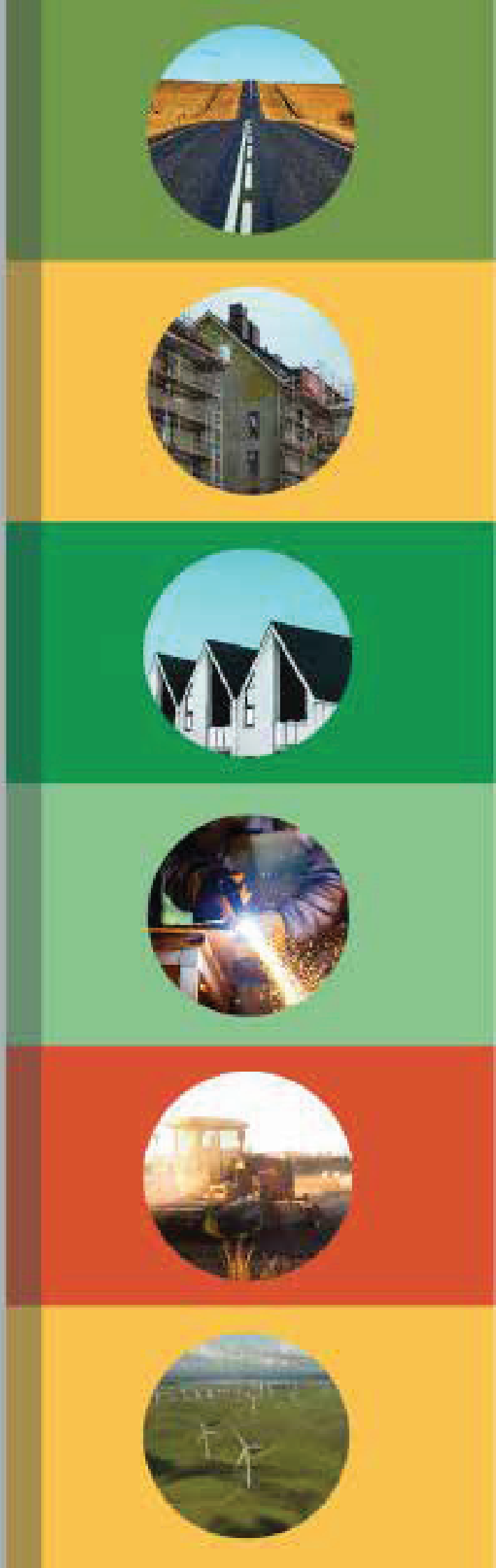
REPUBLIC OF KENYA

Kenya National Energy Efficiency Conservation Strategy

Implementation Plan

2022



Acronyms

ASHRAE	**American Society of Heating, Refrigerating and Air-Conditioning Engineers**
CEEC	**Centre for Energy Efficiency and Conservation**
COG	**Council of Governors**
EBK	**Engineering Board of Kenya**
ECM	**Energy Conservation Measure**
EE	**Energy Efficiency**
EPRA	**Energy and Petroleum Regulatory Authority**
ESCOs	**Energy Service Companies**
GHG	**Greenhouse gas**
GWh	**Gigawatt hour**
IFC	**International Finance Corporation**
IPPs	**Independent Power Producers**
ISO	**International Standards Organization**
KAM	**Kenya Association of Manufacturers**
KEBS	**Kenya Bureau of Standards**
KenGen	**Kenya Electricity Generating Company**
KeNHA	**Kenya National Highways Authority**
KETRACO	**Kenya Electricity Transmission Company**
KGBS	**Kenya Green Building Society**
KIRDI	**Kenya Industrial Research and Development Institute**
KNEECS	**Kenya National Energy Efficiency and Conservation Strategy**
KPLC	**Kenya Power and Lighting Company**
KURA	**Kenya Urban Roads Authority**
kWh	**Kilowatt-hour**
LPG	**Liquefied Petroleum Gas**
MEPS	**Minimum Energy Performance Standards**
MoE	**Ministry of Energy**
MtCO2e	**Metric tonnes of CO_2 equivalent**
MTIHUD	**Ministry of Transport, Infrastructure, Housing and Urban Development**
MW	**Megawatt**
NAMA	**Nationally Appropriate Mitigation Action**
NCA	**National Construction Authority**
NEECS	**National Energy Efficiency and Conservation Strategy**
NEMA	**National Environment Management Authority**
NITA	**National Industrial Training Authority**
NMS	**Nairobi Metropolitan Services**
NMT	**Non-motorized Transport**
NTSA	**National Transport and Safety Authority**
OSHA	**Occupational Health and Safety Act**
REREC	**Rural Electrification and Renewable Energy Corporation**
SDGs	**Sustainable Development Goals**
SDCD&AR	**State Department for Crop Development and Agricultural Research**
UNFCCC	**United Nations Framework Convention on Climate Change**

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Foreword

The United Nations in 2015 adopted The 2030 Agenda for Sustainable Development that provides a shared blueprint for peace and prosperity for people and the planet, now and into the future. At the core of the agenda are the 17 Sustainable Development Goals (SDGs), which are an urgent call for action by all nations to end poverty, protect the planet, and ensure that all people enjoy peace and prosperity. The goals recognize that action must include strategies that tackle climate change and work to preserve fragile ecosystems.

Energy is critical in addressing nearly all the major challenges and opportunities the world faces today, including poverty eradication, gender equality, adaptation to climate change, food security, health education, sustainable cities and transport. Sustainable energy systems are needed to optimize efficiency and limit emissions. Sustained actions are needed in the areas of energy diversity and efficiency, supay reliability and technological innovation and development to obtain sustainable energy systems.

The Global Action Agenda for Sustainable Energy for All (SE4All) requires low- and middle-income countries to create conditions that enable growth by establishing clear vision, national targets, policies, regulations and incentives that link energy to overall development. Kenya in her Action Agenda for Sustainable Energy for All has committed to ensuring universal acoses to modern energy services and increasing the rate of energy efficiency.

The Government of Kenya in the National Energy Policy 2018 sought to enhance energy efficiency and conservation activities towards improving energy security and mitigate the impacts of climate change by lowering Green House Gas (GHG) emissions. Strategies to be pursued include recognition of energy efficiency and conservation as a high-priority energy resource, promotion of energy efficiency and conservation initiatives in all sectors and preparation of National Energy Efficiency and Conservation Plan in consultation with relevant stakeholders.

Kenya Vision 2030, the country's long term development blueprint that aspires to transform Kenya into a newly industrializing middle-income country by 2030 recognized energy as one of the infrastructural enablers of its three pillars of economic, social, and political development. The blueprint noted that Kenya's energy costs are higher than those of her competitors, and identified energy efficiency as one of the measures that need to be implemented to improve Kenya's competitiveness.

In order to put in place an integrated framework for energy efficiency in Kenya, the Ministry of Energy with the support of Copenhagen Centre on Energy Efficiency, Development partners and stakeholders embarked on the process of formulating National Energy Efficiency and Conservation Strategy which was launched in September 2020. This Implementation Plan intends to operationalize the Strategy by outlining the methods, responsible parties, tools, financial requirements and timelines that will be useful for implementation. I therefore urge all stakeholders to prioritize the roll-out of the implementation plan so that the gains envisaged in the Strategy can be realized.

Amb. Dr. Monica Juma (Oxon), EGH
Cabinet Secretary
Ministry of Energy

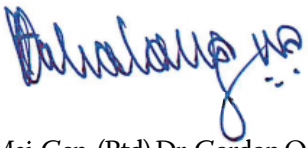
Preface

Energy efficiency is widely recognized as the "low-hanging fruit" in a country's pursuit of energy security, inclusive development, and transition to a low-carbon economy. Investment in energy efficiency can contribute to lowering energy costs, enhancing energy productivity and thus reducing the need to invest in more power plants and hence making resources available for other aspects of societal development such as education and healthcare.

The Kenya National Energy Efficiency and Conservation Strategy (KNEECS) launched in September 2020 fulfilled the aspiration of various previous energy policy documents. It aimed to assist the Country transition into an economy that pursues economic growth while optimizing energy intensity in key sectors. The Ministry thereafter prepared an implementation plan that intends to translate the vision of the strategy. The Action Plan addresses the drivers of energy efficiency contained within the objectives and targets formulated for the five thematic sectors of households, buildings, manufacturing and agriculture transport and utilities. For each thematic area the action plan identifies the stakeholders as well as their roles and responsibilities. The action plan also provides for monitoring, evaluation and reporting framework as well as detailed implementation matrix that specifies strategic objectives, priorities, performance indicators, output targets and expected budget.

The development of this implementation plan is a milestone towards realizing reliable, technically acceptable, economically affordable, and environmentally sensible energy production and consumption in Kenya. Ministry of Energy will provide strong institutional support to its implementation.

The Ministry strongly believes that the support of all stakeholders and development partners will be an indispensable ingredient for success. Though realizing the desired outcomes may take long, our commitment and patience will ensure the goals of the Strategy are attained.



Maj. Gen. (Rtd) Dr. Gordon O. Kihalangwa, CBS

Principal Secretary
Ministry of Energy

1 Introduction

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The Ministry of Energy partnered with the Copenhagen Centre on Energy Efficiency (CCEE) and other development partners to develop and implement the Kenya National Energy Efficiency and Conservation (KNEECS) Strategy. The development phase was completed and launched in September 2020. The Strategy's main goal is to help the country transit to energy efficiency systems and enhance energy conservation. It aspires to use best practices that promote affordable and sustainable energy for all.

