Community needs assessment workshop for the Meru County Energy Plan, April 2022.

Working paper

Vertical Collaboration for County Energy Planning in Kenya

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27/10/2022

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List of Acronyms

ADP	ANNUAL DEVELOPMENT PLAN
CEP	COUNTY ENERGY PLAN
CIDP	COUNTY INTEGRATED DEVELOPMENT PLAN
CoG	COUNCIL OF GOVERNORS
EDM	ENERGY DELIVERY MODELS
EPRA	ENERGY AND PETROLUEM REGULATORY AUTHORITY
FGD	FOCUS GROUP DISCUSSION
GDC	GEOTHERMAL DEVELOPMENT CORPORATION
GIZ	DEUTSCHE GESELLSHAFT FÜR INTERNATONALE ZUSAMMENARBEIT (GERMAN DEVELOPMENT AGENCY)
GPS	GLOBAL POSITIONING SYSTEM
IED	INNOVATION, ENERGIE, DÉVELOPPEMENT
INEP	INTEGRATED NATIONAL ENERGY PLAN
KEFRI	KENYA FORESTRY RESEARCH INSTITURE

KEMRI	KENYA MEDICAL RESEARCH INSTITUTE
KENGEN	KENYA ELECTRICITY GENERATING COMPANY
KETRACO	KENYA ELECTRICITY TRANSMISSION COMPANY
KII	KEY INFORMANT INTERVIEW
KIRDI	KENYA INDUSTRIAL AND DEVELOPMENT RESEARCH INSTITUTE
KNBS	KENYA NATIONAL BUREAU OF STATISTICS
KPLC	KENYA POWER AND LIGHTING COMPANY
MoE	MINISTRY OF ENERGY
NESP	NATIONAL ENERGY SERVICE PROVIDER
NIMES	NATIONAL INTEGRATED MONITORING AND EVALUATION SYSTEM
NUPEA	NUCLEAR POWER AND ENERGY AGENCY
REREC	RURAL ELECTRIFICATION AND RENEWABLE ENERGY CORPORATION
SDG	SUSTAINABLE DEVELOPMENT GOAL

SETA	SUSTAINABLE ENERGY TECHNICAL ASSISTANCE PROGRAMME
SNV	NETHERLANDS DEVELOPMENT AGENCY
WAS	WARD ADMINSTRATOR SURVEY
WRI	WORLD RESOURCES INSTITUTE

1. Executive Summary

This working paper is the first attempt to identify challenges in coordination and collaboration between actors at national and county levels in Kenya to achieve integrated county energy planning, and to canvas the views of actors on how these challenges can be addressed.

The paper is based on, first, an analysis of the most significant energy planning enabling frameworks and policies. Second, on the real-world experience of developing two county energy plans (CEPs) using the inclusive, cross-sectoral Energy Delivery Models (EDM) planning approach; and third, on Key Informant Interviews (KIIs) with actors at national and county levels who are either supporting or implementing development of county energy plans (CEPs) and are involved in the Sustainable Energy Technical Assistance Programme (SETA).

Kenya's draft Integrated National Energy Planning (INEP) Framework (April 2021) is a development from Kenya's Energy Act (2019), and a response to changes in the national and global energy sector, including adoption of Sustainable Development Goal (SDG)7 on universal energy access.

INEP recognises the need for energy services to be planned as enablers of wider development goals, for stakeholder and end-user engagement in planning, and for effective evidence and data collection and analysis to underpin effective planning. It also recognises that enhanced collaboration and coordination between national level actors (including the Ministry of Energy (MoE), national energy service providers (NESPs), other ministries, development partners, NGOs and private sector) and county governments is critical for integrated, evidence-based planning.

However, while the Framework provides guidance on the process and content of CEPs and mandates certain coordination functions between national and county actors, it provides minimal guidance on vertical mechanisms and support to operationalise enhanced coordination.

The SETA programme of capacity building support to county governments has identified significant challenges for county energy planning relating to vertical collaboration with national actors. The research undertaken with county and national planning actors for this paper has largely confirmed this picture, providing further detail on the coordination challenges experienced by these actors along the vertical planning chain. These include the following:

- Limited or no understanding of the mandates of their agencies under the INEP Framework, particular as concerns their coordination functions. This is probably because the Framework has not yet been published, and the extent of consultation to date appears limited. On the other hand, most actors were aware of which agencies are supporting the development of CEPs, largely due to the SETA training programme.
- Significant challenges with coordination on data sharing, collection and analysis between national agencies to counties, including sharing of energy data from KPLC and REREC, to inform evidence-based planning, and a critical lack of data at the sub-county and ward level. There is a lack of a common data-sharing frameworks/protocols; lack of or limited established channels for data sharing; and the challenges are exacerbated by lack of technical capacity to collect, store and analyse data to inform planning at the county level.
- There is also a concern over whether the existing energy data sets, even if made more accessible, will meet the needs of county planning in terms of the levels of disaggregation and types of end-user data needed for county planning.
- Various capacity gaps related to operationalising integrated and needs-based planning at the county level, including lack of knowledge on appropriate planning methodologies and low awareness of the role of energy as an enabler for wider development impacts among county

staff, as well as lack of resources. Other capacity gaps highlighted related to support from national agencies on gender sensitive and inclusive planning.

- Finally, a lack of concrete institutional mechanisms to enhance collaboration and coordination.

The actors interviewed had a range of suggestions for how to address these challenges.

To address data sharing gaps, all actors supported some form of centralized energy data repository, and integration of data access and governance in the INEP Regulations to make it enforceable was also mooted. This should be regularly updated and the need for awareness raising on data sharing was also identified.

Enhancing county level data collection and management was also suggested, with accompanying capacity building. There could be scope to invest in a functioning county version of the national integrated monitoring and evaluation system (NIMES).

All actors agreed on the new for new or enhanced institutional mechanisms to enhance collaborations, with ranging from meetings between relevant national and county actors brokered by the Council of Governors or other actors to dedicated liaison officers being resourced at county level. The need for proper resourcing and practical solutions were emphasised.

On capacity building, a common suggestion was coordination of training efforts by development actors supporting national and county energy planning could be supported by the establishment of a national planning hub. The need for training of county government officials on energy as an enabler of development and on integrated and inclusive energy planning approaches, including how to integrate the CEP with the CIDP process was identified.

However, one cross-cutting issue that is seen as constraining more effective vertical coordination and collaboration is the need for additional resources in all the areas highlighted as gaps.

2. Introduction

This working paper is a companion piece to the working paper on *Data Needs for County Energy Planning in Kenya.* Both these papers and subsequent outreach around them with actors involved in energy planning in Kenya will be inputs to the output on *County Energy Guidelines* under 3.1 (Knowledge Products) under the UK PACT CCG Kenya Energy Planning Project.

Both papers are informed by (a) the requirements for County Energy Plans (CEPs) outlined in the draft (and as yet unpublished) Integrated National Energy Planning Framework (April 2021), referred to henceforth as the INEP Framework; and (b) the real-world experience of the Loughborough and International Institute for Environment and Development (IIED) team and local partners in supporting development of two CEPs, one for Kitui County (published July 2021) and one for Meru County being developed under the Sustainable Energy Technical Assistance (SETA) Programme to the Ministry of Energy funded by the European Union (see below). The tentative date of completion for the Meru CEP is March 2023. The methodology used to develop both these CEPs is the needs-based Energy Delivery Models (EDM) planning approach.

The team involved in developing these papers includes the international and national leads of the EDM team, who have been working on county energy planning in Kenya since 2018 and one of the National Mentoring Experts (NMEs) supporting counties with energy planning under the SETA Programme who works for the National power company, KPLC, and involved in data management issues related to KPLC's mandate.

3. Context and enabling environment for energy planning in Kenya

Energy planning is a function of both the national and the 47 county governments in Kenya as provided in the Fourth Schedule of the Constitution of Kenya (2010), and the Fifth Schedule of the Energy Act (2019). Under the Energy Act, the national government is required to develop an Integrated National Energy Plan (INEP) and county governments and national service providers (MoE, EPRA, KPLC, KenGen, REREC, KETRACO, GDC and NuPEA) are mandated to develop county energy plans as inputs to the design of the INEP.

However, Kenya's Energy Policy (2018) identified several challenges to integrated planning, most significantly related to issues of coordination between national and county level actors. First, it identified a lack of coordination between the national and county governments. Second, it highlighted uncoordinated approaches in policy formulation and implementation by the relevant ministries and agencies to reduce overreliance on biomass as the primary source of energy and, third, uncoordinated approaches in policy implementation and promotion of solar energy projects.

The Energy Act (2019) makes coordination/collaboration between national and county governments mandatory. Section 5 (4) of the Act requires the Minister to consolidate plans developed by the national energy service providers and the CEPs into one integrated national energy plan. CEPs are to be reviewed every three years. The Act directs the MoE Cabinet Secretary to develop a conducive environment to promote investments in energy infrastructure development, including formulating guidelines in collaboration with relevant county agencies on the development of energy projects. In addition, the Act requires Rural Electrification Renewable Energy Cooperation (REREC) to establish a framework for collaboration with County Governments.

