-cooking appliances (KNCTS, 2024; ESMAP, 2019).

Figure 6: Electricity and clean cooking access rates by county (created for this report with data from DHS Survey 2022)



Electric cooking opportunities and challenges

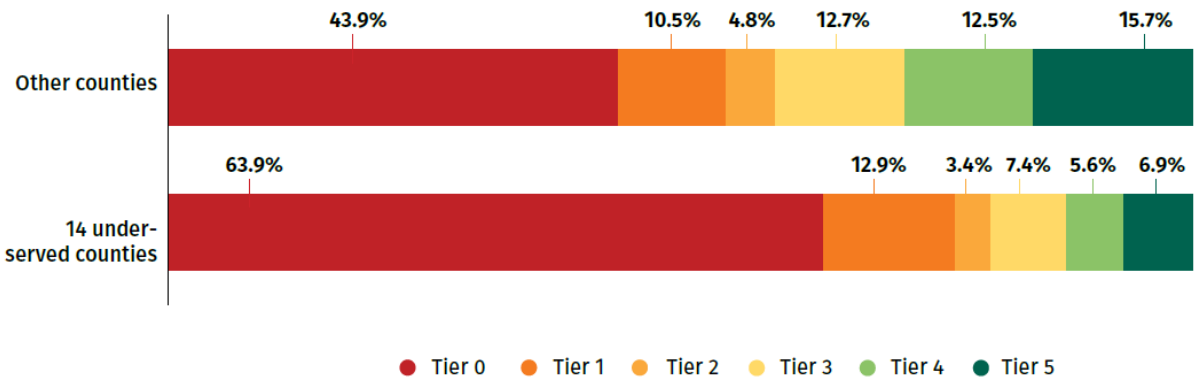
Electricity Networks, Reliability & Coverage

As of 2025, the national transmission network spans 9,484 circuit-km (NEC, 2025) but is mainly concentrated in the most populated regions of Coast–Nairobi–Rift Valley–Lake Victoria corridor with other areas that remain outside the reach of the national grid, particularly in the northern and arid counties. These unserved areas are targeted under the Kenya Off-Grid Solar Access Project (KOSAP)—an initiative specifically designed to serve the 14 underserved counties that lack adequate grid infrastructure. Kenya aims to reach universal electricity access by 2030, supported by plans to extend the transmission network

by 8,000 km and reinforce distribution systems through programmes such as the Last Mile Connectivity Project (LMCP) (NEC, 2025).

Reliability remains a critical constraint: in FY 2023/24, SAIDI stood at 10.14 hours per customer per month and CAIDI increased to 2.56 hours in the first half of the 2024/2025 financial year, both exceeding the regulatory targets (EPRA, 2024/2025; M300 COMPACT). The Ministry of Energy and Petroleum is planning to address this through the digitization and automation of the grid, including connecting distribution substations to SCADA/EMS and implementing physical infrastructure (MOEP, 2023). There is no publicly available independent evaluation conclusively demonstrating measurable improvements in national reliability outcomes directly attributable to specific planned interventions, but some relevant projects have recently been in the news (KETRACO, 2025; SwitchGear, 2025). Out of the total population with a grid connection, 74% report having electricity most or all the time. Disparities exist among counties and rural and urban areas, with 81% of urban households with a grid connection reporting it works most or all of the time compared to only 69% of households in rural areas (Afrobarometer, 2024). In 2018, only slightly more than a quarter of Kenyan households had access to Tier 3 and above levels of electricity (the levels able to power e-cooking), mostly located in urban areas with only 17% of rural households with a Tier 3+ connection (MTF, 2019). In the 14 underserved counties only 20% of the population has Tier 3+ access compared to almost half in the other counties (see Figure 7).

Figure 7: Electricity access by tier (MTF, 2019)



The Transmission Master Plan 2024–2043 (Vol. I & II) shows that planned backbone lines for 2044 will extend deeper into northern, western and coastal regions, including parts of Turkana, Marsabit, Garissa, Tana River and the Lake Region, which currently face limited grid penetration. These new corridors and substations are expected to reduce outage frequency and strengthen supply quality over time. As many households in these regions still rely on small off-grid solar systems that cannot support e-cooking appliances, the planned grid

reinforcement will play a key role in creating the Tier 3+ reliability conditions required for scaling e-cooking (KNeCS, 2024).

In general, significant progress has been made in regional integration, notably with the completion of the 400 kV Kenya-Tanzania transmission interconnector in December 2024, facilitating cross-border energy exchange and contributing to electricity imports rising to 10.41% of total consumption in the first half of FY 2024/2025 (EPRA, 2024/2025).

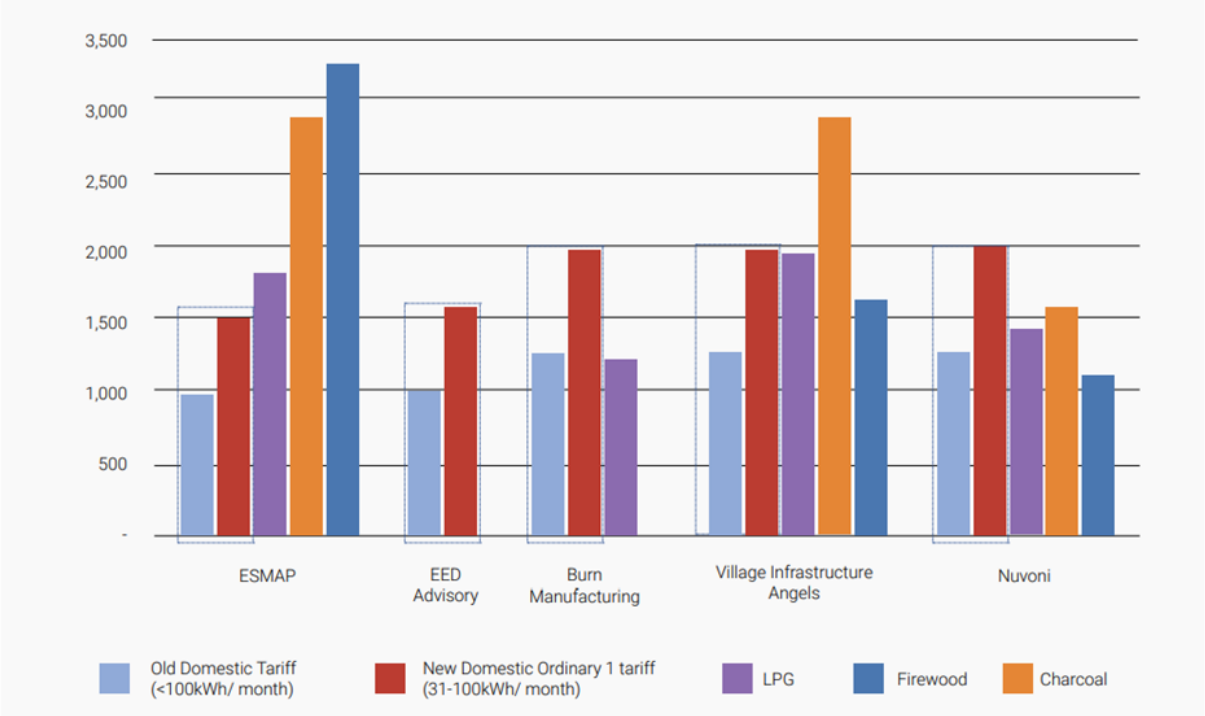
The overarching goal is to scale up regional power trade to 1000 MW by 2030, supported by the impending launch of the Eastern Africa Power Pool (EAPP) day-ahead electricity market in September 2025. Simultaneously, the country is prioritizing domestic system stability through storage, despite having no utility-scale Energy Storage Systems (ESS) currently installed; plans include achieving 400 MW of Battery Energy Storage System (BESS) capacity by 2030 and piloting a 200 MWh BESS project. Furthermore, policy statements commit to establishing the necessary regulatory frameworks for ESS and requiring all new VRE power plants to have embedded storage to improve dispatchability (KNEC, 2025).