The second phase of this program constitutes development and adoption of the implementation plan. In this phase, the Ministry reconstituted the Technical Committee to develop an Implementation Matrix. Currently the Copenhagen Centre on Energy Efficiency has partnered with the Ministry of Energy and the World Bank in this phase, through the Technical Committee.

This document articulates the methods, responsible parties, tools, financial requirements and timelines that will be useful for implementation of the KNEECS and the continuous monitoring, control, evaluation and reporting of its outputs, outcomes and impacts. This framework will help the Ministry of Energy and the stakeholders to regularly report progress and make necessary adjustments to the KNEECS during implementation, as a response to any emerging issues. The framework (referred to as the strategy implementation matrix), contains thematic areas of KNEECS, the objectives, the outputs, the key performance indicators, the targets, the timelines, the responsible parties and the associated costs.

2 Roles and Responsibilities

The KNEECS' objectives span across different stakeholders and for each objective to be achieved, the stakeholders' roles have to be articulated. The broad definition of roles and responsibilities for different stakeholders for these objectives are as shown in Table 1.

The stakeholders in Table 1 will take up the thematic areas and break them up into activities and tasks, implementing them within the specified timelines and budget, as shown in Appendix 1. These will be followed by monitoring, control, evaluation and reporting.

Image Source: www.unsplash.com

Stakeholder	Thematic Area	Roles & Responsibilities
Ministry of Energy	Entire KNEECS	Coordination
Council of Governors	Entire KNEECS	Coordination and implementation
Ministry of Transport	Transport sector	Traffic management , adoption of electric cars
Nairobi Metropolitan Services	Transport sector	Urban transport planning and management
State Department of Public Works, KGBS, NMS, COG, UN-Habitat, EPRA/CA, CEEC/KAM, KEBS	Buildings	Development of building code. Energy audits in government buildings, Data supply. Develop MEPS. Develop Regulations.
Kenya Green Building Society	Buildings	Development of plans for Green Buildings and awareness creation
Kenya Bureau of Standards	Households, Buildings, Manufacturing, Agriculture	Development of efficiency standards for MEPS and Energy Management
Energy and Petroleum Regulatory Authority	Households, Buildings, Manufacturing, Agriculture	Implementation of standards and labelling, designation of energy consumers, determination of energy utility index, clean cooking, electric cars
Kenya Power and Lighting Company	Utilities	Distribution loss reduction
KenGen	Utilities	Generation efficiency improvement
REREC	Utilities	Distribution loss reduction
Ministry of Agriculture, SDCD&AR	Manufacturing and Agriculture	Use of Renewable energies for pumping, cold storage and agro processing
Kenya Association of Manufacturers	Manufacturing and Agriculture	Firm level energy efficiency improvement through capacity building and implementation of ECMs
Development Partners	Entire KNEECS	Resources mobilization and technical assistance
Private Sector	Entire KNEECS	Investment and resource mobilization

Table 1: Overall Responsibilities of Stakeholders

3 Monitoring and Evaluation of Activities

Image Source: Ilya Pavlov
www.unsplash.com

Monitoring and evaluation activities will be conducted and reported on an annual basis to the Ministry of Energy. A reporting framework is shown in Appendix 2.[1] Internally though, the reporting will be conducted quarterly, by every implementing agency and this will be reported to their senior management teams. The performance will be monitored and evaluated as per the implementation matrix.

4 Impact Evaluation

Image Source: Nadir Syzygy
www.unsplash.com

The KNEECS continuation or closure will depend on the impact of the interventions in the thematic areas. Impact evaluation will be important evidence-based approach to inform the Ministry of Energy on the overall success of the strategy. It is a non-trivial exercise that will require robust data collection and analysis approach. The evaluation will involve assessment of the degree to which observed changes in the energy sector in Kenya can be attributed to the strategy activities and tasks.

Impact evaluation will use the guidelines developed by World Bank on impact evaluation. This is contained in a World Bank publication, *"Impact Evaluation in Practice-Second Edition."*. [2]

[1]For proper management, MS Office and project management tools like ghant chart and Earned Value analysis can be used for reporting in lieu of the presented guide in appendix

[2]The book can be downloaded at https://www.worldbank.org/en/programs/sief-trust-fund/publication/impact-evaluation-in-practice

This guide will supplement specific tools used to evaluate outcomes and impacts of energy efficiency programs. Specifically, the following five tools used for testing cost effectiveness of energy efficiency projects will be used: total resource cost test (TRC); participant cost test (PCT); societal cost test (SCT); the ratepayer impact measure (RIM) and the program administer cost test (PACT). A detailed guide on the use of these tools can be found in *"Understanding Cost-Effectiveness of Energy Efficiency Programs: Best Practices, Technical Methods, and Emerging Issues for Policy-Makers"*.[3] This evaluation will help the Ministry make decisions on expansion of the strategy, closure or amendment to the thematic areas.

5 Communication Framework


Image Source: Stellan Johansson www.unsplash.com

All programs established under this strategy will be accompanied by a communication plan. This plan will be drawn from the communication matrix presented in Appendix 3. Communication for the KNEECS activities will be centralized towards the Ministry of Energy. Communication meant to raise awareness of the program and to build capacity shall be addressed in individual activities in Appendix 1.

6 Budget Narrative

In order to achieve the goals of the Strategy, each sector requires funding. This section presents the budget narrative per thematic area.

[3]This technical guide can be downloaded from: https://19january2017snapshot.epa.gov/sites/production/files/2015-08/documents/understanding_cost-effectiveness_of_energy_efficiency_programs_best_practices_technical_methods_and_emerging_issues_for_policy-makers.pdf

6.1. Household

The process demonstrated in Figure 6.1 shows the activities required to achieve the objectives of the strategy, in the Household Thematic Area. To develop MEPS, a baseline study must be carried out. This study informs the MEPS levels to be adopted. The development process takes a multi-sectorial approach and requires stakeholder buy-in. Sensitization is essential.

MEPS is implemented through a regulation. In Kenya, regulations can only be implemented after a regulatory impact assessment has been established. This relies on another study. After their implementation, another cycle of a study is carried out, to update the MEPS levels. These will be achieved through the following five steps:

Image Source: Alexander Andrews www.unsplash.com

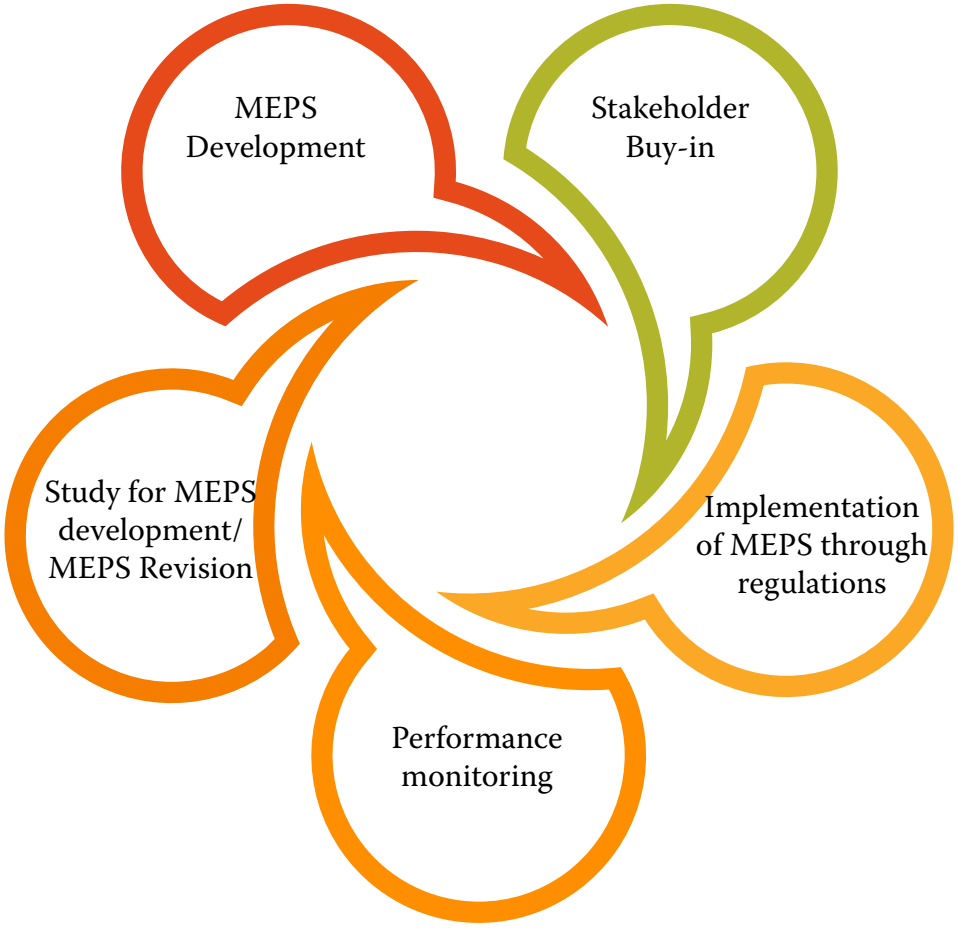

Figure 6.1: The MEPS Development and Implementation Cycle

6.1.1. Sensitization Workshops, Social Media Posts, Adverts and Capacity Building Seminars

The Strategy plans to carry out annual campaigns related to MEPS for cooking appliances, television sets, general service lighting and computer monitors. The activities and budget are presented in Table 6.1.