3.1. INEP Framework for Energy Planning

The INEP Framework is currently under development and discussion by the MoE, associated state agencies and other stakeholders, including the Council of Governors as the umbrella body representing Kenya's county governments. The latest version of the Framework reviewed by the LU team dates from April 2021. All references henceforth are to this version.

The INEP Framework recognises the energy planning now takes place in the context of Sustainable Development Goal (SDG)7 on access to affordable, reliable, sustainable and modern energy for all, and that "to provide reliable and affordable energy for all, there has to be a paradigm shift from the traditional energy planning to adequately respond to the evolving global energy market, [and] the changing roles and responsibilities across the energy value chain." (Foreword).

INEP further recognises that "the energy sector is a major enabler of wider economic & social development" (1.8.2). Thus, the INEP appears to acknowledge the increasingly accepted view, that energy planning and service delivery should not be a standalone, siloed process but address "wider societal goals" as expressed in international, national, sub-national (& regional) development goals and plans. At the county level, the INEP Framework specifically references the County Integrated Development Plans (CIDPs) that counties produce every five years as their development programming blueprint, and which inform the production of Annual Development Plans and budgetary allocation (1.8.1).

Furthermore, the Framework recognises that this will "[c]hallenge long-standing assumptions [and] rules-of-thumb in traditional energy planning [….] The traditional energy value chain was linear with energy carriers produced centrally and distributed to a passive end user." (1.2). This assumed passivity of the end user in energy planning is no longer acceptable". The Framework further states that: "Increasingly, environmental regulations, low-cost energy resources, *customer preferences and investments*, and risk management will drive investment decisions" (1.2, emphasis added). Thus, the INEP appears to recognize in principle the need for active participation of customers or end users in the planning of services and that these services should be designed to meet their needs, along with other societal considerations such as environmental sustainability.

The INEP stipulates a process for developing county energy plans (CEPs) and mandates the content of CEPs (this process and the structure and content of CEPs can be found in Annex One. Based on the understanding that previous energy planning prior to INEP has been top-down and the sole purview of the Ministry of Energy (MoE) and its associated agencies at the national level, there is a need to ensure effective collaboration and coordination between the county governments and national government, if truly integrated planning is to be achieved.

3.2. INEP Framework requirements for collaboration between national and county governments for county energy planning

Essentially, the INEP framework recognizes the importance of collaboration, in terms of developing effective interventions, and that this requires a clear and robust coordinating function at the national and sub-national (county) levels.

This is also crucial to ensure meaningful stakeholder engagement in planning. The Constitution of Kenya (2010) "encourage[s] public participation in the management, protection, and conservation of the environment" (Article 69) and the importance of "public participation and involvement in the

legislative and other business of Parliament and its committees'' at the level of the National Parliament (Article 118) and at the level of Couny Assemblies (Article 196). Article 201 requires public participation in financial matters. The County Integrated Development Planning process (CIDP) that takes place every five years includes the requirement for public participation.

The INEP framework builds on this recognition of the critical role playing by participation in national and county development planning and highlights the linkages between effective integration and more inclusive planning approaches.

Each county government is mandated to develop an energy plan that is responsive to its development needs and context (Chapter One of the INEP Framework, see *Annex One*). Such planning requires, according to INEP, a "clearly articulated, transparent, and shared vision of the energy future [that] sets the direction for subsequent decisions about goals, strategies, and actions" (3.3.4). In turn, this requires the engagement from the outset of stakeholders at all levels of planning, for the following reasons:

> Involving a wide range of stakeholders across the government and the entire energy value chain is important because:
>
> i. Broad-based stakeholder engagement helps to lay the foundation for necessary support.
>
> ii. The plan needs the support of departmental heads and officials who are interested in their constituents' and stakeholders' points of view.
>
> iii. Stakeholders have valuable insights to offer and provide real local context for ideas.
>
> iv. Input from stakeholders helps prioritize recommendations based on their aspirations and priorities. (3.3.3)

However, it should be noted that while the INEP Framework appear to recognise the value of more participatory approaches to planning, it does not provide guidance on participatory planning methodologies that could be used for planning at national or county level – or on any other tools or methodologies.

Section 1.7 on **Choice of planning tools for INEP r**efers to the importance of scenario planning and use of modelling tools, and the need to maintain databases to support modelling. Reference is also made specifically to counties using the World Bank ESMAP Multi-Tier Framework (MTF) to identify difference scenarios or levels of energy access for CEP Chapter Three on Energy Access (6.1.9; see also *Annex 4*). However, there is no guidance on *how* counties should use the MTF in planning energy access interventions. In conclusion, there is a critical gap in the Framework in terms of the minimal guidance on specific methodologies and tools that could be used for participatory CEP development, and it is not clear how counties will be supported to build their capacity to operationalise the Framework.

To enhance vertical coordination and collaboration of the stakeholders, the draft Framework designates specific coordination focal points for planning: the INEP Committee and focal person at the national level and the relevant energy department at the County level. More specifically, the following roles and responsibilities for different state actors relating to coordination/collaboration are covered in section 1.5 of the Framework.

3.2.1. Ministry of Energy

The MoE must fulfil the following mandate with respect to INEP, many of which involve coordination with county level actors (see highlighted below):

a. *Provide leadership including capacity building in the preparation of INEP.*

b. *In collaboration with other stakeholders, develop a framework for the preparation of the INEP and energy plans.*

c. Organise stakeholders' engagements in the preparation of INEP.

d. Develop and publish the INEP. An outline for the preparation of INEP is provided in Part Four (4) of this Framework.

e. *Provide an Energy Planning Online Platform for use in INEP, CEP and National Energy Service Providers plans.*

f. Review the INEP after every three (3) years in line with the Act and regulations.

g. *Ensure there are adequate policy, regulatory and institutional frameworks for successful implementation of INEP. A standardised brief of the policy, regulatory and institutional frameworks shall be circulated to county governments for purposes of developing County Energy Plans (CEP[s]).* (1.5.1)

h. Monitor the implementation of INEP.

i. Report on the progress of the implementation of INEP.

3.2.2 National Energy Service Providers (NESPs)

The NESPS are MoE, EPRA, KPLC, KenGen, REREC, KETRACO, GDC, and NuPEA. Their mandates are listed below (again, their coordination functions are highlighted):

a. Prepare energy plans relevant to their mandate and submit the same to the Cabinet Secretary for incorporation into INEP.

b. Provide resources for implementation of energy plans relevant to their mandate.

c. Build the energy planning capacity of their staff.

d. Monitor and report on the progress of the implementation of their energy plans relevant to their mandate.

e. Collaborate with County Governments during planning and implementation of energy projects . (1.5.2)

In addition, NESPs are required to provide advisory services to Counties, namely "engage with relevant County Governments with regards to their county energy plans and energy requirements". It should be noted that the MoE in this context is limited to licensing geothermal and downstream coal as a national service provider.

In turn, County Governments are required to "collaborate with national energy service providers during the planning and implementation of energy projects". INEP Framework Section 1.6 provides an advisory on the undertaking of energy projects by counties or NGOs. These entities are supposed to engage MoE concerning the plans of relevant national energy service providers before concluding county plans. Specifically, they are to consult:

a) MoE on policies, regulations, and development of energy resources
b) KPLC concerning planned distribution lines, substations, and wayleaves, to ensure complementarities of county energy plans to those of the national agencies.
c) EPRA concerning applicable regulations and licenses.

d) REREC concerning planned electrification in rural areas, renewable energy programs, and energy center development.
e) KETRACO for planned transmission lines and associated substations.
f) NuPEA on planned nuclear programs, research, development, and capacity building.
g) GDC for planned geothermal development and resource management programs.
h) KenGen concerning planned geothermal development, resource management, and generation programs. (1.5.3)

3.2.3. The role of other actors in coordination

Other National Government Ministries, Departments and Agencies (MDAs) may also have a role to play in coordination, in terms of supporting county governments for instance with developing energy-enabled sectoral programmes and investments under the CEP (see highlighted below):

a. Propose interventions in the INEP.

b. *Provide resources for implementation of interventions relevant to their mandate.*

c. Monitor & report on the progress of the implementation of INEP relevant to mandate. (1.5.4 and 1.5.5)

In addition to these actors, development partners are supposed to "Provide resources for capacity building, development and implementation of INEP". However, as above, it is not clear what specific resources and what type of capacity building; how these capacity building needs will be identified; and what type of resource will be available to support county energy planning.

Finally, the Council of Governors has as significant coordination role to play, as follows (with the same caveats as above for its role in coordinating capacity building):

a. Coordinate all the forty-seven (47) county governments in preparation of the energy plans.

b. Coordinate capacity building for county governments in energy planning. (1.5.5)

3.3 INEP Framework requirements for collaboration on data collection and sharing for county energy planning

The INEP Framework recognizes the need for collaboration between and among the national, county governments, and other stakeholders, such as the national service providers, to ensure the county's energy objectives are realized, and for the delivery of energy access for all Kenyans. This includes collaboration on data collection, sharing and analysis, for effective county energy planning.