Energy prices and affordability

The cost structure of cooking energy in Kenya is diverse, ranging from subsidized modern fuels such as LPG to collected traditional biomass, with affordability gaps being one of the three critical constraints to widespread clean cooking adoption (KNCTS, 2024).

Operational costs for electric cooking are defined by elevated residential electricity tariffs, typically ranging from 16¢ to 23¢/kWh (KNCTS, 2024) depending on the tariff band. For low-consumption households using the domestic lifeline tariff (0-30 kWh/month), the base tariff is 12.24 KES/kWh or 9.4¢/kWh as of June 2024, representing a 4% reduction compared to 2018 tariffs, though note that additional taxes, charges, and levies brings the price to around 21 KES/kWh or 16¢/kWh. However, for customers consuming slightly more (31-100 kWh/month), the tariff was increased by 19% to 16.58 KES/kWh or 13¢/kWh and a final price of 26 KES/kWh or 20¢/kWh (Samir Shah, 2025). This price increase disincentivizes the transition to e-cooking for customers in this consumption band (EPRA Energy and Petroleum Statistics Report, 2024).

Figure 8: The cost of cooking by fuel per month in Kenyan shillings, across various studies (KNeCS, 2024)



For e-cooking, the 31–100 kWh consumption block is generally appropriate provided households use efficient appliances such as induction cookers or electric pressure cookers (EPCs) and do not have a high number of appliances. Under these tariffs, several studies indicate that cooking with electricity in Kenya remains more expensive than using firewood or LPG. This underscores the need for additional incentives—such as dedicated cooking tariffs or other targeted subsidies—to make e-cooking cost-competitive for households (see Figure 8). In terms of incentives, the KNeCS proposes a pathway to lower appliance costs and manage high electricity tariffs to make e-cooking more competitive.

First, the strategy aims to apply an 80% subsidy on the upfront appliance costs through results-based financing (RBF) programs, and to develop a credit financing program to purchase e-cooking stoves in instalments. Second, studies have been commissioned to test the viability and impact of a specialized e-cooking tariff and time-of-use (ToU) tariffs to manage demand and improve affordability as well as on the role of carbon markets for e-cooking. Third, a dedicated study is planned to define a suitable tax waiver regime for energy-efficient, locally manufactured or assembled e-cooking appliances and components (KNeCS, 2024).

LPG is the most widely used clean cooking option. The retail price for LPG fuel is approximately 200-230 KES/kg or $1.55-$1.78/kg. Price volatility is a major challenge, as previous policy shifts, such as the reintroduction of VAT in 2021, pushed some households

to abandon LPG and switch, at least temporarily, back to firewood (IEA, 2024, University of Liverpool, 2022). However, the government has reintroduced zero rating for VAT on LPG through the Finance Act in July 2023 to stimulate use and lower consumer prices.

Traditional cooking fuels, especially collected firewood and other biomass, are characterized by their low or zero financial cost, which is noted as a core barrier to modern fuel adoption. Although it is inefficient and relatively expensive, charcoal has variable prices and at least one study (e.g. Nuvoni in Figure 8) estimates that it can also be less expensive than electric cooking. However, even though traditional stove acquisition costs are minimal, approximately 35% of traditional charcoal users still spend more than the Multi-Tier Framework (MTF) affordability threshold (5% of household expenditure on fuels) (MTF, 2019). Improved cookstoves (ICS) could reduce consumption and costs, but VAT on imported ICS remains at 16% alongside a 35% import duty (IEA, 2024) as an effort to support local manufacturing, as raw materials are exempt.

The adoption of clean technologies is also incentivized by carbon markets with several private actors and project developers present in the country leveraging carbon market to provide stoves and fuels at more affordable costs. Beyond subsidies, the KNCTS aims to reduce reliance on low-cost charcoal and firewood through institutional policy actions, such as enacting a ban on traditional cooking fuels in all public institutions to generate anchor demand for clean fuels. The long-term goal is a post-2028 cross-subsidy program for vulnerable households, potentially funded by a marginal tax on commercial clean fuels (KNCTS, 2024).

The formal financial sector provides key channels for consumer credit that can increase clean cooking adoption by reducing the substantial upfront costs. Financial institutions can be critical actors in accelerating the transition. Institutions like Equity Bank and Kenya Women Finance Trust (KWFT) are extending microloans to households tailored explicitly for purchasing clean cooking technologies. Furthermore, Savings and Credit Cooperative Organizations (SACCOs) function as community-based financing models, allowing members to borrow funds at favourable rates for household items that can include clean cookstoves. The KNeCS further capitalizes on this, including the implementation of targeted credit financing programs to bridge affordability and access gaps for e-cooking solutions (KNeCS, 2024).