Activity	Narrative	Cost (Kshs.)
Campaign posters design	Four posters, one for each appliance	1,200,000
Running adverts for the posters	Sponsored adverts on Facebook	1,500,000
Seminars and Workshops	Fifteen of them, targeting practitioners, salespeople and consumers	6,000,000
TOTAL		**8,700,000**

Table 6.1: Budget Narrative for Stakeholder Sensitization

6.1.2. Market Survey on Using Habits and Practices of the Targeted Appliance

This survey will include hiring of a consultant to carry out the exercise and holding stakeholder workshops for validation of the study findings. The specific activities and the budget are presented in Table 6.2.

Activity	Narrative	Cost (Kshs.)
Hiring of consultant	The study will encompass six appliances and will have a baseline and scenario simulations. Appliances are electric burners, biomass cook stoves, LPG cookers, computer monitors, general service lighting and television sets.	6,000,000
Workshops to disseminate study results	To be held in Nairobi, Kisumu, Mombasa, Embu and Nakuru	2,400,000
TOTAL		**8,400,000**

Table 6.2: Budget Narrative for Baseline Market Survey

6.1.3. Development of MEPS for the Cook Stoves appliances

MEPS for biomass cook stoves has already been developed. MEPS development involves Technical Committees constituted at KEBS and participation is always voluntary. However, for off the site meetings, this may involve costs. Costs will also be involved in purchase of reference materials. The costs are listed in Table 6.3.

Activity	Narrative	Cost (Kshs.)
Development of MEPS for electric burners	This includes off site meetings and purchasing standards	1,500,000
Development of MEPS for gas burners	This includes off site meetings and purchasing standards	1,500,000
TOTAL		**3,000,000**

Table 6.3: Budget Narrative for Development of MEPS

After MEPS have been developed, buy-in is essential. This will be through the sensitization, in Table 6.1.

6.1.4. Adopting the MEPS for the six Appliances into the Regulations

For the appliances to be added to the list of those in the existing regulations, there should be stakeholder consultation. Amendment of the regulations will be subjected to public scrutiny, through workshops. Two workshops will cost **1,200,000 shillings** within Nairobi. Table 6.4 shows the activities and the costs.

Activity	Narrative	Cost (Kshs.)
Incorporate MEPS for 6 products into existing regulations	2 workshops within Nairobi	1,200,000
TOTAL		**1,200,000**

Table 6.4: Budget narrative for incorporation of MEPS for 6 products into existing regulations

6.1.5. Performance Assessment of adoption of MEPS for the new appliances

Efficiency of appliances is a moving target. This calls for improvement of MEPS of a country after specific time. In this Strategy, the performance of appliances compliant to MEPS will be evaluated after 5 years. The evaluation results will be used in developing new MEPS for subsequent period. Table 6.5 shows the activities and the costs.

Activity	Narrative	Cost (Kshs.)
Hiring of consultant	The study will evaluate gains due to MEPS adoption for biomass/ electric/LPG cook stoves, computer monitors, general service lighting and television sets.	4,000,000
Workshops to disseminate study results	To be held in Nairobi, Kisumu, Mombasa, Embu and Nakuru	2,400,000
TOTAL		**6,400,000**

Table 6.5: Budget Narrative for MEPS Performance Assessment

6.1.6. Setting up of Testing Laboratories

In this area, two distinct activities will be targeted. First, there should be capacity building of testing protocols for cook stoves. The laboratory for these tests has already been developed and is awaiting accreditation. Second, there will be establishment of a laboratory for testing television sets, general service lighting and computer monitors. These have been described in Table 6.6.

Activity	Narrative	Cost (Kshs.)
Capacity building for testing protocols	This will include training KIRDI, KEBS, Clean Cooking Association Kenya (CCAK), MoE and EPRA staff on testing. The costs will be for paying the trainer and facilitating participants outside Nairobi	3,000,000
Establishment of a laboratory	This will be for testing general service lights, monitors and television sets. It will include acquiring the building.	40,000,000
TOTAL		**43,000,000**

Table 6.6: Budget Narrative for setting up Laboratories

6.2. Buildings

In 2018, the African buildings sector accounted for 61% of final energy use and 32% of energy related carbon dioxide emissions excluding emissions from manufacturing building materials and products such as steel, cement and glass (IEA, 2019a). According to the World Energy Outlook, energy efficiency and decarbonisation measures under a Sustainable Development scenario in buildings in Africa could reduce overall energy demand by 40% by 2040, while seeing a three-fold increase in electricity demand and a 24% reduction in building CO_2 emissions (IEA,2019b). These actions would result in contribution of over 330MtCO_2 reductions in annual emissions by 2040, compared to the current course of action under the Stated Policy Scenario. [4]

The key actions and strategy is to achieve progress towards zero-emission, energy efficient and resilient buildings while meeting the the SDGs on energy and climate change in full, the Sustainable Development Scenario (SDS) fully aligned with the Paris Agreement, holding the global average temperature rise to below 1.8 degrees with a 66% probability without reliance on global net-negative CO_2 emissions.

The SDGs directly and indirectly impacted by the building sector are as indicated in the image below from World Green Building Council. The focus on energy efficiency performance and this program is directly linked to attaining the advanced goals as illustrated.

Image Source: Nadir Syzygy www.unsplash.com

[4] GlobalABC/IEA/UNEP (Global Alliance for Buildings and Construction, International Energy Agency, and the United Nations Environment Programme) (2020): GlobalABC Regional Roadmap for Buildings and Construction in Africa: Towards a zero-emission, efficient and resilient buildings and construction sector, IEA, Paris

Advanced Goals

Sustainability areas with key role for the built environment sector to act

Progressive Goals

Sustainability areas substantially impacted by the built environment.

Growth Targets

Sustainability areas with contributory role for the built environment.

Figure 6.2.1: Sustainable Development Goals directly and indirectly impacted by the building sector

Source: The WorldGBC global network

In the Building Sector Thematic Area, the Strategy focuses on improving energy efficiency in new buildings and in existing public buildings. A roadmap towards decarbonising buildings using an efficiency first approach, whole life cycle carbon assessment approach including a strategy for decarbonising construction materials and energy aiming to reach Net-Zero carbon buildings for new buildings by 2030 and existing buildings by 2050 needs to be developed as illustrated in figure 6.2.2

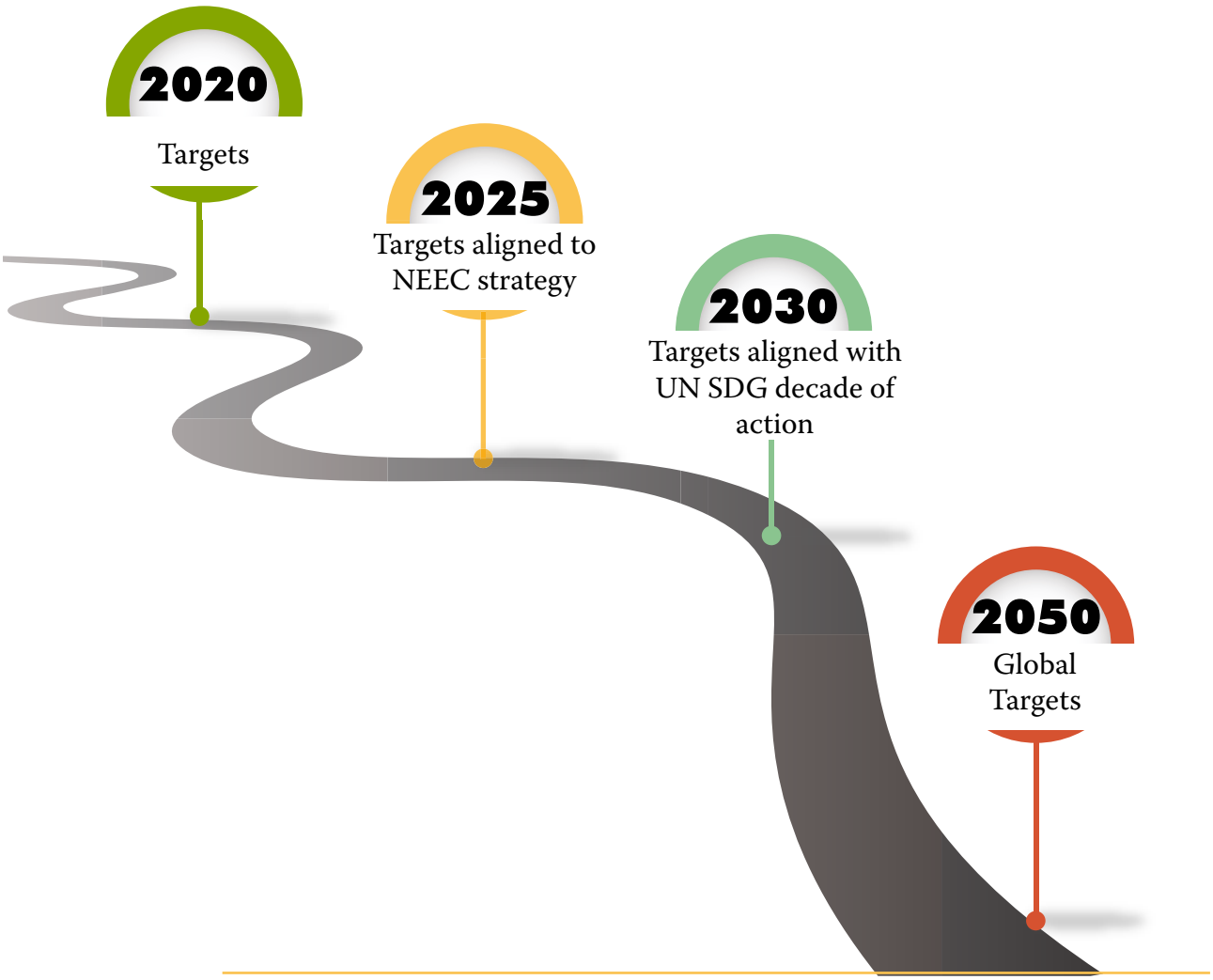

Figure 6.2.2: Illustrative roadmap towards global goals

Central to achieving this is the development, popularization and implementation of MEPS for buildings, improvement of lighting efficiency in existing public buildings and promotion of development of green public buildings. This is illustrated in Figure 6.2.3.