In terms of the draft content of CEPs, there are numerous references to the need for counties to collect both secondary and primary data to support the different chapters of the CEPs (e.g., 6.1.10 for Chapter Four on Energy Efficiency) including the requirement for stakeholder engagement on data collection and analysis in Chapter Nine of the CEP, during the monitoring and evaluation of the CEP (7.1.14)

Certain data provision functions are designated under the INEP Framework. This includes the requirement on the Ministry of Energy (MoE) in Section 2.2.2. for general "[c]ollection and maintenance of energy data" and, specifically, the MoE in Chapter Six, sections 2.3 to 2.9 (County Energy Plans) is required to provide standardized briefs on resource assessments for development of Chapter Two of the CEP (Energy Resource Assessment). The resources the MoE must provide

data on are the following:

- Geothermal potential
- Hydropower potential
- Solar potential
- Wind resource potential
- Fossil fuel potential
- Nuclear programmes
- Any other energy resources

The INEP also established a Committee (INEPC) whose terms of reference include the following data management functions (*Annex 3: Terms of Reference and Membership of the Integrated Energy Planning Committee*):

- Collect, collate and analyze data and information relevant for energy planning.
- Provide technical data, statistics, and information to policy makers in the energy sector as may be appropriate from time to time.

INEPC is also mandated to "[f]ollow-up on data gaps and ensuring adequacy of information and data." (3.2.2). Counties are similarly mandated to carry out a general function of "collection and maintenance of energy data" and, as part of the preparation of their plans to:

- Follow-up on data gaps and ensuring adequacy of information and data in their energy plans.
- Consult with other relevant national energy service providers to get data (1.5.3)

In Section 1.6 of the INEP Framework, counties are advised to seek national reticulation plans and geospatial maps from MoE and statistics from the Kenya National Bureau of Statistics (KNBS). They are also mandated along with the other agencies involved in planning to consider cross-cutting issues, including gender in planning. This includes consideration of the data needs to identify and integrate gender issues in their plans including the "types and courses of data needed" and whether "women involved in the collection and interpretation of this data" (4.2).

However, INEP provides minimal guidance on the tools that counties could use to carry out this data gathering and analysis or specific institutional mechanisms that can support counties to fill the data gaps they are mandated to address. Again, Section 1.7 on **Choice of planning tools for INEP r**efers to the importance of scenario planning and use of modelling tools, and the need to maintain databases to support modelling but with minimal detail. There is similar reference to "several gender analytical tools that are available to energy planners" but these are not specified. The one data gathering tool that is included is the *Data Collection Tool For County Energy Profile* in Annex 3 of the Framework. Overall, it is not clear how national actors will support counties in data gathering and the mechanisms and frameworks that will be put in place to ensure this coordination is effective.

As will be discussed in the next section, county energy planning experience to date in Kenya shows there are significant challenges in relation to coordination and collaboration between national and county level actors for planning.

4. Current support for county energy planning

Different stakeholders are currently supporting county governments to develop their county energy plans using different planning approaches/methods and tools. These stakeholders include the MoE through the Sustainable Energy Technical Assistance (SETA) project, the World Resources Institute (WRI), and Strathmore University. Development organizations such as GIZ, WWF, and SNV are also funding county energy planning processes. One of the most recent programmes targeting a large number of actors involved in energy planning is the SETA Project.

4.1. SETA Project

The SETA project (2020-23) aims to assist the national energy institutions and the county governments through a comprehensive capacity development program in developing resilient and implementable sustainable energy plans under the INEP Framework.[1] SETA is a partnership with the MoE and is funded by the European Union. SETA is led by Innovation, Energie, Développement (IED) and Practical Action. The Centre for Sustainable Transitions (STEER) at Loughborough University and the International Institute for Environment and Development are project partners. The intended impacts of the SETA project are the following:

- Improved capacity of the energy sector actors and other stakeholders at the national and county level for integrated planning, developing and implementing RE, EA, and EE projects.
- More effective engagement in energy planning of the private sector and CSOs, and vulnerable and poor groups, mainstreaming of gender, climate change, environment, and other critical issues.

SETA has adopted the Energy Delivery Model (EDM) methodology (see Section 4.3.) as a means of both designing the first generation of CEPs in 12 counties (under what is termed the Advanced Training Programme or ATP) and more widely strengthening the understanding of inclusive and cross-sectoral planning approaches among other counties (46 counties participated in a Basic Training Project) and national actors (including MoE and other national service providers, the Council of Governors, private sector and civil society organisations). This includes ongoing discussion with officials in the MoE and other agencies involved in developing the INEP Framework.

4.1.1 Coordination challenges for national and county energy planners identified by SETA

As part of its inception, the SETA project carried out baseline studies in early 2021, including a capacity assessment with county energy departments which identified several challenges relating to coordination and collaboration with national actors to support county and national integrated energy planning. These can be summarised as follows. First, a systematic lack of organised coordination between national and county through clear institutional mechanisms and frameworks and the following cultural, capacity and institutional barriers to effective coordination:

[1] See https://www.seta-kenya.org/.

1. Culture of planning in silos by different departments (both horizontal county to county and national to national; and vertical, national to county levels)
2. Low capacity and understanding on how to engage other relevant energy and development sector actors both at county level (e.g., the energy docket does not communicate with the Directorate of Planning and other key sectoral ministries) and national level for CEP and CIDP/ADP and individual project/initiative planning (national, county government, and donor-led). This was linked to low numbers of staff with technical expertise in energy dockets and the perception that there is a lack of understanding among county government (and national sectoral ministry) staff of the role of energy as an enabler.
3. The politicization of the planning process – resulting in poorly planned projects/i, prioritization of 'low-hanging fruit, and diversion of resources from properly planned or sustainable projects/interventions.
4. Lack of resources to facilitate horizontal and vertical collaboration for integrated planning.
5. Communication channels between national energy entities and county governments on energy development are not formalized or effective, including for data sharing.
6. County governments expressed concern about being involved only at the end of the planning process for projects/interventions initiated by MoE and NESPs. There is a sense that county planners perceive they are only asked to rubber stamp energy projects without meaningful consultation. Where county governments reported working effectively with these national agencies, it often stemmed from personal relationships, or the initiative of the particular county and national staff involved.

There are also significant challenges related to coordination on data collection, sharing and analysis, for energy and other sectoral data required for planning. These challenges include:

- Overall, lack of county access to current and reliable data for energy and other development sectors to inform evidence-based planning, especially at the county and sub-county levels.
- Lack of institutional mechanisms and culture of sharing of data vertically (national to county) and horizontally (county to county or national to national agency).
- Lack of awareness of how to access/request energy data from national energy service providers such as KPLC or REREC.
- Lack of technical capacity to collect, store and analyse data at the county level.

SETA has been attempting to address some of these issues by bringing together national and county level planning actors for its training activities, as well as identifying designated National Mentoring Experts (NMEs) within the national energy service providers and the MoE whose role is to support counties with energy planning (each acting as a focal point for a particular county).

4.2. The Energy Delivery Models (EDM) planning approach

The EDM approaches energy as an enabler of wider development needs and through a six-step process (see Figure 1), systematically identifies the varied needs and contexts of end users (in this case, county citizens) and the gaps or barriers preventing these priority needs being met. These gaps can involve energy or other, non-energy factors (e.g., cost of inputs or access to markets for

farmers). EDM then works with end users and other stakeholders to develop context-appropriate and costed solutions for inclusion in the CEP, and to inform Least Cost Electrification (LCE) and energy efficiency (EE) investments.

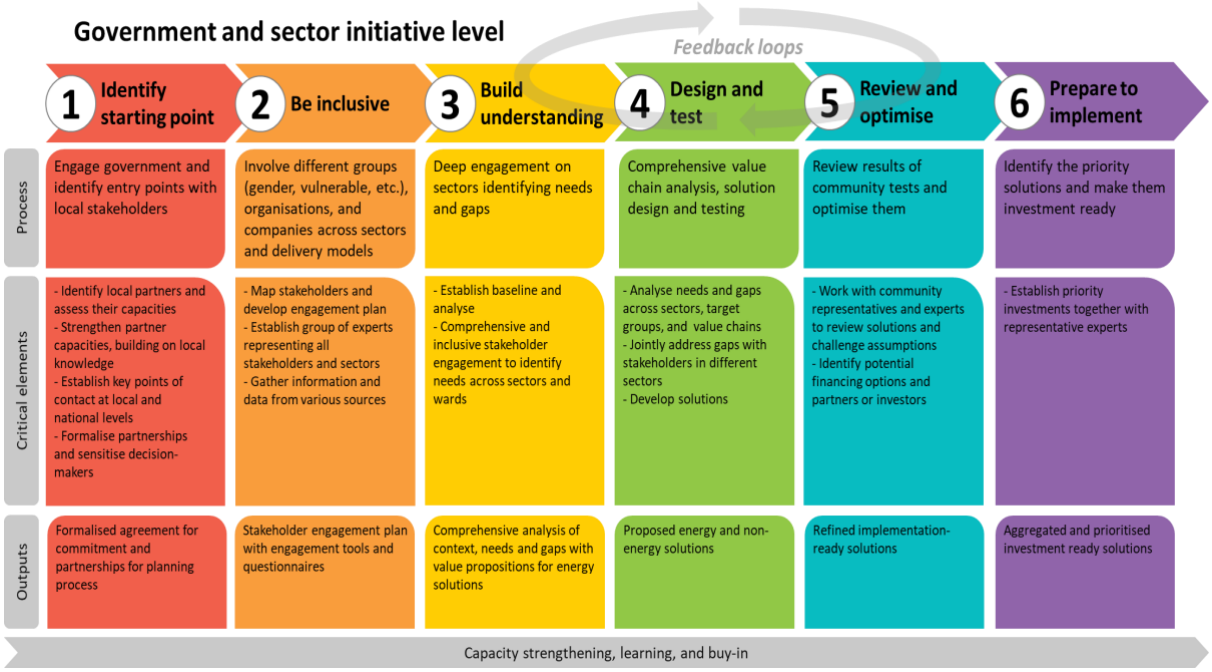

Figure 1: Energy Delivery Model (EDM) 6-step government and sector-level process for county energy planning (source: Garside & Perera 2021)