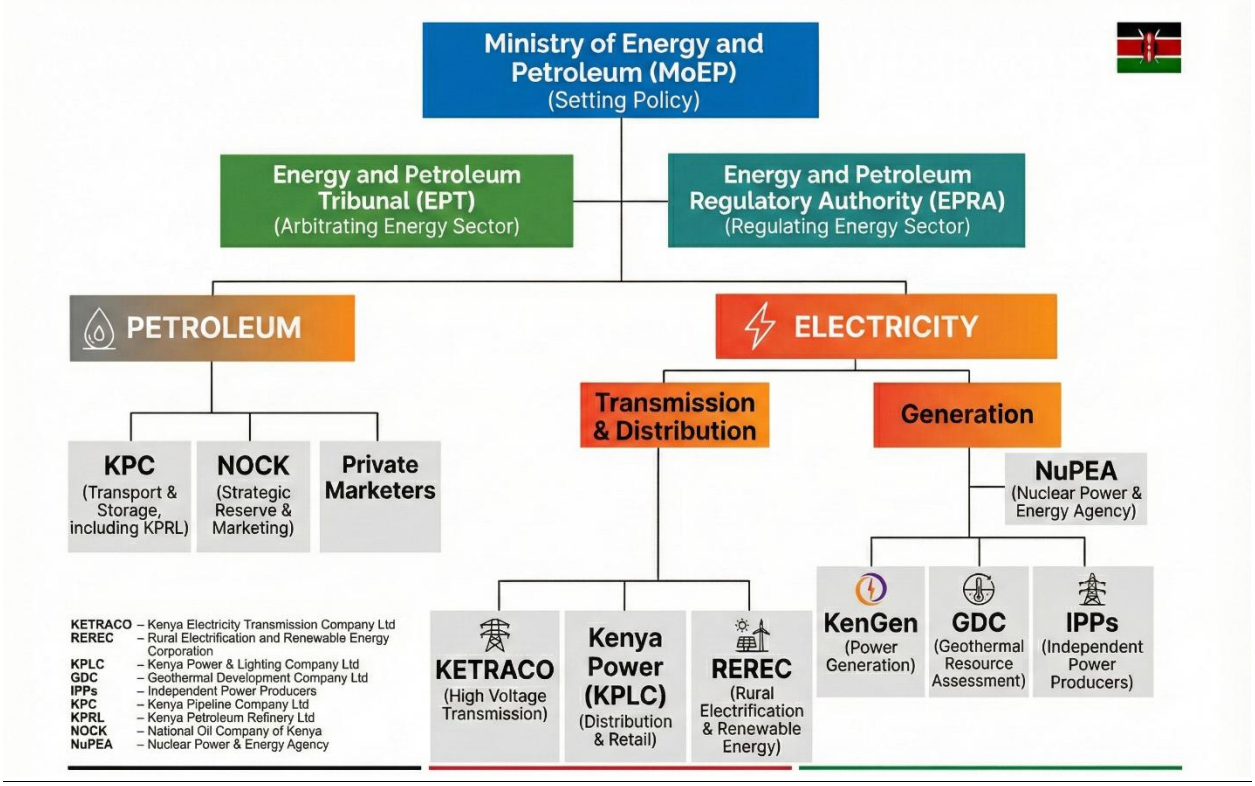
2. Policy and planning environment

2.1 Institutional Ecosystem

The oversight of electricity, distribution, clean cooking, planning, and utilities in Kenya is governed by a formally and partially decentralized structure rooted in the Ministry of Energy and Petroleum (MoEP) at the national level, which handles policy, planning, regulation and oversight. The MoEP State Department for Energy is divided in 3 technical directorates: Renewable Energy, Geo-Exploration, and Electrical Power Development. The Renewable Energy Directorate covers clean cooking and off-grid development while the Electrical Power Development Directorate is responsible for grid development and new connections, with the actions of both directorates impacting the e-cooking sector.

The core operational and regulatory framework involves several Semi-Autonomous Government Agencies (SAGAs). The Energy and Petroleum Regulatory Authority (EPRA) provides economic and technical regulation, including tariff setting and oversight of standards for appliances. Kenya Electricity Generating Company (KenGen) is the leading electric power generation company in Kenya working in tandem with other players like independent power producers (IPPs) and off-grid actors to generate electricity. Agencies focusing on specific energy sources are Kenya Geothermal Development Company (GDC), which develops and operates geothermal fields and sells steam for electricity generation to KenGen and other private IPPs, and the Nuclear Power and Energy Agency, (NuPEA) which oversees the development of nuclear power. Kenya Power and Lighting Company (KPLC), which manages existing transmission and distribution lines, is the main electricity distributor and retailer and is responsible for connecting new households to the grid. Kenya Electricity Transmission Company (KETRACO) is responsible for most of the new high-voltage transmission lines (132 kV and above). And finally, the Rural Electrification and Renewable Energy Corporation (REREC) manages rural electrification programs in cooperation with KPLC and promotes renewable energy. In a notable policy shift in 2024, Kenya adopted the new Energy (Electricity Market, Bulk Supply and Open Access) Regulations to open transmission and distribution networks to private operators, ending KETRACO and KPLC's monopoly with the aim of increasing competition, efficiency and service quality (Republic of Kenya, 2024).

Figure 9: Energy institutional mapping (adapted from MoEP)



Energy planning coherence is ensured by the requirement that the 47 county governments must develop and submit a County Energy Plan (CEP) under the Energy Act (2019), which then integrates into the national planning process via the 2025 Integrated National Energy Plan (INEP). Key organizations and actors in this structure extend from the Ministry of Energy at the top through to the county governor (for political leadership and support) down to the county agencies responsible for energy. The INEP regulations and process are officially published, but their practical application remains uncertain as they are very recent and do not precisely and comprehensively define the content of the CEPs or propose a complete standard methodology. Reviews of the existing CEPs consistently highlight gaps in harmonisation across processes, tools, methodologies, and reporting templates.

Under the 2019 Energy Act, county governments are also mandated to facilitate land access and rights of way for energy infrastructure, regulate biomass and biogas activities, and implement county-level electrification, streetlighting, and energy-efficiency programmes.

In most counties, energy is not organised within a standalone entity but is housed within a broader parent department—for example, the Department of Infrastructure, Transport, Public Works, Housing and Energy in Makueni or the Department of Energy, Environment, Water and Natural Resources in Kisii. These departments are led by a County Executive

Committee Member (CECM), the political head responsible for setting policy direction, including for energy, and for approving and overseeing the CEP.

Below the CECM is the Chief Officer (CO), the administrative head who manages day-to-day operations of the department. In some counties, energy has a dedicated CO; in others, the role spans multiple sectors. Directors of Energy are the technical leadership, heading specific directorates and managing planning processes, technical staff, project delivery, and CEP implementation.

Across the energy function, these officials are responsible for activities such as preparing CEPs and other localized energy plans; licensing and regulating retail petroleum outlets and biogas systems; supporting county electrification and energy efficiency measures; and integrating clean cooking initiatives into County Integrated Development Plans (CIDPs) (NEP, 2025; KNCTS, 2024).

The KNCTS proposes a clear and coordinated institutional structure to address long-standing fragmentation in the clean cooking sector. It strengthens leadership, clarifies mandates, and establishes mechanisms for cross-government alignment. High-level coordination is led by the Ministry of Energy and Petroleum (MoEP) through the Inter-Ministerial Committee on Clean Cooking (IMCCC). The IMCCC brings together the core ministries—Energy and Petroleum; Health; and Environment, Climate Change and Forestry—and EPRA, KBS and KIRDI to align policies, budgets and sector priorities. These ministries meet regularly to coordinate on inter-ministerial issues, supported by the Attorney General for parliamentary processes and by the National Treasury for public financing (KNCTS, 2024).

To operationalise the strategy, the KNCTS also proposes to establish a formal and dedicated implementation unit led by the MoEP and including key stakeholders. The unit would manage day-to-day implementation, monitoring and reporting, technical support to counties, and resource mobilisation, ensuring continuity and coherence across all KNCTS activities.

The strategy also clarifies roles for support ministries, including Investments, Trade, and Industry; Agriculture; and Education, Science and Technology. These ministries contribute through industrial development, sustainable biomass and feedstock supply, manufacturing support, skills development and research collaboration.