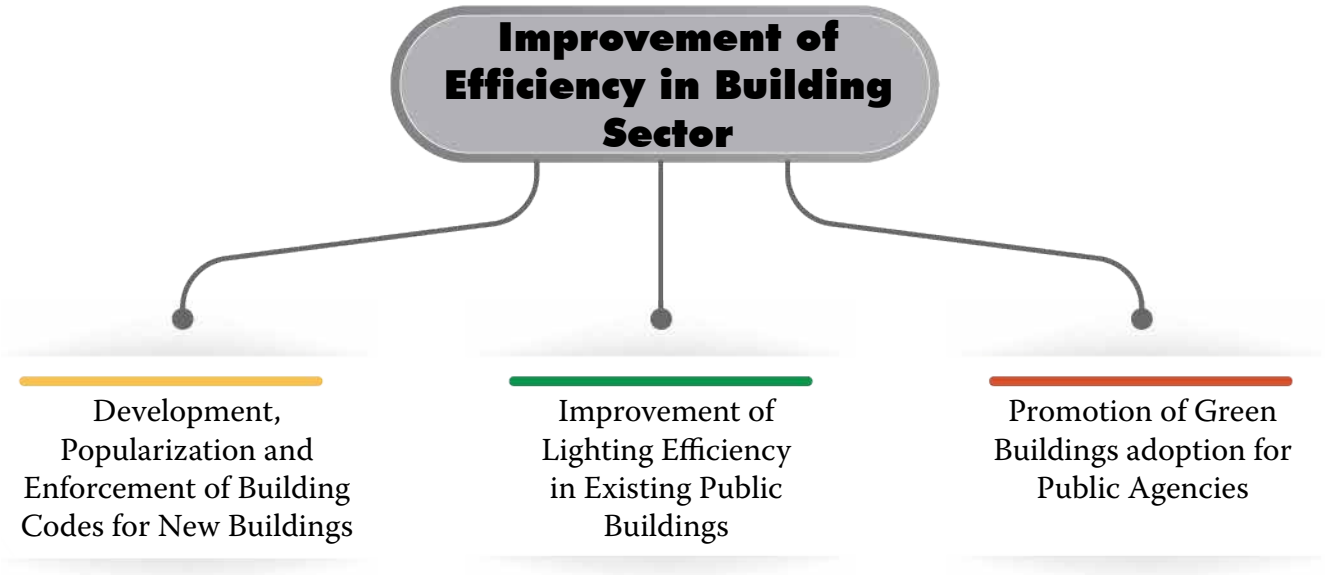

Figure 6.2.3: Pathways to Improvement of Efficiency in Building Sector

The activities defined in this section are therefore informed by the pathways defined in Figure 6.2.3.

6.2.1. Development, Popularization and Implementation of Building Codes

6.2.1.1. Develop Building Codes for Buildings

Development of Building Codes takes a route similar to the one discussed in Section 6.1. Baseline information will be established. It is against this information that MEPS can be developed, popularized, enforced and its performance reviewed. The baseline information will also be important for simulating the benefits of MEPS, which will be used to justify their enforcement.

In the building sector, these Building Codes will set an upper limit of allowed energy consumption. This will help eliminate the most inefficient building technologies and concepts from the Kenyan market. Improvement of Building Codes requires a performance assessment study, upon which decisions of developing newer levels is based. Table 6.7 describes the specific activities and the required budget for this exercise.

Activity	Narrative	Cost (Kshs.)
Hiring of consultant to carry out baseline study on Energy Efficiency in Building and roadmap to global goals	The study will help establish energy use index of existing buildings and align with global goals. The indices will be segregated into residential and non-residential buildings. The benchmarks will be related to architectural aspects and climate zones affecting air conditioning, external lighting, internal lighting, office and other electrical equipment, pumps and controls, cooling and fans. During development of Terms of Reference for the study, the implementing team can refer to a UNIDO technical guide, *Energy Efficiency in Buildings, Module 18.*[6]	9,000,000
Development of Building codes, based on the baseline report in (1)	This will be developed by KEBS constituted Technical Committee. Important to this exercise will be the simulation of effects of adoption of the Building Codes. Mostly, this cost is borne by KEBS. However, off the site meetings might be required, for five days, and this would have a cost implication.	1,500,000
Workshops to Validate and Popularize the Building codes and get a buy-in	To be held in Nairobi, Kisumu, Mombasa, Embu and Nakuru	2,400,000
TOTAL		**12,900,000**

Table 6.7: Activities and Budget for Development of MEPS

[6] This can be downloaded from https://www.unido.org/sites/default/files/2009-02/Module18_0.pdf

6.2.1.2. Building Codes Popularisation and Implementation

The building codes discussed in the previous sub section is descriptive, and does not define the ways through which the set minimum performance targets can be achieved. For enhancement of the energy performance of the new buildings, the strategy suggested adoption and or adaption of standards and enforcement of building codes through Regulations. Development of the standards and Regulations notwithstanding, there will be need for additional complementary instruments, especially the training and education programs for implementing stakeholders. The building professionals should be properly equipped with skills to implement the stated requirements.

Table 6.8 shows details of required activities for this section.

Activity	Narrative	Cost (Kshs.)
Enforcement of the Building codes	Regulations will be developed and enforced by Ministry of Transport, Infrastructure Housing, Urban Development and Public Works. This process will be similar to the one described in Section 6.1. It involves development and popularization of a Regulatory Impact Assessment, holding workshops for stakeholder buy-in and publication of the Regulations. Two workshops will be held. Simulations done by KEBS Technical Committee will be used for impact assessment.	1,200,000
Adoption of building codes and standards similar to ASHRAE	This includes off site meetings and purchasing standards	1,500,000
Capacity building for building sector professionals	This will involve training of mechanical, electrical and civil engineers, the architects, interior designers and building and construction managers. At the end of the project, 300 personnel should have gone through the training on building codes and other standards	12,000,000
TOTAL		**14,700,000**

Table 6.8: Activities and Budget for MEPS Popularisation

6.2.1.3. Performance Assessment of adoption of the building codes

A reiterative process to allow for assessment in the adoption of MEPS is required in order to track progress on performance against targets set in the roadmap. The performance of buildings compliant to the building codes will be evaluated after 3 years. The evaluation results will be used in updating the the building codes. Table 6.9 shows the activities and the costs.

Activity	Narrative	Cost (Kshs.)
Hiring of consultant	The study will evaluate gains due to MEPS adoption for buildings. Performance assessments may use platforms such ARC Skoru for continuous assessment of existing buildings.	4,000,000
Workshops to disseminate study results	To be held in Nairobi, Kisumu, Mombasa, Embu and Nakuru	2,400,000
TOTAL		**6,400,000**

Table 6.9: Budget Narrative for MEPS Performance Assessment in Buildings

6.2.2. Improving the Energy Efficiency of Lighting in Existing Public Buildings

The Strategy recommends actions to be taken in public buildings in saving energy, especially through lighting retrofit. The existing public buildings in Kenya use double capped fluorescent lamps, which are considered inefficient when compared to the currently available technologies. Indeed, lighting is considered one of the major energy consumers in public buildings. To realize energy savings in this sector, government policy directives towards its own agencies will be important. Interventions are articulated in Table 6.10.

Activity	Narrative	Cost (Kshs.)
Enhancement of compliance of public sector agencies with the Energy (Energy Management) Regulations 2012	The Ministry of Energy will influence the inclusion of compliance with these Regulations in performance contracting for all public sector agencies. This will adopt an approach similar to the one used in quality management system (ISO compliance), OSHA and environmental management systems. Towards this objective, EPRA should hold seminars with employees of public sector agencies to inform them of the importance of compliance. This intervention may not need a budgetary allocation outside the normal activities of EPRA and the Ministry of Energy.	
Retrofit of Lighting Fixtures in Public Sector Buildings .	A countrywide program should be launched to retrofit lights in public sector buildings like hospitals, schools, colleges, jails, offices, factories etc. Currently, there is no sufficient data to quantify the required cost for entire retrofit. The Ministry of Public Works in this respect conduct a census on lighting in public sector agencies, data that will then be used to cost the retrofit. This census will attract a cost, as shown in the next row.	10,000,000
Census on lighting in public sector	As indicated in 2 above.	2,000,000
TOTAL		**6,400,000**

Table 6.10: Activities towards Enhancing EE in Existing Buildings

6.2.3. Promotion of New Green Public Buildings

Design, construction and management of public buildings in Kenya fall under the purview of the State Department of Public Works. To improve the percentage of green buildings in upcoming public buildings in the country, there is need for provision of financial incentives and information. This will motivate the actors to accelerate uptake of green buildings. There is therefore need for improved capacity building among design, construction and management engineers. There is also need to reduce upfront costs related to green building materials, through development of grants and rebate schemes. The activities in Table 6.11 describe the pathways towards achieving this objective.