The EDM approach was developed and tested for use at the community level in Indonesia and used subsequently to design new services and review existing projects in different countries in developing Asia and sub-Saharan by NGOs, businesses, and social enterprises. More recently, it has been adapted for use at the macro-level of county energy planning in Kenya, notably to develop the Kitui County Energy Plan (CEP), which was validated in November 2021 and now a CEP for Meru County as a demonstration plan for eleven other counties under the SETA Project.

The EDM approach recognises that coordination and collaboration between different stakeholders, including at national and county level, and across sectors is vital throughout its six steps to develop needs-and evidence-based solutions that meet the priority development needs of county citizens and are financially, environmentally, and socially sustainable.

Through its inclusive methodology, EDM engages local - and relevant national - stakeholders across sectors along the planning cycle to build understanding and buy-in of both the priority needs and the solutions developed to address them. This increases the likelihood that CEPs will be taken forward to implementation through the next generation County Integrated Development Plan (CIDP) and Annual Development Plans (ADPs).

The ways that EDM does this are in Steps One and Two of the EDM to:

1. **Establish buy-in and form a partnership with the County government**. This formalises the planning mandate across county government, identifies key contact points between county

and national level planners and other relevant ministries, and sensitises relevant stakeholders to the planning process and activities. It also identifies initial priority focus sectors for the process. A cross-sectoral Technical Committee is established for regular review and input to the CEP process, including validation of solutions developed. While the CEP process is managed by the Department of Energy, there is a Focal Point for the whole process, which in Meru is the Director of Planning but could also be an independent actor. The Focal Point's role is to coordinate and progress actions among all actors involved in the CEP development.

2. **Map relevant stakeholders.** The aim is to be inclusive, mapping stakeholders that will help with further data gathering, as well as participate in later stages of planning, such as the needs assessment (Step Three) and solutions design (Steps Four to Six).

In these latter steps, ongoing c engagement with national entities – government, private sector, NGOs and development partners - for data collection and sharing and to build understanding of relevant policies and sectoral programmes/projects that could support solutions development and/or implementation of CEP solutions and priority investments, including through technical assistance and co-financing, is critical.

Many of the challenges outlined above in relation to vertical coordination and collaboration were experienced during the development of the CEPs for Kitui County and are currently being experienced in Meru County, including significant challenges with data sharing. The detail of the collaboration required from national level entities is detailed in the mapping of Data Needs for County Energy Planning (the Mapping), along with suggestions of how coordination between national and county level actors for data collection and sharing could be improved. The aim of this paper is to dig deeper into the challenges identified by county planners during the capacity assessment for the SETA Project, especially given that many counties are now two years into the capacity building project.

5. Stakeholder views on challenges to vertical collaboration to support county energy planning

5.1. Methodology for obtaining stakeholder views

The methodology used to understand stakeholder views were Key Informant Interviews (KIIs) and one Focus Group Discussion (FGD) carried out in person in Kenya in October 2022. The interviews were aimed at seeking the views of a cross-section of actors actively involved in delivering or supporting county energy planning. They were carried out by the National Lead for the Loughborough-IIED EDM team under the SETA Programme and a Research Assistant on the UK PACT CCG Project from Oxford University. A sample of the questionnaires used is given in *Annex Two*.

The following categories of Key Informants (KIs) were interviewed:

1. County Government Staff involved in developing CEPS: four representatives from Kitui County, Meru County, Nyandurua County and Kisii County.
2. Officials from National Energy Service Providers (NESPs) involved in the SETA Training Programme, two of whom are acting as NMEs to county governments: five representatives from KPLC, REREC, NuPEA, and GDC.
3. Representative from the Energy Committee of the Council of Governors

4. Representatives of CSOs or development organisations with experience of providing technical assistance to county energy planning: two representatives from IED and from CARITAS Kitui.

The research was limited by the difficulty of organising interviews due to the busy schedules of many of the actors and interruptions due to the electoral process, which caused delays. Further interviews were sought with representatives from categories one, two and four above, as well as with representatives of the MoE and the INEP Committee (focal point).

The briefing is intended as a working document that will be a starting point for further outreach and discussion with key actors involved in developing the INEP Framework and in delivering or supporting county energy planning in Kenya. The briefing will be used for further virtual and in-person outreach in Kenya, including further KIIs and a workshop event in quarter four of the UK PACT Project (January 2023) which will feed into the overall project output on County Energy Guidelines under 3.1 (Knowledge Products).

5.2 Understanding of coordination functions under the INEP Framework

None of the actors interviewed had a detailed understanding of the mandates of their agencies under the INEP Framework, particular as concerns their coordination functions. This may be because the Framework has not yet been finalized and because the extent of the consultation on Framework, although unclear, appears limited. It should be noted that the NMEs, county government and county government officials interviewed for this research had been given (limited) information on INEP roles under the draft Framework as part of SETA training.

Three out of the five NESP representatives were aware that the INEP Framework is being developed but are not aware of the specific functions that their agencies are mandated to play in supporting the county governments and said they had yet to be fully engaged in the development of the Framework. The representative from KPLC was aware that under the INEP framework NESPs prepare sectoral plans and KPLC will take lead in the preparation of the Least-Cost Power Development Plan (LCPDP) that will be an input for Chapter Six (Electricity) of the CEPs but did not outline any further coordination or collaboration functions for his agency.

One REREC representative stated that one of their functions would continue to be provision of data and technical assistance, particularly around GSI data access and sharing.

The county government representatives were aware of which national agencies should be supporting CEPs from the SETA training and their interactions with NMEs but did not know the specific functions allocated to county governments under the INEP Framework. The CSO representative was not aware of the INEP Framework but understood that several of the NESPs had a role to play in supporting county planning from previous experience of supporting the CEP in Kitui County.

According to the Council of Governors KI:

> *Although the Energy Act of 2019 has clearly outlined the roles of county governments and national agencies, there seems to be a disconnect in the implementation of the Act. For instance, REREC has been tasked by the Energy Act to support county government in capacity development. However, instead of assisting, it is taking up the mandate of managing such functions contrary to the Act.*

5.3 Challenges experienced to date in supporting the county/ies with energy planning and how they were addressed

From the county perspective all counties interviewed highlighted the bureaucracy and time involved in getting data and information on projects, initiatives etc., from national agencies: "the current channels are too laborious", as one KI put it. Another referred to it being an "uphill struggle" while a third stated that it was necessary to have "influence" to access certain information. However, another county felt that this was more to do with poor functioning of existing communication channels. Several counties specifically mentioned the difficulties in accessing energy data from KPLC and REREC, with one stating regarding access to data from KPLC that "the process is endless". This challenge wsas also noted by the CSO KI, who critiqued the lack of a data sharing protocol with KPLC to enable planning Another stated that the CoG was established partly to enhance communication with the national government, but this did not seem to be effective, an interesting insight given that CoG appears to play a critical coordination role to enhance vertical collaboration under the Framework.

Another challenge mentioned by several KIs was lack of resources to carry out planning, as well as lack of technical assistance from national agencies for implementation of projects: as with the SETA capacity assessment, the lack of an inclusive approach to planning county level energy projects (in this case by REREC) as well as politicization of the planning process was mentioned.

The main way in which counties and the CSO KI tried to address the communication challenges was to supplement the formal requests with informal outreach and networking.

For several of the NESP KIs, as well as for the CSO KI, key challenges identified included some of those mentioned by counties, notably:

- Lack of institutional mechanisms to enable coordination
- Lack of resources to carry out energy planning
- Lack of a common data-sharing framework

For the Council of Governors, the issue around resource constraints to develop CEPs is critical:

> *Lack of resources at the county level will also affect the development of integrated energy plans. The plans are relatively expensive and require proper funding from energy departments at the county level for them to be carried out. Limited funding may prevent counties from undertaking such approaches.*

The CoG, CO and NESP KIIs further identified:

- Lack of capacity of actors involved in CEPs to carry out integrated and needs-based planning
- Low awareness of the role of energy as an enabler for wider development impacts among county staff

Issues around lack of coordination and other challenges around data sharing, plus capacity needs of counties will be explored further in the next sections. To address the issue of limited understanding of the enabling role of energy, the CSO KI mentioned that her organisation had carried out targeted training for county staff across the departments and directorates.