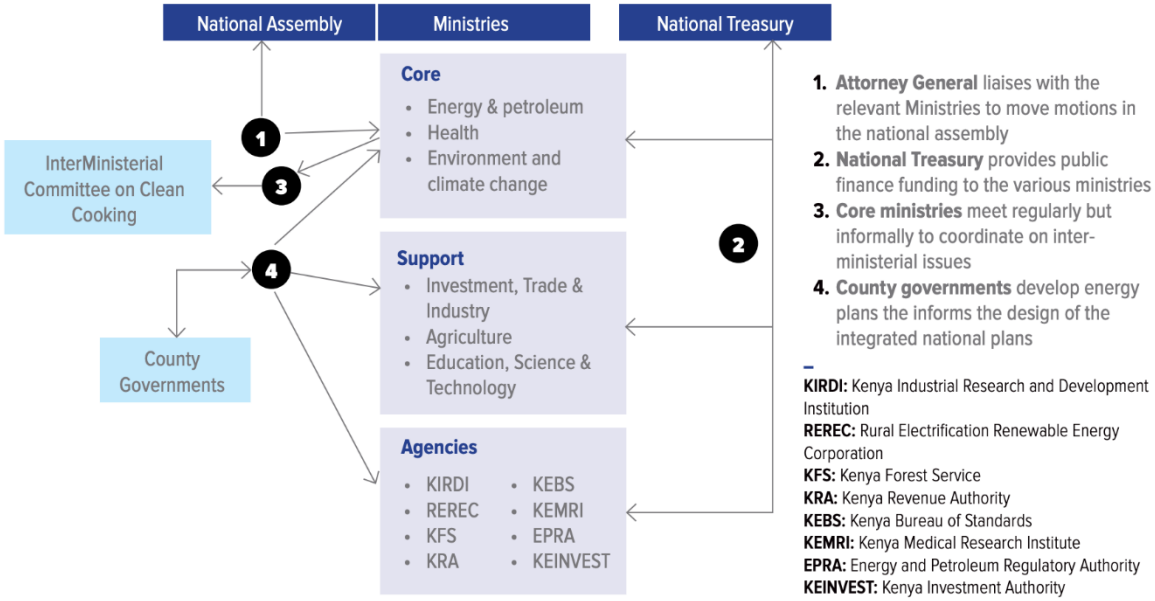
A wide range of government agencies fulfil technical and regulatory functions:

- EPRA regulates fuels and technologies;
- KEBS develops and enforces product and safety standards;
- NEMA ensures environmental compliance;

- KIRDI, KEMRI, and research bodies support testing, innovation and data;
- REREC and KFS contribute to rural energy and sustainable biomass supply;
- KEINVEST and KRA support market development and investment facilitation.

County governments also play a frontline role by developing local energy plans, enforcing standards, engaging communities and providing local data that informs national planning while MoE and KPLC share their standardized energy data (e.g., on electrification and electricity infrastructure) with counties for the development of their CEPs.

Figure 10: Role of institutions in the Kenya clean cooking sector (KNCTS, 2024)



Together, this framework—IMCCC at the political level and the implementation unit along with core and support ministries, specialised agencies, treasury and county governments—presents a coherent and coordinated governance system. It is designed to reduce duplication, align national and county actions, and provide the institutional backbone required to scale modern cooking solutions across Kenya. The implementation unit is slated to start work in March 2026, and it remains to be seen how effectively these entities can be coordinated to achieve the goals set out in the KNCTS.

2.2 National energy planning related to e-cooking focus

Below are a list of policies and strategies that impact the adoption of clean cooking.

Table 1: List of policies and strategies relevant to e-cooking

Key Policies	Description
Kenya National Cooking Transition Strategy (KNCTS) (2024)	National roadmap to achieve universal access to clean cooking by 2028 using a multi-fuel transition approach (LPG, bioethanol, electricity, biogas, improved biomass). Positions e-cooking as one of several pathways and identifies cost, awareness and infrastructure constraints that KNeCS is designed to address.
Kenya National Electric Cooking Strategy (KNeCS) (2024)	Dedicated strategy to scale electric cooking and to make electricity a primary cooking fuel in the long term via a range of interventions. Sets out specific measures such as e-cooking tariffs, fiscal incentives, appliance standards, carbon finance, and institutional and off-grid pilots that operationalise the shift to cooking with electricity.
Kenya National Energy Policy 2025-2034 (2025)	Provides the overarching policy framework for Kenya's energy sector, covering electricity, cooking fuels, renewables, energy efficiency, and governance. It reinforces national commitments to universal access to clean cooking, explicitly recognising electricity as a growing cooking fuel, and supports enabling measures such as affordability, reliability, grid expansion, and efficiency. The policy clarifies national and county roles and provides the policy basis for scaling e-cooking.
Kenya National Energy Compact (2025)	Kenya's M300 energy commitments, including goals for universal electricity and clean cooking access, expansion of renewables and improvements in energy efficiency. Elevates e-cooking within Kenya's international clean cooking and energy access pledges, helping to mobilise finance and align national strategies such as KNCTS and KNeCS.
Least Cost Power Development Plan (LCPDP) (2024)	Outlines Kenya's projected electricity demand, generation expansion, transmission needs, and least-cost pathways for meeting national power requirements. Sets the underlying conditions that make large-scale adoption of electric cooking feasible and ensures sufficient off-peak capacity by planning for increased residential demand.

Integrated National Energy Planning (INEP) Framework (2021)	Provides the methodology for national and subnational energy planning and requires characterization of energy demand across all sectors, including cooking in households and institutions. Establishes the framework through which cooking energy data can be integrated into planning processes and future national energy plans.
Integrated National Energy Plan Regulations (2025)	Legal regulations that operationalise INEP by specifying roles, timelines, data requirements and obligations for national and county energy planning processes. Make integration of cooking and electric cooking mandatory within planning and ensure alignment between County Energy Plans and national plans such as the KNCTS and KNeCS.
County Energy Plans (CEPs)	County-level plans prepared under the Energy Act that map local energy demand, resources and infrastructure needs, and prioritise energy investments. Offer the main subnational vehicle for integrating e-cooking targets, institutional pilots, behaviour-change activities and local supply-chain interventions aligned with KNeCS and the INEP process.
County Integrated Development Plans	Guide each county's development priorities, budgeting, and public investment decisions and serve as the primary planning, coordination, and resource allocation instrument linking county development goals with national policies, including for e-cooking.

While the government prioritizes the expansion of access to electricity and is generally supportive of e-cooking, there are currently few concrete incentives in place to increase uptake. However, the existence of a standalone e-cooking strategy, the KNeCS, indicates a strong policy commitment by the government to scale e-cooking, with targets for 10% of households by 2028 and 50% by 2050 to cook primarily with electricity. The KNeCS proposes a coordinated set of policy interventions and incentives to accelerate the transition to cooking with electricity.

The 2025 National Energy Policy 2025–2034 reaffirms Kenya's commitment to universal access to clean cooking and electricity by 2030, recognising electricity as an increasingly important cooking fuel alongside LPG and bioenergy. The policy identifies key barriers to scaling up e-cooking, including weak appliance supply chains, affordability and tariff

constraints, infrastructure readiness and reliability challenges, quality assurance gaps, and limited consumer awareness. In response, it proposes targeted measures such as incentivising local manufacturing of energy-efficient e-cooking appliances, deploying innovative financing to strengthen supply chains, planning electricity supply and e-cooking loads in parallel, introducing fiscal incentives to improve affordability, strengthening appliance quality assurance systems, and expanding consumer awareness, skills, and knowledge. While these measures are largely framed at the national level, the policy underscores the important role of county governments in the energy sector, particularly in preparing and implementing County Energy Plans, integrating clean cooking priorities, facilitating local electrification, and ensuring alignment with national strategies.

The Clean Cooking Delivery Unit (CCDU), also referred to as the Clean Cooking Implementation Unit (as described in *Section 2.1 Institutional Ecosystem*), is a planned institutional structure critical for achieving Kenya's goal of universal access to clean cooking by 2028 under the KNCTS and is intended to be operationalized by March 2026. The unit's core mandate is to institute accountability, planning, and tracking by overseeing the strategy's implementation, ensuring it is mainstreamed into government funding cycles, formulating a comprehensive action plan including a monitoring and evaluation framework, and facilitating additional fundraising efforts (KNCTS, 2024).