Activity	Narrative	Cost (Kshs.)
Grants and rebate schemes for green buildings	The Treasury shall designate green public buildings under construction as turnkey projects. This will in effect attract tax privileges, reducing the cost of construction. This intervention will not have a direct cost. However, for adoption, the State Department of Public Works, Ministry of Energy and EPRA will have to hold a seminar with Treasury and other government agencies. This will attract a cost that will include daily subsistence allowance, venue hiring and getting seminar facilitator from Green Building Society.	4,000,000
Capacity building of Professionals	The professionals in the building sector are registered by Architectural Association of Kenya, Institute of Engineers of Kenya and the National Construction Agency. The State Department of Public Works will work hand in hand with Ministry of Energy, EPRA and Kenya Green Building Society to train at least 25 % of these registered professionals, in green building concepts. The trainings will be held in Mombasa, Nairobi, Kisumu and Nakuru. The cost will include payments to the facilitators and the venue.	6,000,000
TOTAL		**10,000,000**

Table 6.11: Activities towards Promotion of Green Buildings in Kenya

6.3. Manufacturing and Agriculture

The manufacturing sector in this strategy focuses on improving energy efficiency through energy auditing, implementation of the ECMs identified in the audits and capacity building to sharpen the skills of the energy efficiency professionals. Projects, their activities and the budgets meant to achieve these objectives have been highlighted in this section.

The agriculture sector in this strategy focuses on food value chains in the agricultural production and processing sectors where clean energy technologies can be used to provide the desired energy services but with lower environmental impacts including reducing greenhouse gas emissions (GHG). This will be in production, near farm processing and storage & transportation. Activities will include; irrigation pumps, tractors, mills, driers, freezers/refrigerators, ice makers, cold rooms/coolers, electric fences, siloes, egg incubators cow milking machines, night fishing lights, fishing boats, butter makers, maize threshers, cassava graters, coffee pulpers, oil presses, greenhouses, milk chillers, animal feed mixer, fishing hatcheries, cold storage, small-scale mechanized farm production & processing and agricultural marketing.

Image Source: Noah Buscher
www.unsplash.com

6.3.1. Increasing the Adoption of Energy Efficiency Programs

One way of improving energy efficiency in manufacturing and agriculture sectors is through conducting of energy audits, implementing the recommendations, and verifying the savings. Energy auditing professionals are important in this intervention. In this area, the target is to carry out 2200 investment grade energy audits. These will be carried out in five phases, with each phase demarcated as a year. It is envisaged that this will unlock an investment portfolio of KES 35 billion shillings over the strategy horizon. Table 6.12 shows the budget and activity narrative.

Activity	Narrative	Cost (Kshs.)
Conducting of Energy Audits	Facilities will conduct investment grade energy audits. The project targets 2200 facilities. Each audit will cost 1.86 million shillings. This cost will include the actual cost paid for the audits, training of the facility employees in energy management and the follow up measurement and verification exercise. It is desired that one consultant carries out all these in one facility, for uniformity. Under the existing CEEC framework at KAM, facilities partially meet this cost. In this project, the project activities will be going beyond audits, into training and measurement and verification.	4,092,000,000
TOTAL		**4,092,000,000**

Table 6.12: Activities towards Increasing the Adoption of Energy Efficiency Programs

6.3.2. Improving the Acceptance of Energy Audits and Implementation of Energy Audit Recommendations

6.3.2.1 Implementation of Energy Conservation Measures

Energy audits are useful only if the facilities implement the recommended Energy Conservation Measures (ECMs). Under this Strategy, efforts will be developed towards enhancing implementation of these measures. These efforts will be mostly policy oriented, with creation of frameworks that will encourage implementation. Table 6.13 describes these interventions.

Activity	Narrative	Cost (Kshs.)
Development of energy performance targets for Facilities	The draft Energy (Energy Management) Regulations 2021 provide for establishment of energy performance targets for facilities. EPRA will conduct studies for different facility categories and come up with energy performance targets. These targets will be published, and facilities will be requested to comply. Compliance means that they will have to implement the recommended ECMs in energy audits. The EPRA studies will include three categories of facilities: commercial, institutional, and industrial. Consultants will be hired for this exercise.	60,000,000
Establishment of Energy Credit Markets	The draft Energy (Energy Management) Regulations 2021 call for establishment of a trading market, where green and white certificates will be sold to facilities that fail to meet the performance targets discussed in (1) above. Such a trading platform will be set by EPRA/NEMA, in conjunction with the Ministry of Energy. This will induce a cost.	50,000,000
TOTAL		**110,000,000**

Table 6.13: Activities towards Implementation of Energy Conservation Measures

6.3.2.2 Capacity Building of Energy Efficiency Professionals and ESCOs

The Strategy aims to enhance knowledge and skills of energy efficiency professionals. This includes knowledge in the functioning of ESCO markets. The activities in this project include development of a local based curriculum for energy auditors and energy managers, accreditation of institutions to offer the trainings, holding seminars on ESCO market management. There activities are elaborated in Table 6.14.

Activity	Narrative	Cost (Kshs.)
Development of a local curriculum for energy auditing and management	A consultant has been hired by UNEP DTU Partnership and is currently carrying out a knowledge and skill gap analysis among energy efficiency professionals. This will culminate into development of a curriculum. This curriculum will be taken through stakeholder engagement workshops, before being forwarded to National Industrial Training Authority (NITA) for gazetting. The workshop will be held in Nairobi and will have a cost.	1,500,000
Accreditation of institutions to train energy auditors and energy managers using the developed local curriculum	NITA will accredit institutions that can train using the curriculum. This process involves inspection of the institutions. The inspection exercise will be done in conjunction with EPRA. The exact number of institutions that may apply for accreditation may not be determined at this juncture, but mostly, these activities can be met by internal costs, as it is part of routine activities.	4,000,000
Training of energy professionals in ESCO market	ESCO markets require understanding of types of EPCs, measurement and verification protocols and energy efficiency project design. Training will be carried out for the licensed 80 energy auditors. This is hoped to snowball the knowledge to other players in the ESCO market. The training will attract a cost, at 50,000 shillings per trainee	
TOTAL		**5,500,000**

Table 6.14: Activities towards Capacity Building of Energy Efficiency Professionals

6.3.3 Enforcement and Compliance Activities

Compliance to Energy (Energy Management) Regulations 2012 has been low and KNEECS aims to improve this, through activities that will enhance compliance. From the enforcement triad of carrots, sticks and tambourines, this Strategy opts for the last one, where the Chief Executive Officers of facilities will be taken through importance of energy management compliance. The activity is described in Table 6.15.

Activity	Narrative	Cost (Kshs.)
Holding of Chief Executive Officers' Forum	This forum will be held thrice a year, for five years, in different parts of the country, targeting CEOs of facilities. It will entail presentations by CEOs whose facilities have benefited from energy management programs. The forum will be facilitated by the CEEC, Association of Energy Professionals Eastern Africa (AEPEA), Ministry of Energy and EPRA and will attract a cost which will include funding for travel expenses of the presenters and hiring a venue This curriculum will be taken through stakeholder engagement workshops, before being forwarded to National Industrial Training Authority (NITA) for gazetting. The workshop will be held in Nairobi and will have a cost.	30,000,000
TOTAL		**30,000,000**

Table 6.15: Enforcement and Compliance Activities

Table 6.16: Activities towards Promotion of use of efficient off grid Energy Solutions

6.3.4 Promoting the Use of Efficient Off-grid Energy Solutions in Agricultural Sector

This will be done through use of renewable energy in production, near farm processing and storage. Activities will include solar irrigation, solar refrigeration, solar applications for milling, threshing, grating, pressing, drying and egg incubation, milking and electric fencing. Demonstration projects will be set up at county government level throughout the country. Specific activities are described in Table 6.16.

Activity	Narrative	Cost (Kshs.)
Market needs analysis	This will be a study by a consultant to map the needs of agricultural value chains, where off-grid solutions like solar water pumping and biogas generation will be useful. Consultants will be paid.	20,000,000
Capacity building for county governments on off-grid solution in 13 agricultural value chains	County government energy and agricultural officers will be trained to help subsistence and cash crop farmers utilize off-grid solutions. They will then spearhead efforts to obtain loans for farmers. This training will be in 4 regions, Nakuru, Kisumu, Nairobi and Mombasa. The officers will be facilitated to attend this.	10,000,000
Provision of business management, market entry and growth strategy advice	Roundtables for financial institutions, local government, renewable energy businesses, agriculture entrepreneurs and NGOs, to tackle systemic challenges the renewable energy challenges & solutions	**10,000,000**
Training on environmental friendly irrigation refrigeration & agro processing technologies and practices at County level	13 value chains: staples (maize, potatoes, rice, beans), horticulture (fruits, vegetables), livestock (beef, poultry, dairy – and where relevant for specific counties sheep/goats, camels), fish, and others as inputs into agroprocessing and not necessarily for local production (wheat, palm-oil).	**60,000,000**
Training on technologies in irrigation, refrigeration & agro processing	13 value chains: staples (maize, potatoes, rice, beans), horticulture (fruits, vegetables), livestock (beef, poultry, dairy – and where relevant for specific counties sheep/goats, camels), fish, and others as inputs into agro processing and not necessarily for local production (wheat, palm-oil).	**60,000,000**
TOTAL		**160,000,000**

6.4. Transport

The transport sector targets in the KNEECS include improvement of fuel economy, increasing the share of electric vehicles, increasing the number of passengers using commuter trains and improving traffic management.