One of the NESPs also referred to the issues of institutional turnover at county government level (changes at Director, Chief Officer or Ministerial level) as well as poor planning processes and

politicisation of the planning process, meaning that technical assistance and resource was given by his agency to projects that were either poorly implemented or not implemented at all.

The issue of staff turnover and politization of the planning was also mentioned by the CSO KI as interfering with effective CEP planning. The Council of Governors KI referred to "[p]opulist approaches adopted by politicians may affect the planning process. For instance, politicians may prefer quick projects as opposed to adopting a planned approach."

To address such issues, the CSO mentioned the importance of having clear, needs-based planning methodology and ensuring ongoing engagement with technical staff across different ministries including the energy department, as well as the critical role that external stakeholder such as CSOs can play in advocating for needs-based approaches and providing ongoing support for planning.

COG - Low awareness of the role of energy as an enabler for wider development impacts among national and/or county staff; the crucial role of energy in development is not widely understood among the staff who are supposed to implement the integrated energy planning. This is evident from the structuring of county departments there is no consensus on where the energy department should be designated. In some counties, it is under climate change, in others under environment or roads and infrastructure

Additional challenges highlighted included related to insufficient numbers of trained staff at county level to conduct all the processes required for developing a CEP under the INEP Framework and, second and linked to this, past practices in energy planning, whereby planning was carried out in a "top-down", non-participatory way by national agencies, according to the Council of Governors KI:

> *The national government has undertaken previous large-scale energy projects without involving the host counties. National government agencies such as Ken Gen and GDC are responsible for developing mega-energy projects. These bodies usually do not engage the counties in their plans. Additionally, these organs majorly implement national government energy plans thereby leaving out the county governments. Without having a framework to direct these agencies to implement county plans, it will be difficult for counties to actualize their targets.*

This approach was seen as linked to the need to a lack of capacity among county planners to use more inclusive, needs-based approaches: "evidence and need-based approaches need experts to carry out data collection and data analysis. The unavailability of such skilled professionals at the county level will affect their energy planning."

One national-level KI expressed the view that top-down planning of energy infrastructure should be maintained to avoid duplication and "to mitigate the unsustainability of the electricity sector". There would be a role for county energy planning in terms of "demand aggregation and forecasting, and perhaps energy efficiency initiatives". Howeve, given the stipulations in the Energy Act (2019) and the INEP Framework, this seems unlikely.

5.4 Specific challenges experienced with coordination of data collection sharing and analysis

All the KIs highlighted specific challenges with data collection and sharing between national and county actors. This included on the part of the county KIs:

- Lack of or limited established channels for data sharing
- Lack of technical capacity to collect, store and analyse data to inform planning at the county level

- Lack of access to current and reliable data to inform evidence-based planning, including at the sub-county and ward level.

Counties also mentioned difficulties in accessing data horizontally, between county departments, as did the CSO KI. The CSO KI stated that for the Kitui CEP: "a lot of primary data collection was done to complement the data generated from the national government documents like the census reports […] there were departments like health, and water that had relevant data but was very slow in releasing the data".

These data accessibility and quality challenges were also further unpacked in the KII with the Council of Governors:

> *In most instances, national actors hold crucial energy data, yet county actors cannot access it due to bureaucracy and data privacy laws. Counties undertaking baseline surveys supported by SETA have raised a concern that KPLC is not providing them with the data they needed. Data is usually subject to time frame. Currently, the National Census is the only national wide that regularly collects reliable data that can be used in evidence-based planning. However, the census is conducted every 10 years and thus may become obsolete to use at some point.*

These views were also shared by some of the NESP KIs, though one NESP stated that county government were also not aware of which channels currently exist to access/request data from national service providers (e.g., KPLC). This was also echoed by one county KI.

A further challenge related to data management was highlighted by one of the NESPs. NESPs may not hold energy data to the level of disaggregation (e.g, by sub-county and ward) or end user type (e.g., sectoral users) required for county planning for historical reasons of the way their data collection and management systems are organised.

REREC also highlighted challenges with finding data on location of schools, health centres and other facilities due to a lack of geospatial data and suggested counties could help with the geospatial mapping of their facilities.

5.5 Capacity building requirements of counties

All the NESP actors involved in supporting counties shared the concern that counties did not have the requisite technical capacities required for energy planning but along with the Council Governors KI suggested that capacity needed to be built in evidence- and needs- based planning methodologies. According to the NESPs: "this should not be limited to particular tools but should instead be about the principles of planning."

The types of capacity building that were highighed as pre-requisites to effective CEP planning included the following:

- Capacity for data collection, management, and analysis. This was seen by the Council of Governors as "primary in establishing evidence-based energy plans [….] and the formulation of realistic, and sustainable solutions by one NESP KI.
- Capacity in energy access, including "supporting county off-grid renewable energy projects will ensure energy access in remote areas and spur economic development."
- Capacity in developing business models for solutions identified in energy planning is needed to attract investors and other stakeholders. According to the Council of Governors, "lack of

expertise on how to transform solutions into viable business models may limit the implementation of the solutions

- Capacity on gender and social inclusion in energy and development planning.

5.6 Suggestions for how to improve coordination between national and county level agencies

5.6.1 Data sharing and governance

In relation to improving data sharing, all the KIIs suggested potential actions. These include the following:

- REREC suggested that the MOE should "spearhead a committee to work on [energy] data-sharing arrangements […] It should have a structured framework with a clearing house, access portal, access protocols, etc. The different energy sector players should describe their data before depositing it in the clearing house. Whoever may need the data would typically access the metadata before ordering the actual data. This would save time and resources [and] would require supplementary legislation." SETA also noted that SETA had recommended to the INEP task force the inclusion of data access and governance in the INEP Regulations to make it enforceable
- REREC also suggested that data collected from the CEP processes should be retained in a central depository. The SETA KI further noted that "SETA as part of its activities is supporting the establishment of a national data governance platform that will be responsible for the custody of energy planning data. This includes collection, management, updating, and access to the data".
- County KIs further noted the need for data required for energy planning to be regularly updated and that "there is need for awareness raising on data sharing and its importance and encourage close working relationships between national and county government teams".
- In addition, one county KI and one NESP suggested counties should have their own databases for all the sectors considering that each of these sectors requires energy, and that capacity building on this was required. Another KI commented that there is already a national integrated monitoring and evaluation system (NIMES) and each county is allocated one person who is trained by the Department of Planning to input county-specific data regularly or as data is generated. However, most counties are not updating or inputting into the dashboard as envisaged. A functional county integrated monitoring and evaluation system (CIMES) could be developed for collecting and storing data.
- The Council of Governors KI suggested that in addition to a data repository, "stakeholders can consider establishing joint-research initiatives to leverage synergies or even establish one energy research centre akin to KEMRI, KEFRI, or KIRDI."

5.6.2 Establishing institutional coordination and communication mechanisms with clear roles and governance structures

Most of the KIs pointed to the need for clearer communication and enhanced coordination between national and county actors to support CEPs going forward. One KI summarised this view as follows: "Institutional mechanisms, while complex to navigate, ultimately lead to more sustainable and collaborative engagements." The following concrete suggestions for how to operationalise this were made:

- The Council of Governors stated that it is planning to host a regular meeting between the national government, national agencies such as REREC, and county governments to ensure that their energy strategies align with plans formulated by counties.
- One current activity undertaken by the Council of Governors is facilitating quarterly consultative meetings between CECMs in charge of Energy to track energy planning in counties and identify areas of partnership.
- Another approach suggested by an NESP KI was to hold high-level consultative forums between MoEP, power sector corporations, COG, and other stakeholders to create awareness of INEP and obtain buy-in. Several counties also highlighted the need for awareness-raising of national and county government actors about energy as an enabler.
- County government KIs suggested that dedicated Liaison Officers were needed as a bridge between counties and the national government. Several suggested building the capacity of existing regional economic blocks to play this coordination role between the national governments and the counties within the block on key and common issues or potentially the Council of Governors.
- Having technical committees in terms of communication so that there is a clear chain of command and information flow. It should be noted that the INEP Committee and Focal Person envisaged under the INEP Framework is supposed to fulfil this function.
- It was also suggested by a county KI that at county level there should be one coordinating entity for CEPs and these should be integrated with CIDPs to ensure joint programming, investments, and resource sharing. One KI suggested that the Energy Department could be play this coordination role if sufficiently resourced, wherever the budget for implementation of CEP investments sits.
- Whatever the Framework or mechanism adopted, one county KI stated that this must be implementable and work in practice.

5.6.3 Ongoing support and capacity building for county planners

- Several KIs suggested that coordination of training efforts by development actors supporting national and county energy planning could be supported by the establishment of a national planning hub
- The main strategies adopted by CoG in promoting capacity building in counties include; induction of county leadership on issues affecting different sectors, advising counties to form relevant sector committees to address specific issues, informing county leadership on the roles of county governments, especially for shared functions, draft and share CoG position

papers on emerging issues affecting counties, regularly provide policy briefs to create awareness about policies and laws affecting the functionality of counties.