The KNeCS proposes strengthening the enabling environment through measures such as establishing a national steering committee, boosting R&D and local manufacturing, developing mandatory appliance quality standards, and aligning e-cooking with wider policies including climate, health, and innovation. It also calls for capacity building programmes, end-of-life management systems, and targeted grid and off-grid investments to ensure reliability and access for households and institutions. In addition, it highlights the importance of policy integration to embed e-cooking across energy planning frameworks—including the Kenya National Electrification Strategy, Least Cost Power Development Plan (LCPDP), and the INEP—and to harmonize targets and actions at both national and county levels. On the incentives side, KNeCS recommends a set of market development and affordability interventions. These include behaviour change communication campaigns and subsidy mechanisms such as results-based financing to reduce upfront appliance costs and stimulate adoption, particularly among low-income households. The KNeCS also highlights innovative consumer financing models, including asset-financing loans, layaway savings schemes, group liability mechanisms, and PAYGo models using smart-metered appliances, leveraging Kenya’s advanced mobile money infrastructure to address upfront cost barriers. The strategy also proposes studies on fiscal instruments such as VAT or tax waivers, a study on the introduction of an e-cooking tariff (as current electricity tariffs make e-cooking uncompetitive) and leveraging carbon finance to lower upfront and operating costs and

attract private-sector participation. Demonstration projects—such as institutional pilots and solar- or battery-supported e-cooking—are included to validate solutions and de-risk scaling before wider rollout.

There are also several government and donor-funded initiatives that include cooking with electricity, which shows further commitment to scaling adoption. KPLC's Pika na Power program is a long-standing awareness raising initiative to promote and provide information about e-cooking to the wider public. This experience highlights that early e-cooking messaging faced resistance, with households citing concerns including reliability and affordability and highlighting the need for structured awareness and confidence building alongside planning (MECS, 2023b). Separate evidence in Nairobi informal settlements from e-cooking assessments using surveys/diaries and market mapping also help understand local cooking practices and constraints and can support more context-specific planning and targeting (MECS, 2023b).

The Kenya Electric Cooking Market Development Initiative (KEMDI) is a $4.4 million AfDB-funded program that includes RBF to reduce the cost of appliances, a pilot to reward consumers who e-cook with electricity credits, awareness raising, capacity building for KPLC on carbon markets, best practices for appliances, and stakeholder engagement (KPLC, 2025). GIZ/EnDev is also supporting the deployment of 10,000 e-cooking devices through results-based reimbursement (GIZ, 2025), and CLASP is currently expanding adoption of electric cooking for schools (CLASP, 2025). Previously completed programs include pilots under the eCooking Capacity Building and Market Development Programme (MECS, 2023), some components of the Kenya Off-Grid Solar Access Project (KOSAP, 2024), and the Global LEAP RBF and competitions (CLASP, 2025).

The KNeCS also commits to engagement at the subnational level to implement the above interventions to increase the number of households cooking with electricity. It specifically mandates that e-cooking goals will be integrated into the CEPs and proposes to build capacity within county energy departments through the INEP framework. Additional opportunities to engage and intervene at the subnational level are described in the following section.

Multiple CEPs and related documents explicitly integrate e-cooking interventions as part of their strategy to comply with the Energy Act (2019). The Makueni County CEP, promotes improved and clean cooking energy solutions, including a planned transition to electricity and LPG, deemed necessary due to a significant bioenergy deficit. Kisumu County has an explicit target in its CIDP (2023-2027) for 4% of households using electric cooking, and its 100% Renewable Energy Roadmap emphasizes implementing electric cooking solutions to

reduce reliance on firewood and charcoal for public health and environmental benefits (Kisumu, 2024). Furthermore, Makueni, Kisumu, Kitui, Nakuru, and Kakamega counties have been established as regional e-cooking hubs to create awareness, stimulate local demand, and test context-relevant business models for scaling e-cooking solutions (KNeCS Baseline Study, 2023). While some counties have published a CEP and others like Kitui and Kakamega also mention specific clean cooking targets in their CIDPs, the ambitious goals of the KNCTS and KNeCS will require counties to mainstream clean cooking into their broader energy planning (KNCTS, 2024).

2.3 Decentralization and Subnational energy planning related to e-cooking

Kenya's subnational energy planning system relies on two complementary instruments, County Energy Plans and County Integrated Development Plans, which serve fundamentally different legal and institutional functions. CEPs, introduced through the Energy Act (2019) and refined under the 2025 Integrated National Energy Plan (INEP) Regulations (INEP Regulations, 2025), are sector-specific, technical documents designed to provide counties and national actors with detailed diagnostics on electricity access, clean cooking, renewable resource potential, and least-cost electrification pathways. Their purpose is to generate standardised, data-driven inputs that feed into national energy planning, enabling MoEP, EPRA, KPLC, KETRACO and REREC to integrate county realities into the INEP and future national energy strategies. CEPs therefore operate inside the national energy planning system, not within the county's public finance system.

By contrast, CIDPs are the mandatory five-year planning instruments required under the County Governments Act (2012) and the only constitutionally and legally binding development and budgeting plans at county level. They cover all sectors, define five-year priorities, undergo formal public participation and County Assembly approval, and determine actual budget allocations. While CIDPs may highlight broad electricity and clean cooking priorities, they are not technical planning documents and therefore cannot replace CEPs, which are expected to provide detailed analyses—including technology mixes, demand volumes, and investment needs—even if not all existing CEPs are yet fully comprehensive. However, CIDPs can absorb key findings from CEPs, including the energy gaps, investment needs, and project options, and translate them into budgeted county programmes. In practice, Annual Development Plans (ADPs) play a critical intermediary role between CIDPs and county budgets. While CIDPs set five-year strategic priorities, ADPs translate these priorities into detailed, annual investment plans that specify costs and financing sources, directly informing budget allocations for projects and interventions. Energy-related actions identified in CEPs—and prioritised within CIDPs—should also in theory be transferred to ADPs to ensure they are operationalised and funded. This makes

CEPs, CIDPs and ADPs the key instruments for planning and implementing electrification and clean cooking interventions at county level.