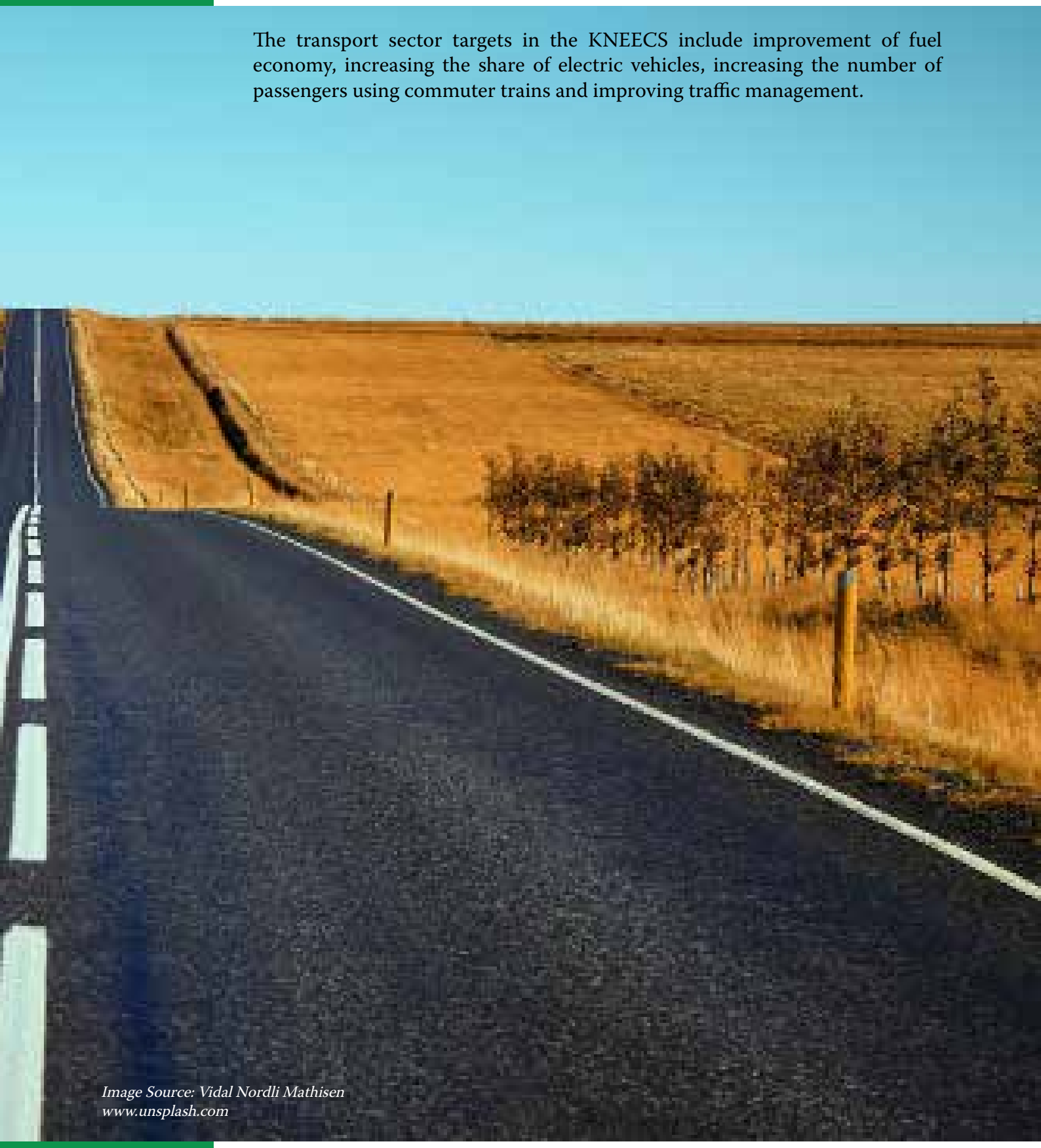

Image Source: Vidal Nordli Mathisen
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6.4.1. Develop Fuel Economy Standards and Labelling for Vehicles

This is a continuous process that involves developing the standards, getting the stakeholder buy-in, enforcing them, assessing their performance and updating the standards. The activities to be implemented are shown in Table 6.17.

Activity	Budget Narrative	Budget (Kshs)
Conducting a background study on the fuel performance of existing vehicles and other motorised transport in Kenya	A consultant will be hired to conduct this study. This cost will include workshops to validate the study findings	50,000,000
Development of standards and labelling	Mostly this is done by KEBS Technical committees. Sometimes the committee might need to work offsite for 5 to 8 days to speed up the activity and this involves costs. The cost might also include purchase of resource materials like standards from other jurisdictions	3,840,000
Development of regulations to enforce the standards	This includes hiring of a consultant to develop the regulations and holding stakeholder validation workshops	6,400,000
TOTAL		**60,240,000**

Table 6.17: Description of Activities for Standards and Labelling for Vehicles

6.4.2. Increase the Adoption and Uptake of E-Mobility

Regulatory actions and financial mechanisms are needed to increase the ownership of electric vehicles in Kenya. The activities and budget narrative are as per Table 6.18.

Activity	Budget Narrative	Budget (Kshs)
Raise awareness on EE in vehicles and e-mobility. Capacity building and awareness to relevant government arms with a role in progressing this agenda	Four workshops and sponsored adverts on social media	10,000,000
Conduct a background study and simulations to compare adoption of e-mobility to use of internal combustion engine vehicles	This study will include description of what is currently taking place in Kenya, the cost of running an internal combustion engine vehicle and a simulation of costs of running similar electric cars.	10,000,000
Development of a monitoring and reporting framework for the Piloting activities.	This will include development of a data management system which will collect and consolidate statistics from early adopters of the technology.	
Create an Electric Vehicle community of practice to share knowledge on emerging opportunities in the EV industry	A society with shared interests in electric vehicles. This could include business people, experts, researchers and state bureaucrats. The activities will include: Development, hosting and updating one website. . development of web content . symposiums	

Table 6.18: Activities towards increasing adoption and uptake of E-Mobility

Activity	Budget Narrative	Budget (Kshs)
Support the retrofitting of existing ICE, light duty vehicles into EVs.	This includes: development of two incubation and testing centres	320,000,000
Support design and development of EVs	This will include light duty vehicles, motor bikes, electric bicycles and tuk-tuks. This will include capacity building for artisans, technicians and engineers.	24,000,000
Vocational training of technical/trade certificate holders in the EV repair and maintenance technology or conversion of ICEs to EVs	This will be for training of trainers programmes.	10,000,000
Lower import duty and vehicle road taxes for electric vehicles	This will include inter-ministerial discussion to foster buy-in by fiscal planning agencies, such discussions may include sensitivity analysis of the effects of tax incentives	6,000,000
Enforcement of supportive policies and technical guidelines for the construction and operation of charging stations and facilities	This should be part of the routine exercise carried out by EPRA. The agency enforces other standards in electrical power systems.	
Performance assessment on effectiveness of implemented regulation with a view for improvement.	This includes hiring of consultants to carry out the assessment, presentation of findings to stakeholders for validation and incorporation of the recommendations into regulations	10,000,000
TOTAL		**410,000,000**

Of consideration is long term infrastructure development to accommodate new charging stations, and modification of road network to include non-motorised passage lanes and interchanges. Development of Bus Rapid Transit (BRT) system which shall be improved to electric propulsion and manage the infrastructure for the same.

6.4.3. Fuel Consumption through Better Traffic Management and Import Restrictions on Old Vehicles

Implement actions to reduce overall fuel consumption of motor vehicles in Kenya. Develop and implement traffic management plans. This is explained in Table 6.19.

Activity	Budget Narrative	Budget (Kshs)
Revamp and encourage non-human intervention of traffic management using the installed intelligent traffic lights that adjust release intervals to reduce traffic jams.	Currently, the traffic police override the functioning of the system. Activities under this section include: Getting a buy-in by the traffic department to have faith in the traffic management system Reviving the non-functioning traffic lights in the city	10,000,000
Develop policy restricting the age of second-hand vehicles imported into Kenya to a maximum of five years	This will be dealt with by Treasury in the Finance Bill.	-
Encourage and promote car-pooling in order to reduce the number of motor vehicles on the road	Increase parking fees and introduction of toll fees on motorised vehicles, advertising in various media	5,000,000
TOTAL		**15,000,000**

Table 6.19: Activities towards Reducing fuel consumption

6.4.4. Enhance Public Transport

Adopt safe and energy-efficient urban transport to reduce emissions. Table 6.20 shows details of this project.

Activity	Budget Narrative	Budget (Kshs)
Create campaigns for modal shift to public transport and non-motorized modes	This will include posters, workshops and seminars for public to have a mindset shift	5,000,000
Complementary walking and cycling infrastructure developed with support from county governments	Dedicated bicycle and pedestrian lanes to encourage shift from motorized transport in different cities	200,000,000
Bus Rapid Transport	Develop Bus Rapid Transport infrastructure	600,000,000
Commuter rail	Develop commuter rail infrastructure	1,200,000.000
TOTAL		**2,005,000,000**

Table 6.20: Activities towards enhancing public modes of transport

Image Source: Oliver Cole www.unsplash.com

6.5. Utilities

In this strategy the power utilities, Kenya Power, KenGen, KETRACO, REREC, NuPEA and IPPs will support three main areas:

1. Create and implement a utility-based energy efficiency measures implementation framework. The model creates payment mechanism on benefits from energy savings.
2. Improve system efficiency, reduce system losses, and enhance generation efficiency
3. Enhance grid stability, including ancillary services and adoption of modern energy storage for system stabilization to support distributed generation.