- For a specific example, CoG has helped county governments prioritize climate change concerns through the Natural Resources Committee. The committee has conducted sensitization programmes targeting county leadership to ensure counties understand their role in climate change mitigation.
- Training of county government officials on energy as an enabler of development
- Training of government officials on integrated and inclusive energy planning approaches, including how to integrate the CEP with the CIDP process.

5.6.4 Resource constraints

Throughout the KIs, the issue of resource constraints arose, and this also applies to suggestions for how to enhance vertical coordination going forward. There was a shared view among national and county KIIs that resource limitations hindered data sharing and data collection, capacity strengthening, the CEP planning process itself, as well as impacting institutional coordination and collaboration.

6 Annexes

6.1 Annex One INEP CEP Process and content

6.1.1 INEP CEP Process

3.2. Development of County Energy Plans

This section provides an eleven (11) step-by-step process for developing and/or review of the CEP as listed herein below;

a. Stage 1: Preliminaries
b. Stage 2: Establish a County Energy Planning Committee (CEPC)
c. Stage 3: Identify and engage stakeholders;
d. Stage 4: Formulate a vision and re-assess objectives;
e. Stage 5: Conduct situational analysis of the County energy profile;
f. Stage 6: Develop energy goals and strategies;
g. Stage 7: Identify and prioritize actions;
h. Stage 8: Develop funding and financing strategy;
i. Stage 9: Develop a blueprint for implementation of CEP;
j. Stage 10: Plan to monitor and evaluate; and
k. Stage 11: Refine, adopt and publicize the CEP and INEP.

3.2.1. Stage 1: Preliminaries

3.2.2. Stage 2: Establish a County Energy Planning Committee (CEPC)

a. Appoint a CEPC.
b. Identify CEPC Programme Coordinator.

3.2.3. Stage 3: Identify and engage stakeholders

a. Identify Stakeholders
b. Engage stakeholders.
c. Plan to maximise stakeholder value throughout the planning process.

3.2.4. Stage 4: Formulate a vision and re-assess objectives

a. Identify guiding principles and priorities to use as a basis for the vision.
b. Create a focused vision statement.

3.2.5. Stage 5: Conduct situational analysis of County Energy Profile

a. Develop the scope and constitute a team of experts to undertake the energy profile work. This may be outsourced where necessary.
b. Assess current energy use and supply.

c. *Identify potential future energy supply.*
d. *Analyze the existing energy activities, projects, plans, programmes and policies of the national government, county government, development partners, private sector stakeholders and non-governmental organizations.*
e. *Identify available human and organizational resources to help implement CEP.*

3.2.6. Stage 6: Develop Energy Goals and Strategies

a. *Choose effective language to communicate the goals.*
b. *Develop clear and measurable goals.*
c. *Identify strategies for achieving goals.*
d. *Integrate input from stakeholders.*
e. *Publicize goals and strategies.*

3.2.7. Stage 7: Identify and Prioritize Actions

a. *Establish a system to rank ideas.*
b. *Identify policies, programmes, and projects to consider.*
c. *Rank and evaluate options against goals and strategies.*

3.2.8. Stage 8: Develop Funding and Financing Strategy

a. *Understand financial requirements for different types of energy actions.*
b. *Identify potential financing and funding sources.*
c. *Design a suite of financial mechanisms for proposed CEP activities.*

3.2.9. Stage 9: Develop a Blueprint for Implementation of the CEP

a. *Develop a blueprint.*

a. *Develop a blueprint.*
b. *Establish operational responsibilities.*
c. *Incorporate the CEP into other planning and budgeting activities.*

3.2.10. Stage 10: Plan to Monitor and Evaluate

a. *Establish a plan for performance measurement and reporting.*

3.2.11. Stage 11: Develop, Adopt, and Publicize the CEP and INEP

a. *Prepare a final CEP.*
b. *Have the CEP officially adopted.*
c. *Publicize and commence implementation of the CEP.*
d. *Develop communication and public relations strategies for the CEP.*
e. *Evaluate and report on the effectiveness of the full CEP and its components on a regular basis.*
Update the CEP when necessary to ensure the best results.

6.1.2. INEP CEP Content

6.1.3. Foreword

The Foreword should contain the rationale for preparing the CEP and the highlights of the development priorities of the county during the plan period. The statement will outline the linkages to the energy sector policy, legal and regulatory frameworks. It will also state how stakeholders have been consulted and engaged, and the process used in identifying the needs and prioritising actions. The Foreword will further stress the county's commitment to the implementation of the plan, together with the key steps to be taken to ensure successful implementation. The foreword shall be signed by the Governor.

6.1.4. Preface

The preface shall highlight the purpose for preparing the CEP and the linkage to CIDP and the requirement for the development of INEP by the Energy Act, 2019. State how the process of CEP development involved consultation, participation and inclusivity of all the stakeholders.

Discuss briefly the objectives and how they will be achieved in terms of strategies. Also highlight the main focus of CEP in terms of key areas (energy sources, energy access, bio-energy, electricity and energy efficiency and conservation), programmes, projects, implementation matrix and its contents, financing, M&E framework and its use in tracking and reporting on its implementation.

Highlight how CEP will be implemented and the key stakeholders and what is expected from them. Highlight the establishment of CEP Committee and its role in development of the plan. State need for support from stakeholders and assure the commitment of the County towards the

implementation of CEP. The preface shall be signed by County Executive Committee Member (CEC) in charge of energy.

6.1.5. Acknowledgement

This section will acknowledge any financial or technical support the county may have received in preparation of the CEP. It will also express appreciation of people who helped in development of the plan.

6.1.6. Executive summary

This section will present a summary of the major qualitative and quantitative features of the plan, recommended projects, priority projects and other actions. It will also briefly explain the main financing plans for the execution of the CEP. The linkage between the actions and expected results will be highlighted, with specific targets, outputs and outcomes mentioned.

6.1.7. Chapter One: Introduction

- ***1.1. Background:***
- ***1.2. This section should provide background of the energy planning, which may include the rationale for the CEP, history of energy planning, plus challenges and opportunities.***
- ***1.3. Process of development of County Energy Plan.***
- ***1.4. Integration of county energy planning into the CIDP process.***
- ***1.5. County Overview:***
  - 1.5.1. Location and size
  - 1.5.2. Demographic features
  - 1.5.3. County economy.
- ***1.6. Development partners, Private actors and non-governmental organizations in the county's energy sector.***
- ***1.7. Policy and regulatory framework for the energy sector:***
  The INEPC will provide a standardised brief on policies and strategies, to be adopted by counties for purposes of this section.
- ***1.8. Applicable legislations on energy in the County***
  Counties should strive to align their county specific legislations on energy to the national legal and regulatory framework.

6.1.8. Chapter Two: County Energy Resources Assessment

This section details all resources and provides statistical data in terms of technical viability and level of current exploitation. Moreover, it specifies functions of the county government in relation to the exploitation of the resource. It also relates the county energy resources to national statistics. Further, it describes energy resources and potential in the county, including projections based on the available data. The required data for the county energy resources assessment include:

a. Availability of fuel wood in the area.
b. Source of fuel wood supply.
c. Amount of agricultural residues (paddy straw, rice husk, maize, millet, sorghum, legumes) produced by a household.
d. Number of cattle owned and their potential for the provision of feedstock for biogas.
e. Location and capacity of potential hydropower generation.
f. Potential of solar power.
g. Location and capacity of potential geothermal power generation.

h. Wind power generation potential and location.
i. Inter-county energy resources potential.
j. Other energy resources potential.

The resource assessment activity framework focuses on five key dimensions: availability and economic potential, adequacy, sustainability, ease of access and cost of use.

2.1. Assessment of biomass energy resources

The biomass resource assessment should inform on local availability, proximity of biomass resource sites and accessibility to local users. It is essential to highlight specific concerns about biomass in the planning framework due to its local availability from forested areas:

a. Differentiate forest areas under the National Government and county government.
b. Establish the supply and demand of forest cover in the county.
c. Identify biomass deficit in the county.
d. Indicate county biomass imports and exports.

The above information could be obtained through the county statistics office, users' survey or stakeholders in the area. The section below discusses the information required to estimate production and potential of fuel wood, agricultural residues, and animal waste, using a general approach.

a. Fuel wood: A map outlining the spatial extent of the various types of ground cover and biomass is required to estimate the production potential of fuel wood.
b. Agriculture residues: The resource assessment requires information on monthly or annual production of agricultural residues locally. The necessary information includes grain production and residue-to-product ratio. The residue-to-product ratio can be estimated through direct measurement in the field during harvesting.
c. Animal waste: Estimates of production potential of animal waste can be based on the population of a particular type of animal and the corresponding animal waste productivity factor per head.

2.2. Assessment of waste resources

The county government to carry out feasibility studies on waste-to-energy potential in the county. This service can be outsourced.