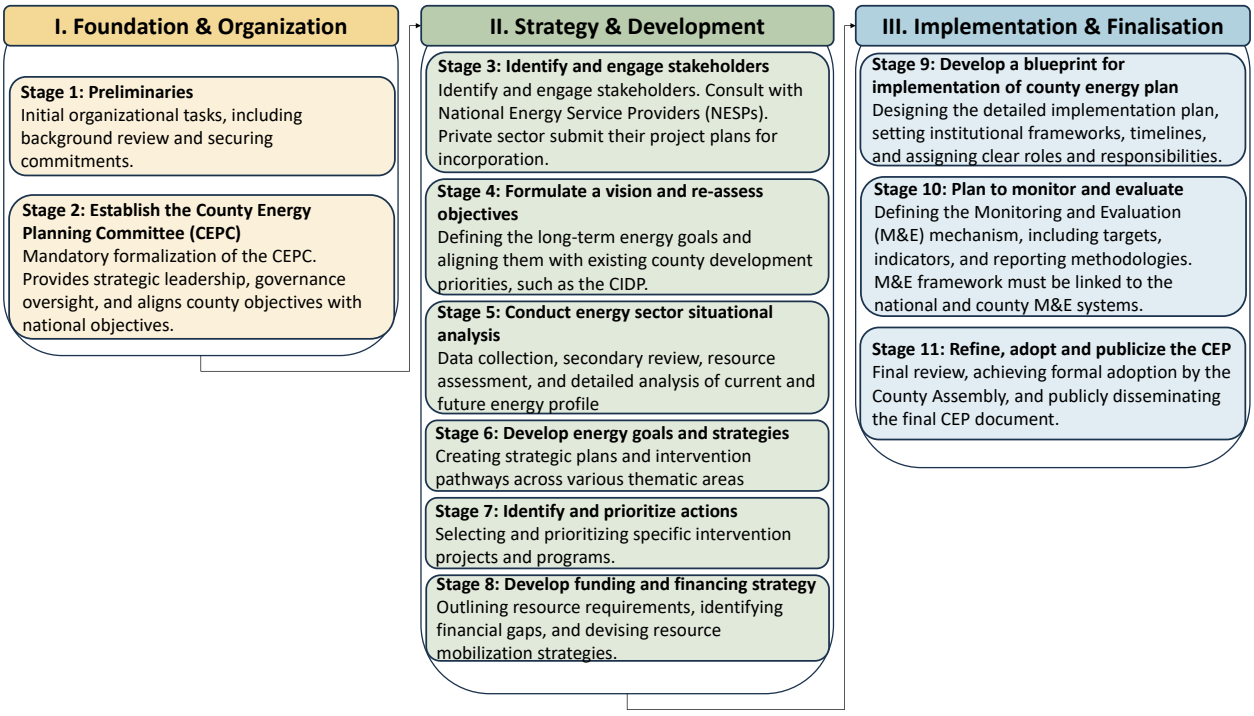
CIDPs and ADPs signal to national agencies where county governments expect support or collaboration and the level of budget needed, helping align local priorities with national initiatives like LMCP, REREC off-grid programmes, and clean cooking strategies. Together, CEPs and CIDPs could form a coherent planning ecosystem: CEPs provide the technical evidence for energy sector planning at the county level, while CIDPs provide the mandatory vehicle for local development and financing. This dual structure reflects Kenya's constitutional split of functions—energy as a partially devolved national mandate and development planning as a county mandate—and ensures that energy sector decisions are both technically sound and locally grounded.

The 2025 INEP regulations clearly state that county governments should harmonize CEPs with CIDPs (INEP Regulations, 2025). For this framework to function effectively in practice, it requires strengthened county-level data systems, technical capacity, and coordination mechanisms, alongside clearer alignment between CEPs and CIDPs. In particular, improving the availability of reliable local data and analytical capacity would enable the CEPs to better capture development-driven energy needs and translate them coherently into CIDP priorities, budgeted investments, and national energy planning processes (UK PACT, 2022; Wykes and Leary, 2023). Evidence from Kenya's sub-national energy planning work highlights that key datasets are often missing, difficult to access or only available at national level, limiting their use for integrated planning at county level. Support programmes have addressed this by collecting more granular primary data directly to support the development of CEPs (WRI, 2025; UK PACT, 2022a; UK PACT, 2022b). However, this exercise can make CEPs reliant on external support by increasing their cost while better data sharing across different agencies and level of governments could limit the need for additional data collection. Other barriers for the development of CEPs are linked to limited operational resources and political influence. Evidence from Kenya indicates that energy units within county governments often have weak bargaining power in budget allocation processes, compete with more politically visible sectors (such as roads, water, and health), and have limited leverage over utilities and national agencies that control key data, infrastructure decisions, and investment flows (CCG, 2022). As a result, sustained institutional strengthening, clearer vertical coordination mechanisms, and predictable resourcing for county energy functions are key for effective CEP implementation.

Coordination between national and sub-national levels in Kenya's energy sector is centred on the INEP process, which formalises multi-level cooperation through mandatory planning and shared committees (KNCTS, 2024, NEP, 2025). While the Energy Act already requires

counties to prepare and submit CEPs to the Cabinet Secretary, the 2025 INEP regulations strengthen this vertical reporting line by establishing an INEP Committee to bring together MoEP, EPRA, national utilities and agencies (KPLC, KETRACO, REREC) and county representatives through the Council of Governors as well as sub-committees, including one on electricity and one on energy access. It also states that governors will establish a County Energy Planning Committee that includes the Energy CECM, CO, and Director but also directors from other relevant sectors (finance, agriculture, water, health). Despite the fact that the INEP regulations were only recently published in 2025, several counties have established temporary, sometimes multi-departmental working groups or technical committees when developing their CEPs. These teams have often used national guidelines, consulted national and local actors where needed, and prepared the plan for submission to MoEP, after which the national INEP Committee reviews and consolidates county inputs into the national plan. The INEP regulations propose 11 steps for the development of CEPs summarised below in Figure 11.

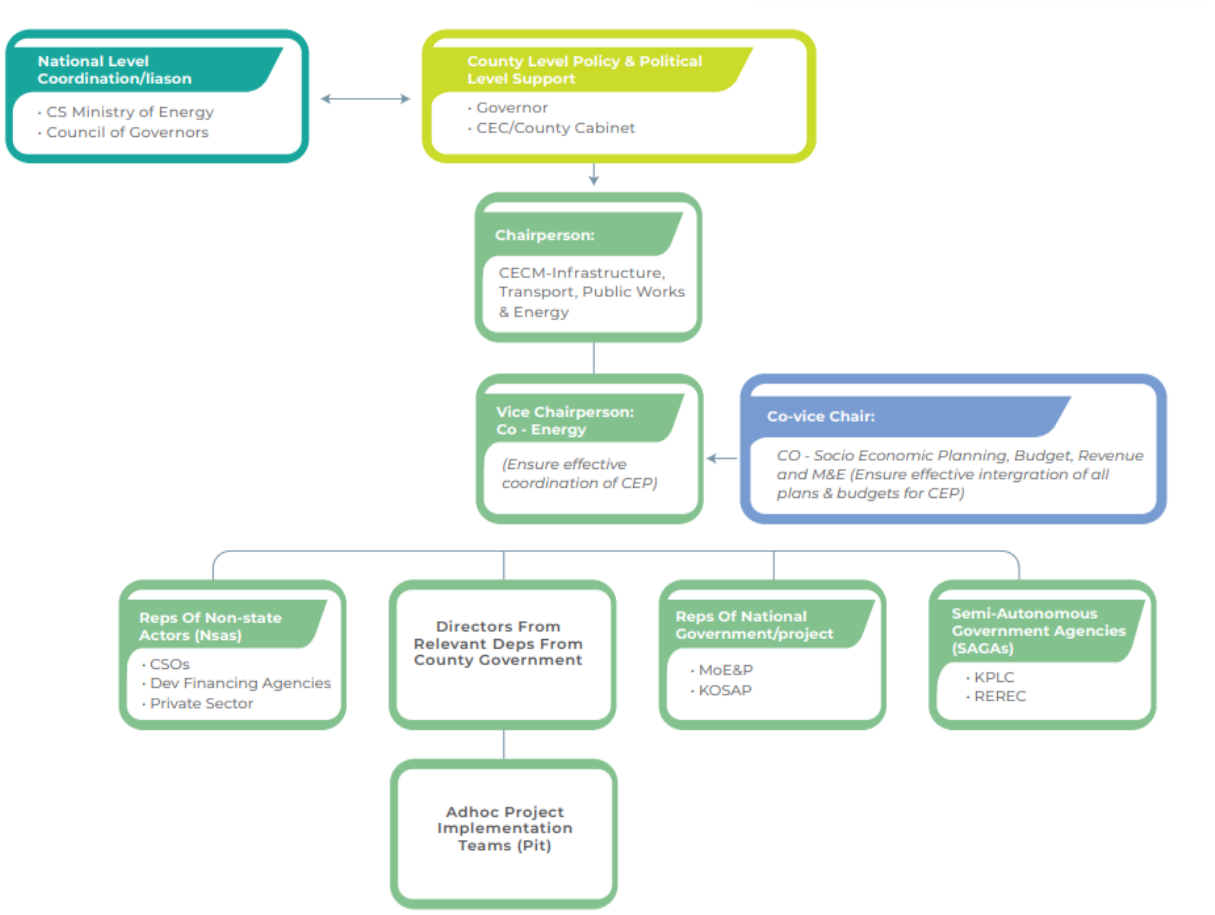
Figure 11: Steps for the development of CEPs (INEP Framework, 2021)