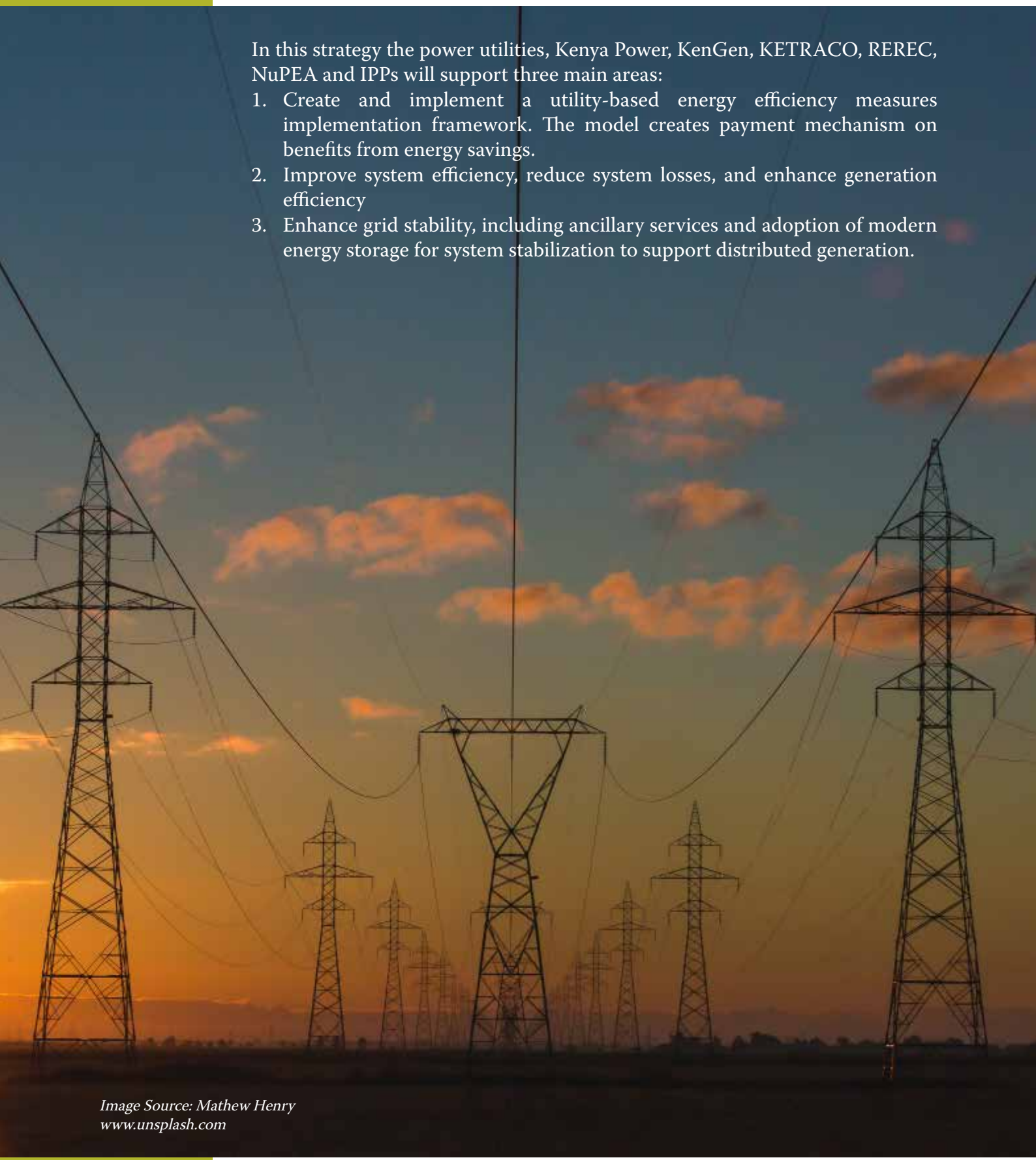

Image Source: Mathew Henry
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6.5.1. Creation of a Utility based Energy Service Company (ESCO) Model

The strategy plans to create and implement models for utility-financed energy efficiency implementation, through methods that create payment streams from energy savings. This will be achieved by the activities shown in Table 6.21.

Activity	Budget Narrative	Budget (Kshs)
Development of a Demand Side Management Concept Paper for the off-taker	The concept paper will guide the off-taker on how to participate in energy efficiency performance contracts with its consumers. This will help the implementation of identified energy efficiency and conservation projects by providing financing, measurement and verification of implemented projects and apportioning of the benefits of the programs between the implementing ESCOs, the Facility owner and the repayment of the loans used to implement the measures.	22,000,000
Creation of a super ESCO at KPLC	The super ESCO will be useful in generating a pipeline of projects for the ESCOs, securing of funds and provision of technical support.	250,000,000
Creation of a pipeline of projects for ESCOs	The super ESCO will source for projects and finances and cascade them down to the ESCOs. The projected financing required is captured in the next column.	5,000,000,000
TOTAL		**5,272,000,000**

Table 6.21: Activities towards creation of a utility based Energy Service Company (ESCO)

6.5.2 Reducing Transmission and Distribution Losses and Improving Generation Efficiency

Utilities in the power sector will undertake measures aimed at improving generation efficiency, reducing system losses, including upgrades to transmission and distribution infrastructure for efficient and quality power supply, cost-effective investments in modern energy monitoring, smart metering, enhancements to existing meter calibration and regulating the power factor threshold. The activities and budget narratives are in Table 6.22:

Activity	Budget Narrative	Budget (Kshs)
Undertaking a background on generation efficiency in all the power plants	The results of this study will be used for generation optimization suggestions	50,000,000
Hire a consultant to guide on reduction of distribution system losses	The consultant will guide the utility, through studies, models and simulations, on how best to reduce the distribution losses	90,000,000
Holding validation workshops for the work of the consultant (in 2 above)	The workshops will be held in Mombasa, Nairobi, Kisumu and Nakuru.	10,000,000
Implementation of loss reduction solutions	The cost to this solution will be determined, and it will depend on the findings of the consultant	
Monitoring distribution system to reduce losses	This will consider installation of transformer and feeder metering and distribution transformer management system	7,100,000,000
Reduction of commercial losses	This will involve installation of meter data management system, system mapping of high-risk areas and re-metering and relocation of inaccessible meters.	13,500,000,000
Consumer awareness campaign	This will include advertisement campaign in mass media, paid adverts in Social media campaign and use of roadside posters	25,000,000
TOTAL		**20,775,000,000**

6.5.3. Enhance Grid Stability, including Ancillary Services and Adoption of Modern Energy Storage for System Stabilization.

The Strategy will seek to enhance grid stability, including ancillary services, adoption of modern energy storage for system stabilization and support deployment of distributed generation and intermittent renewable energy. To achieve this the activities in Table 6.23 will be undertaken.

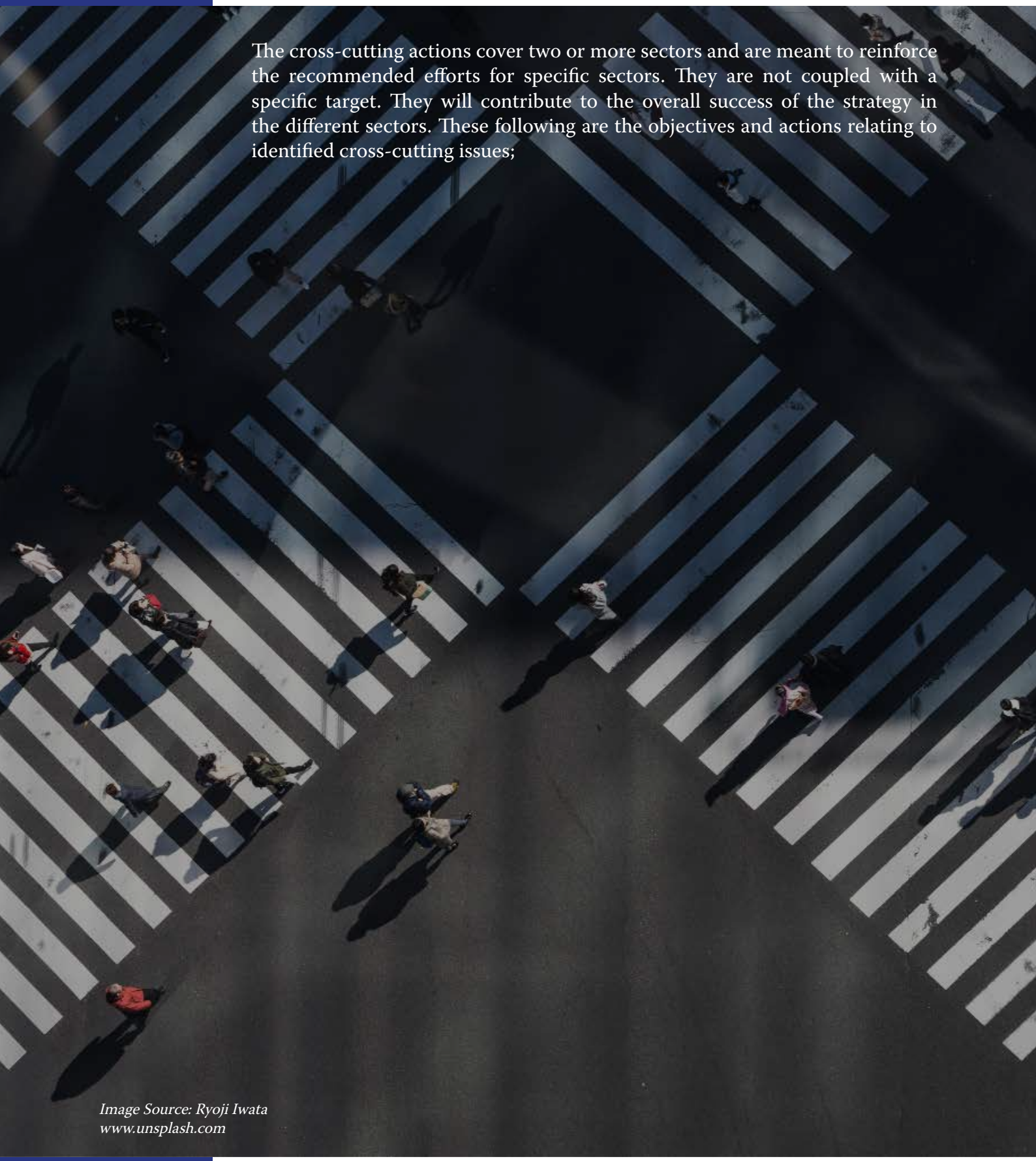
Activity	Budget Narrative	Budget (Kshs)
Study on Ancillary Service Requirements	This study will help in establishing a framework to facilitate implementation and compensation for ancillary services. This project is already in the pipeline and it is slated to start not later than June 2022.	30,000,000
Development of compensation framework for ancillary services	This has been slated to be completed by June 2023	20,000,000
Piloting of energy storage facilities	Introduction of pilot energy storage facilities of at least 1 MWh to support distributed generation from renewable clean energy sources by June 2023	200,000,000
TOTAL		**250,000,000**