2.3. Assessment of geothermal resources

The MoE will provide a standardized brief on the status of geothermal resource potential and ongoing resource assessments to be adopted by counties. The county government may propose plans and actions to complement and enhance national plans and actions for this assessment.

2.4. Assessment of hydropower resources.

The MoE will provide a standardized brief on the status of hydropower potential and ongoing assessments to be adopted by counties. The county government may propose plans and actions to complement and enhance the national plans and actions for this assessment.

2.5. Assessment of solar resources

The MoE will provide a standardized brief on the status of solar potential and on-going assessments to be adopted by counties. The county government may propose plans and actions to complement and enhance the national plans and actions for this assessment.

2.6. Assessment of wind resources

The MoE will provide a standardized brief on the status of wind resource potential and ongoing resource assessments to be adopted by counties. The county government may propose plans and actions to complement and enhance national plans and actions for this assessment.

2.7. Assessment of fossil fuels

The MoE will provide a standardized brief on the status of fossil fuel potential and ongoing resource assessments to be adopted by counties. The county government may propose plans and actions to complement and enhance national plans and actions for this assessment.

2.8. Assessment of Nuclear programmes.

The MoE will provide a standardized brief on the status of Nuclear programmes. The county government may propose plans and actions to complement and enhance national plans and actions for this assessment.

2.9. Assessment of other energy resources

The MoE will provide a standardized brief on the status of any other energy resources not listed above. The county government may propose plans and actions to complement and enhance national plans and actions for this assessment. The update on the county's energy resource potential and current level of exploitation will be documented as per the table below:

PROSPECTIVE SOURCES				
Sector	**General description**	**Volume/ area**	**Potential energy capacity**	**Location**
Waste				
Cattle manure				
Corn residues				
Rice husks				
Bagasse				
Agricultural waste				
Municipal waste				
Solar				
Solar radiation by area				
Wind				
Wind potential by area				
Hydro power				
Potential for different sites, A, B, C etc.				
Geothermal				
Potential for different sites, A, B, C etc.				
Other Biomass sources				
Nuclear				
Other energy sources				

6.1.9. Chapter Three: Energy Access

Energy access encompasses;

a. All spheres of energy access: households, productive uses, and community facilities, noting the different needs of men and women.
b. All forms of energy access: electricity, cooking, heating and mechanical power.
c. All feasible and appropriate means of energy provision: grid connected, mini-grid and stand-alone systems.

This chapter provides an overview of energy access in the County, this will cover the energy access trends over time, key stakeholders, strategies, goals and barriers to energy access. The chapter shall cover the following:

a. Policies and regulations that relate to energy access.
b. Key stakeholders involved in energy access. This shall include their roles and capacities.
c. Past and current initiatives on energy access.
d. Trends on energy access (electricity, cooking, heating and mechanical).
    i. Energy Access for Households.
        - Lighting
        - Cooking and water heating
        - Space heating
        - Cooling
        - Information and communications
    ii. Energy Access for community services
        - Health care: hospitals, clinics, mortuaries, and health posts;
        - Education: schools, universities, and training centres;
        - Institutions that offer services to the public: government offices, police stations, prisons, community centers, public libraries, orphanages, sports facilities, religious buildings, etc.;
        - Infrastructure services: water and street lighting.
    iii. Productive use of energy
        - Energy and micro and small-scale enterprises (MSEs)
        - Industrial
        - Transport
        - Geothermal direct use

Table 3.1 will provide a summary of the trend of levels and electricity sold commercially, on-grid, off-grid and stand alone.

Table 3.1: Summary of electricity sales

Year	**2008**	**2010**	**2013**	**2015**	**2019**	**2020**
Households (kWh)						
Public Institutions/Facilities (kWh)						
Industrial Customers (kWh)						
Water and street lighting (kWh)						
Total units sold (kWh)						

Household fuels serve the essential energy needs for people's life, particularly cooking and water heating. The quality of supply of household fuels is characterized by different factors, including the type of fuel (firewood, charcoal, LPG, kerosene, biogas, briquettes,

etc.), the appliance used (traditional stove, improved stove, gas stove, ethanol stove, etc.), and delivery system (gathering, purchasing, self-production, etc).

Table 3.2 shows clean cooking fuels progression up-to 2028.

Table 3.2: Energy fuel consumption

Year	2008	2013	2018	2023	2025	2028
LPG (%)						
Biogas (%)						
Bio-ethanol (%)						
Electricity (%)						
Briquettes (%)						
HHs access to clean fuels: non-solids (%)						
Institutions access to clean fuels: non-solids (%)						
SMEs access to clean fuels: non-solids (%)						
Improved cook stoves: Solid fuels (%)						
Total access to modern cooking services (%)						
Access to unclean cooking services (%)						
Geothermal Direct Use (%)						

e. Past and current initiatives on clean cooking solutions.
f. Barriers to increasing access to clean cooking solutions in rural and urban settings.
g. Cross-cutting issues in energy access:
    - Gender issues in energy access,
    - Environment and climate change,
    - Risk and disaster management,
    - Communication,
    - Research and development.
h. Progression to universal access to energy

The planned on-grid connectivity rate together with the off-grid alternatives will enable achievement of 100% access to electricity by the year 2022.

The on-grid and off-grid connectivity progression are shown in Table 3.3:

Table 3.3: Electricity connectivity progression

Year	2020	2021	2022	2023
Total connectivity of the HHs in %				
Total connectivity of the SMEs in %				
Total connectivity of the industries in %				
Total connectivity of the institutions in %				

In regard to electricity access levels, the country will target to have minimum levels of access – a platform to promote affordable, reliable, and sustainable off-grid renewable energy systems in rural areas – to allow for "empowerment" for people in underserved communities with minimum energy targets necessary to improve education, accelerate the transfer of knowledge, facilitate communication, and promote entrepreneurship. The multi-tier framework (MTF) for energy access is as indicated in Annex 4.

a. **Access to modern cooking solutions**

The efforts to provide universal access to modern cooking solutions will include improved cook stoves (ICS) and clean fuels, which refer to the use of non-solid fuels for cooking (electricity, liquid and gaseous fuels). Modern energy inputs for thermal applications include electricity, LPG, biogas, and solar thermal.

Table 3.4. shows clean cooking fuels progression for households up-to 2028.

Table 3.4: Clean cooking fuels sources progression

Year	2020	2021	2022	2023	2024	2025	2026	2027	2028
LPG (%)									
Biogas (%)									
Bio-ethanol (%)									
Electricity (%)									
Briquettes (%)									
HHs access to clean fuels: non-solids (%)									
Institutions access to clean fuels: non-solids (%)									
SMEs access to clean fuels: non-solids (%)									
Improved cook stoves: solid fuels (%)									
Total access to modern cooking services (%)									
Access to unclean cooking services (%)									

b. Development of goals and strategies to promote energy access:
   i. Future energy access outlook
   ii. Alternative scenarios
   iii. Specific objectives of access to energy
   iv. Stakeholder capacity and mandate.
c. Selection of interventions:
   i. List and prioritize potential intervention options
   ii. Specify the selected interventions
   iii. Develop a governance structure for implementation.

6.1.10. Chapter Four: County Energy Efficiency and Conservation Measures Assessment

This section should focus on energy efficiency and conservation measures in the county.

a. Elements of energy efficiency assessment
   i. Development of benchmarking standards for government buildings and transport.
   ii. Identification of energy efficiency gaps and potential solutions.
   iii. Evaluation of costs and benefits of potential solutions.
   iv. Analysis of implementation barriers and constraints.
   v. Recommendations on priority sectors or areas of interventions, investment needs and sequence of actions.

b. Additional important information
    i. Improved cook stoves adoption across the county/sub-county/ ward level.
    ii. Review of awareness levels on energy efficiency at different categories within the county/ sub-county/ward level.
    iii. Energy consumption at household, public and private sectors in the county.
    iv. List of companies compliant with the solar water heating regulations, 2012.
    v. Energy efficient modes of transport.

c. Energy efficiency in households

Counties should look at the following in terms of usability and efficiency:

    i. Improved cook stoves,
    ii. LPG,
    iii. Biogas,
    iv. Lighting bulbs, and
    v. Energy accounting in terms of sales and non-revenue meters by KPLC.

d. Energy efficiency in commercial and institutional buildings

The following statistical data should be provided:

    i. Electricity consumption,
    ii. Appliances and equipment used, and
    iii. Building designs.

e. Energy efficiency in industries

The following statistical data should be provided:

    i. Energy use by type of industry, and
    ii. Number of audited industries.

f. Energy efficiency in transport sector

The following data should be indicated:

    i. Estimated number of vehicles transiting the county,
    ii. Estimated number of vehicles owned by residents and used within the county,
    iii. Proportion of the people using non-motorised transport (NMT),
    iv. Proportion of vehicles inspected per annum (obtained from the motor vehicle inspection agencies).
    v. Number of motorbikes registered in the county (obtained from the licensing office).

Note: Secondary data may be obtained from official statistical publications, including Statistical Abstracts and Economic Surveys, while primary data shall be obtained through surveys, research, focus group discussions etc.