As an example, the Makueni CEP is facilitated through technical groups and committees, such as the proposed CEP Implementation Committee, which features representatives from both the county level (CECM-Infrastructure and Governor) and national agencies (MoE, KPLC, and REREC). Figure 12 below illustrates the vertical and horizontal coordination flow for implementing the CEP and shows the hierarchy from the political level (Governor, CECM-

Infrastructure, Transport, Public Works & Energy) down to the operational teams, including representatives from national government/project agencies (MoEP, KOSAP), SAGAs like KPLC and REREC, directors from county government departments, and non-state actors.

Figure 12: Constitution of the proposed Makueni CEP implementation committee (Makueni CEP, 2023)



Clean cooking coordination in Kenya is anchored at the national level through the IMCCC, established under the KNCTS. The IMCCC brings together key ministries and national agencies—including MoEP, EPRA, KEBS, KFS, REREC, and KPLC—to provide unified policy direction, ensure harmonised standards, and coordinate cross-ministerial inputs into the clean cooking agenda. While the committee does not formally include county governments, sub-national engagement is intended to occur indirectly through the Council of Governors (CoG), which the KNCTS identifies as a key actor for aligning county development policies, coordinating county contributions to clean cooking initiatives, and supporting resource mobilisation. This could create a functional, though not fully institutionalised, channel through which counties can feed local priorities and implementation needs into the national clean cooking dialogue, while national bodies provide guidance, standards, and technical oversight. To ensure success, the CoG must be provided with the required resources in terms

of legal frameworks, capacity building, and dedicated budget. Complementary coordination should also occur through CIDPs, which are increasingly integrating clean cooking. The KNCTS identified 12 CIDPs that included clean cooking—such as those of Makueni, Kitui, and Nakuru—enabling counties to articulate local needs and feed them upward through CoG and MoEP consultations.

Electrification planning in Kenya is primarily driven by national actors, including KPLC (new connections, feeder upgrades, and distribution), REREC (off-grid and mini-grids), and KETRACO (national transmission network). The national government prepares the LCPDP, a rolling, long-term planning instrument with a 20-year horizon that is periodically updated and aligned with medium-term planning cycles. The LCPDP is a technical plan developed by a multi-agency committee—including the Ministry of Energy, EPRA, KPLC, KETRACO, KenGen, and REREC—to model future electricity demand and identify the least-cost mix of generation and transmission investments needed to meet that demand.

While the LCPDP essentially informs the electricity supply component of the INEP, the INEP regulations mandate the creation of an electricity subcommittee responsible for coordinating electricity sector data and explicitly require CEPs as the mandatory local demand-side input for the final consolidated INEP. Counties can influence electrification directly through their CEPs (bottom-up energy access diagnostics on local demand, resources, and specific off-grid projects) and CIDPs. Overall, while core electrification delivery remains nationally led, county planning can effectively identify local demand and priority areas for connections, ensuring the national strategy is responsive to local needs.

As mentioned above, various studies and stakeholder consultations have recommended that CEPs be aligned with CIDPs so that energy investments support broader county development priorities, but this linkage is not yet a formal legal requirement (Leonard et. Al, 2023; EED & CCG, 2023). These studies emphasize that public documentation remains limited: most CEPs are not published, making it difficult to systematically compare methodologies or establish standard planning models.

Where CEP documents are available, they reveal diverse methodologies shaped by different technical partners, funding programmes and county contexts. Two broad methodological patterns can be observed in the documented CEPs, although the literature stresses that these categories are not rigidly defined given the limited sample (EED & CCG, 2023; Leonard et. Al, 2023).

The Kitui and Meru CEPs use the systematic Energy Delivery Model (EDM) participatory approach. This combines iterative technical analysis, starting with secondary data review and primary data collection (including household surveys using KoboCollect, ward administrator surveys, key informant interviews and focus group discussions) with

stakeholder engagement, including the creation of a multi-sectoral CEP Technical Committee and inclusive needs assessment through community and sectoral workshops. The aim is to identify wider development objectives, energy and non-energy gaps, and devise comprehensive solutions integrating energy with other supporting services (Garside and Perera, 2021, UK PACT, 2022a; UK PACT, 2022b). This assessment requires research, energy and other types of modelling, GIS mapping, and the use of OnSSET least-cost electrification to support solutions development to identify the costs of grid, mini-grid and solar standalone investments for electrification priorities, including households, businesses, street lighting, schools, and healthcare facilities (Kitui CEP, 2021; Meru CEP, forthcoming 2026)[3]. For the development sectors targeted, fully costed business models and investment pathways were identified, including CIDP sectoral budgetary allocations, potentially facilitating a smoother integration of the CEP actions into the CIDP.

A somewhat different approach was used for the Narok CEP, which involved a GIS-centred workflow developed by Strathmore University and the World Resources Institute (WRI). It also included the creation of a stakeholder technical committee, the use of KoboCollect for primary data collection, Energy Access Explorer for spatial diagnostics, and OnSSET for least-cost electrification modelling, complemented by Low Emissions Analysis Platform (LEAP) for cooking modelling (WRI, 2025; Mwendwa et al., 2023).

The Nakuru CEP followed a methodology encompassing policy review, extensive primary data collection (using CAPI tools like SurveyCTO), and an energy demand model via LEAP (Mwendwa et al., 2023). The Taita Taveta CEP uses a similar methodology involving a GIS system built for the county. It defines 374 population clusters using a raster density surface, verifying them with 2019 census data and classifying their electrification status using a KPLC transformer GIS layer and a 600-meter connection buffer, and models least-cost pathways using GEOSIM. The Makueni CEP also shows clear use of GIS spatial analysis and least-cost electrification modelling outputs. The modelling itself is described in an external annex, which confirms the use of OnSSET and details the three scenarios (Low Demand, High Demand and High Demand with forced grid intensification) for universal access. However, the publicly available CEP does not document the full development workflow. Similarly, the Kilifi CEP includes extensive spatial outputs, energy resource maps, and scenarios (baseline, policies, SDG) but contains less details on methodologies.