6.1.11. Chapter Five: Bio-Energy

The chapter provides an overview of bio-energy initiatives, the challenges, key stakeholders, future bio-energy outlook, and proposed interventions. The following shall be put into consideration:

a. The ministries or agencies responsible for specific aspects of biomass energy, their mandates, resources, and capacities.
b. Laws and regulations that relate to the production and use of biomass and land tenure. Issues to consider would include: What licenses are required to produce, trade or transport biomass? How effective is their enforcement? Are there provisions to monitor if wood fuel is harvested sustainably and legally?
c. Baseline supply of bio-energy:

i. Bio-energy crops,
ii. Agricultural residues,
iii. Waste,
iv. Forest products.

d. Bio-energy supply costs.
e. Bio-energy trade.
f. Current bio-energy market and demand situation:
    i. Power generation,
    ii. Building sector,
    iii. Manufacturing sector,
    iv. Transport sector.
    v. Households and institutions
g. Analysis of the baseline data.
h. Challenges affecting the bio-energy sector.
i. Cross-cutting issues in bio-energy:
    i. Gender issues
    ii. Environment and climate change,
    iii. Risk and disaster management,
    iv. Communication,
    v. Innovation, Research and development.
j. Development of bio-energy goals and strategies:
    i. Future bio-energy supply and demand situation by sector and counties,
    ii. Challenges in realising the estimated growth in bio-energy demand,
    iii. Challenges in realising the estimated growth in bio-energy supply,
    iv. Alternative scenarios,
    v. Specific objectives of the bio-energy sub-sector,
    vi. Stakeholder capacity and mandate.
k. Future bio-energy costs.
l. Selection of interventions:
    i. List and prioritize potential intervention options,
    ii. Specify the selected interventions,
    iii. Develop a governance structure for implementation.

6.1.12. Chapter Six: Electricity

This chapter includes all the issues in the electricity sub-sector, including current and future demand and supply, key stakeholders, key challenges, and proposed interventions.

a. Key stakeholders involved in electricity. The details shall include their mandates and capacities.
b. Baseline supply and demand situation, preferably by sectors of the economy and trend analysis for the past 10 years.
c. Analysis of the baseline data:
    i. Existing systems/infrastructure,
    ii. Committed expansion programmes/projects.
d. Cross-cutting issues in the electricity sub-sector.
    i. Gender issues,
    ii. Environment and climate change,
    iii. Risk and disaster management,
    iv. Communication,
    v. Innovation, Research and development.
e. Development of electricity goals and strategies:
    i. Electricity

ii. Future supply and demand situation
iii. Alternative scenarios
iv. Specific objectives of the electricity sub-sector
v. Stakeholder capacity and mandate
vi. Stakeholder feedback analysis
vii. Governance structure for implementation.

f. Selection of interventions.
   i. List and prioritize potential intervention options,
   ii. Specify the selected interventions (integrated electricity plan comprising generation expansion plan, transmission expansion plan, distribution plan and retail plan).

6.1.13. Chapter Seven: Programmes and Projects

This chapter will include all the agreed interventions selected to achieve the agreed objectives. Intervention shall be presented in the format attached.

7.1. National Government Projects.
This will include; Power generation; national and regional transmission lines; distribution lines and associated infrastructure; electrification of public institutions and installation of transformers in all constituencies; off-grid electrification of underserved counties; national public street lighting project; alternative energy technologies; and coal, geothermal and nuclear exploration and development.

7.2. County Government Projects.
The county government will identify their projects and programmes

7.3. Non-governmental and Private Sector projects.
The non-governmental organizations and private sector stakeholders will provide information about their projects, to be included in the CEP.

7.4. Development partners.
Development partners will provide information about their projects, to be included in CEP.

7.5. Any other organisations/person(s).

Table 7.1: Summary of Programme/Project Interventions

S/No.	Objective	Project/Programme	Timelines	Specific Activities	Implementing Agency	Project Cost	(Ne
a)	**National Government Projects/Programmes**						
1.							
2.							
b)	**County Government Projects/Programmes**						
3.							
4.							
c)	**Non-governmental and Private Sector Projects/Programmes, etc**						
5.							

6.							

6.1.14. Chapter Eight: Implementation, Coordination, Monitoring and Evaluation

The County Energy Plan should mirror the INEP. Additionally, reference to the Distribution Master Plan is vital. Further, a provision for private sector engagement in energy development should be considered, as well as the roles of project implementers. In documenting selected projects and requirements, training is essential for any new technologies to reduce the risk of ending up with non-viable projects.

8.1. Implementation

Implementation of the energy plan will require legal and institutional frameworks. The county government shall establish a legislative and regulatory framework for the energy sector. Implementation of the plan necessitates a centralised department with an overarching supervisory role to ensure coordination and enactment. The county department responsible for energy shall have the overall supervisory and coordinating role. This section should also define and describe a monitoring mechanism, identified deviations from the plan and achievable systematic deliverables according to the financial budget, quality and time schedule.

8.2. Coordination

Include two levels of coordination: Vertical coordination with the MoE and the national energy service providers; and horizontal coordination at the county level with county departments.

8.3. Monitoring and evaluation

A time schedule showing major activities and those responsible for delivery of the recommended energy projects should be included:

S/n	Programme	Outcome indicators	Baseline		Mid-term Target	End-term Target	Source of Data	Frequency	Responsibility
			Value	Year					

The detailed M&E framework is as indicated in Annex 6 (a) and (b).

6.1.15. Chapter Nine: Conclusions

This section will provide a summary of key issues and recommendations in the CEP

6.2 Annex Two: Sample Key Informant Questionnaire

Questionnaire – UK PACT CCG WS2 Guidelines on vertical collaboration for county energy planning

Details of interviewer	
Name:	
Phone No.	
Date of interview:	

Introduction	My name is *[X]* and I work with [*organization].* I am undertaking research for a project under the UK PACT Climate Compatible Growth Programme *[explain if needed]* being led by Loughborough University with several universities and other partners to understand the challenges and opportunities for implementing integrated energy planning in Kenya. We will only use the information you share for this specific piece of research and any information you give will be presented anonymously, only stating that you work on planning at the national or county level, unless you are happy for your views to be attributed? *Get consent to attribute if given.* 1. Yes 2. No I am going to record the interview to help my noting of your responses. Are you happy to continue with the interview on this basis? 3. Yes 2. No

Participant information	
Name	

Telephone number	
Gender (to mark by observation)	Male: X Female:
Position/title:	
Organisation:	*County working in [if relevant]:*
Consent signature:	

A. QUESTIONS FOR NESPs and organisations giving TA

Type of support (e.g., data provision/analysis for CEPs; training; mentoring etc.)	National level agencies involved	County/ies targeted	Date (and frequency of support)	Specific collaborators	Resources used

1. What was/is your role in supporting energy planning at the county level?
   Please give as much detail of possible about what you have done/are doing.

2. Are you aware of the roles of your agency and other agencies under the new INEP framework?

3. Are there guidelines in your department that cover coordination, including on data sharing, between national agencies and county governments?
   Please give as much detail of possible about what the guidelines are.

4. Have you experienced any challenges in terms of supporting the county/ies with energy planning? [Free question followed by prioritisation]
   Please give specific examples

Order	Challenges (see possible options listed below)
1st	
2nd	
3rd	

Options:

a) Lack of established ways of working on planning between national and county actors
b) Lack of institutional mechanisms to enable coordination in planning
c) Lack of understanding of the role of counties in energy planning as per the Energy Act/INEP framework
d) Top-down approach to energy planning (energy planning is a national function)
e) Lack of capacity to carry out evidence and needs-based energy planning (no methodological knowledge)
f) Culture of planning in silos by different county departments

g) Low awareness of the role of energy as an enabler for wider development impacts among county staff
h) Inadequate numbers of trained staff for the energy docket
i) The politicization of the planning process
j) Lack of resources to carry out energy planning
k) Other (specify)
l)

5. How did you manage these challenges?

6. Thinking more about data sharing and analysis, did you experience any specific challenges when working with national and county level entities? What were the gaps you identified, and what specific steps did you take to address these challenges? [Free question followed by prioritisation]
Please give specific examples

Order	Challenges (see possible options listed below)
1st	
2nd	
3rd	

Options:

a) Lack of established ways of working for data sharing between national and county actors
b) Lack of institutional mechanisms to share data among departments at county level
c) Lack of understanding of which data sets are needed for energy planning at county level
d) Lack of access to current and reliable data to inform evidence-based planning, including at the sub-county and ward level
e) Lack of awareness of which channels to use to access/request data from national service providers (e.g., KPLC)
f) Lack of technical capacity to collect, store and analyze data to inform planning at the county level

7. Do you have any further ideas on how coordination on data sharing and analysis between national level and county agencies could be enhanced?

8. Thinking in general about your experience of working between national and county level agencies, how do you think coordination could be enhanced? Should the focus be on institutional mechanisms/addressing cultural issues or resource limitations/more training etc.

9. How do you think the new INEP framework will help to address these challenges? Are there any additional initiatives needed to ensure energy planning is integrated better going forward?