Across available plans, clean cooking is recognised as a priority but treated with varying levels of depth. The reviewed CEPs dedicate substantial sections to energy access, including cooking and heating. Both Nakuru and Narok utilized LEAP for modeling cooking

[3] The Meru CEP was used as a demonstration project for training further counties under the EU-MoEP Sustainable Energy Technical Assistance project (2020-24).

fuel demand, covering options such as LPG, biogas, firewood, and charcoal (Mwendwa et al., 2023). More recently developed plans, such as those for Taita Taveta and Kilifi, detail specific strategies for clean cooking transitions, including the adoption of modern electric cooking solutions as EPCs and electric induction cookers. The Taita Taveta CEP shows modelled scenarios aiming for universal access to modern cooking solutions by 2028 under the SDG scenario, budgeting explicitly for the dissemination of LPG, bio-ethanol stoves, EPCs, and induction stoves. Makueni also used LEAP to model the cooking sector across various scenarios (Baseline, Policy, SDG 7), projecting a significant increase in electricity consumption for cooking and proposing interventions such as subsidies for improved biomass cookstoves and promoting e-cooking in urban areas. The EDM approach, used in the Meru CEP along with data analysis and least-cost modelling to inform options, also places development needs identified by communities and sector stakeholders at the centre of planning, with modelling applied to analyse costs and sequence solutions rather than to define priorities in isolation. Within this framework, e-cooking demand is not explicitly modelled; instead, the CEP prioritises electric cooking for households with existing or planned Tier 3+ electricity access, treating it as a conditional option dependent on service quality, reliability, and affordability, rather than as a system-wide source of new electricity demand (Meru CEP, forthcoming 2026).

Evidence from CEPs and studies indicates that socio-economic and socio-cultural factors significantly shape clean cooking and e-cooking uptake at the sub-national level. High upfront appliance costs, income volatility, and the low monetary cost of traditional fuels remain key constraints for households, even where electricity access exists. Cooking practices, perceptions of suitability of electric appliances for local dishes, and limited familiarity with modern technologies can further dampen uptake. Some CEPs (e.g. Meru, Kitui, Makueni)—particularly those developed using participatory/EDM-style approaches—explicitly include community engagement measures as actionable interventions, such as targeted awareness raising and consumer education, live cooking demonstrations and roadshows, and outreach via local champions, with particular emphasis on women and socially excluded groups (Meru CEP, forthcoming 2026; GIZ, CCAK and SNV, forthcoming 2026[4]; UK PACT, 2022a; Kitui CEP, 2021; Makueni CEP, 2023). While GEDSI considerations are increasingly acknowledged in CEP frameworks, their operationalisation in clean cooking and e-cooking actions at county level remains uneven, with the main focus remaining on gender and not on the other aspects of GEDSI (Fuchs et al, 2025; UK PACT, 2023). CEPs such as Meru and Kitui recognise women's central role in cooking and include targeted sensitisation and training measures; however, systematic targeting of vulnerable groups,

[4] County Energy Plans' Prioritization of Clean Cooking and Biodigesters: A Synthesis of Lessons Learned and Best Practices

including low-income households and informal settlements, seems to remain more limited. Participatory, development-led approaches such as EDM provide an entry point for inclusion, but these measures seem to be mainly project-based at the CEP development phase rather than institutionalised (Meru CEP, forthcoming 2026; UK PACT, 2022a; Kitui CEP, 2021; GIZ, CCAK and SNV, forthcoming 2026).

As explained above, the INEP-CEP process mandates consultation between the county governments (led by CECM for energy and the CEP Committee) and national entities, including the Ministry of Energy, KPLC, and REREC. However, stakeholders report significant challenges in vertical coordination, often citing a lack of resources and limited capacity at the county level. In practice, lack of capacity often reflects understaffed and under-resourced county energy functions (often embedded within wider cross-sectoral departments), limited in-house expertise in energy planning/clean cooking, and high turnover of trained personnel. Counties also report weak clarity on what data is required for CEPs to feed into national planning and face bureaucratic hurdles when trying to obtain key datasets from national agencies (e.g. KPLC, EPRA…), reinforcing reliance on donor-funded technical assistance and ad-hoc project support (CCG, 2022; EED & CCG, 2023; UK PACT, 2022a; GIZ, CCAK and SNV, forthcoming 2026).

Beyond technical and capacity constraints, several studies highlight political economy factors that shape sub-national energy planning outcomes. In Kenya counties operate within a highly centralised electricity sector, with limited to no influence over tariffs, service quality, or utility investment decisions—factors that directly affect the feasibility of e-cooking. Financial stress within utilities, non-payment or thefts in informal settlements, and weak enforcement against sub-standard appliances further reduce incentives for demand-side investments, constraining county-level ambition even where planning frameworks exist. In addition, studies note that five-year electoral cycles at county level can disrupt continuity in energy planning and implementation, as changes in political leadership and priorities following elections may affect the follow-through of actions identified in CEPs (CCG, 2022; EED & CCG, 2023; UK PACT, 2022a).

As already mentioned above, different studies also reported that integration with the CIDPs is crucial for securing budgetary allocations, as the CIDP is the main document outlining county development priorities, feeding into ADPs (EED & CCG, 2023; Leonard et al., 2023). The Taita Taveta CEP clearly highlight this, as it aims to leverage existing energy projects earmarked in CIDP 3 to inform future ADPs. To ensure effective integration of plans and budgets, the Makueni CEP proposes that the Chief Officer responsible for Socio-Economic Planning, Budget and M&E co-chair the CEP Implementation Committee. Meru CEP provides a further example of CEP–CIDP integration, as the CEP explicitly maps priority energy interventions—including electrification of public facilities, street lighting, and clean

cooking—against existing and forthcoming CIDP programmes, with costed investment pathways designed to inform ADPs and county budgeting processes (Meru CEP, forthcoming 2026).

For a comprehensive bottom-up aggregation into the INEP, standardisation remains a challenge, as existing CEPs vary widely in scope, methodology, and format. To address this, some stakeholders have proposed the development of the National Energy Online Network (NEONET), a unified, web-based reporting framework based on a two-part and time-differentiated submission model. Under this approach, counties would submit standardised data forms on a regular basis (e.g. every three years) to enable aggregation, comparison, and monitoring at national level, alongside a less frequent narrative CEP report (e.g. every ten years) prepared as a comprehensive planning document. The narrative CEP report is distinct from the data submission and is intended to synthesise local development priorities, demand drivers, and proposed energy interventions, while investment prioritisation would remain a county-level function through CEP–CIDP–ADP processes, with aggregation and alignment undertaken nationally through the INEP process (EED & CCG, 2023). However, for this system to function effectively, adequate technical, institutional, and data-management capacity—as well as sustainable resourcing and budgets—would need to be established and maintained at county level, including dedicated staff, clear mandates, and routine support for data collection and analysis.

Overall, while Kenya has put in place the formal architecture for INEP–CEP–CIDP alignment, these structures are very early stage and have yet to deliver the intended level of coordinated planning. Further guidance and support could be provided by the INEP Committee and development partners to local governments to ensure more uniformity and coherence in these subnational plans with the possibility of involving the CoG to act as an institutional bridge.

Some studies have also noted that limited financing and weak integration into county budgets can delay implementation and hinder progress towards targets even when plans have been developed. Over time, the inability to translate plans into tangible investments may reduce incentives for counties to engage in CEP processes, particularly where planning is perceived as donor-driven rather than linked to sustainable, publicly funded implementation pathways (CCG, 2022; UK PACT, 2022a).