Table 6.23: Activities towards enhancing grid stability

Image Source: Santee Cooper www.unsplash.com

6.6. Cross Cutting Issues

The cross-cutting actions cover two or more sectors and are meant to reinforce the recommended efforts for specific sectors. They are not coupled with a specific target. They will contribute to the overall success of the strategy in the different sectors. These following are the objectives and actions relating to identified cross-cutting issues;



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6.6.1. Strengthen institutions responsible for EE in Kenya

Strengthened institutions responsible for EE will aid in acceleration of implementation of the strategy and demonstrate the importance of energy efficiency to the Kenyan Government's development agenda. This will be achieved as shown in Table 6.24

Activity	Cost (Ksh.)
This will be done by reviewing the existing MoU between the Ministry of Energy and KAM to enhance the capacity of the Centre for Energy Efficiency and Conservation (CEEC). The existing MoU will be reviewed in view of the new Energy Act 2019 and the NEECS. Meetings will be organized for key stakeholders to discuss the enhanced MoU and away forward.	500,000
Improving energy efficiency data collection, collation, analysis, sharing, information management and communication through developing a data repository for all energy efficiency data.	500,000
Enhance coordination of EE activities in the country through establishment of an EE coordination committee at national and county level, conducting quarterly meetings and developing quarterly and annual reports on implementation of Energy Efficiency	88,000,000
Mainstreaming of EE in County Energy Plans through ensuring mainstreaming in the County Energy Plans and also training counties on EE	240,000,000
Enhancing research on EE through development of a collaborative plan between the industry, research institutions and the academia and consequently conducting research on EE	30,000,000
Improved EE activities in different sectors of the country by creating a Changed Single Window System	10,000,000
TOTAL	**368,500,000**

Table 6.24: Activities towards strengthening institutions

6.6.2. Enhance EE professional Competence


Image Source: Silvia Brazzaduro www.unsplash.com

Improving the competence of professionals on EE will lead to identification of opportunities on energy efficiency projects and programs including development of new applicable technologies on EE. Enhancement of their competence will be done by;

Assessment of skills and knowledge gap in Energy Efficiency and finally conduct training to fill the gaps identified: ***KShs.2,000,000.***

The Needs Assessment task is already ongoing.

6.6.3. Mainstream EE in the Kenyan Education system

Integrating EE curricula into the education system at all levels is a long-term mechanism for higher public awareness on the importance of EE. This will be achieved as shown in Table 6.25.

Activity	Budget (Kshs)
Assessment of the extent to which EE is mainstreamed in the Kenyan education system and consequently implementing the assessment report recommendations. This can be implemented during the 5-year Curriculum review. The activity will also include developmeny of illustrative guidebooks on Energy Efficiency for pupils and students.	45,000,000
TOTAL	**45,000,000**

Table 6.25: Activities towards mainstreaming EE in Kenyan Education System

6.6.4. Increasing financing opportunities for EE

Resource Mobilization is key to ensuring success of implementation of Energy Efficiency Program/projects. This is shown in Table 6.26.

Activity	Budget (Kshs)
Mobilize funding from the private sector and the development partners and example actions include developing of project proposals for EE project financing in targeted sectors	1,000,000
Developing a checklist of the parameters required for eligible EE projects	1,500,000
Development of an Investment Prospectus on EE	5,000,000
Development of a communication strategy for EE in Kenya	5,000,000
Reviewing the Public Procurement and Disposal Act including relevant regulations so as to incorporate EE insights and guidelines	5,000,000
Reviewing the Public Procurement and Disposal Act including relevant regulations so as to incorporate EE insights	5,000,000
Create a framework for public private partnerships in the energy efficiency sector	5,000,000
TOTAL	**27,500,000**

Table 6.26: Activities towards increasing financing opportunities for EE

6.6.5. Enhancing Gender Mainstreaming in EE Activities

Incorporation of gender considerations in Energy Efficiency activities will contribute to its successful implementation. This will be done as shown in Table 6.27;

Activity	Budget (Kshs)
Facilitation of adoption of energy-efficient technologies by women through capacity-building and awareness-raising initiatives	23,000,000
Development of a gender equity framework for EE so as to ensure gender equity in EE institutional frameworks, networking and knowledge sharing, capacity-building, and clean energy interventions	2,000,000
TOTAL	**25,000,000**

Table 6.27: Enhancing gender mainstreaming in EE activities

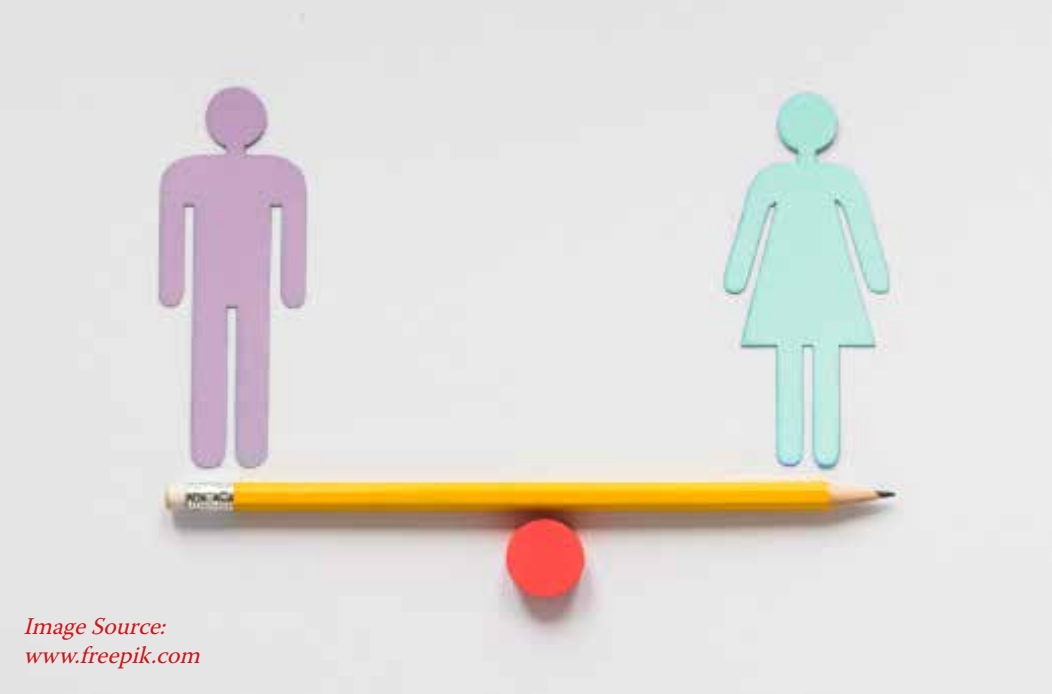


Image Source: www.freepik.com

6.6.6. Cooperation and Linkages between MoE and Academia/ Industry Organization

Image Source: Markus Spiske www.unsplash.com

Scaling-up cooperation and linkages with academia/industry on EE activities will lead to well-coordinated efforts towards EE. This will be done by:

Increased academia and industry cooperation on EE through symposiums, development of MoUs, partnership agreements: ***KShs.4,000,000***

6.6.7. Enhance Market Transformation of Efficient Cooling Systems

Image Source: Martin Adams www.unsplash.com

Access-to-sustainable cooling for all Kenyans will lead to less environmental impact while increasing the performance and efficiency of appliances. This will be achieved by:

Development of a National Cooling Action Plan (NCAP) for Kenya as per Kigali Amendment (2018) to Montreal Protocol: KShs.10,000,000

7 Stakeholder Management

Apart from the implementing agencies, it is important to identify, map and engage stakeholders that may influence or may be influenced by the program activities. Table 2 shows details of stakeholder management for all the thematic areas.

Thematic Area	Stakeholder	How much does the project affect them (1,2,3)? 1 being lowest	How much do they affect the project (1, 2, and 3)? 1 being lowest	Stakeholders most important goal	Stakeholder possible contribution	Communication means
Household	Importers and manufacturers, retailers and distributors of TVs, LED and computer monitors	3	3	To make sales and get profits	Ensuring that they test the appliances and submit energy performance reports	These should be targeted through media campaigns and workshops
	Consumer Federation of Kenya	-	-	-	-	-
	Council of Governors	-	-	-	-	-
	Clean Cookstove Alliance of Kenya	3	3			

Thematic Area	Stakeholder	How much does the project affect them (1,2,3)? 1 being lowest	How much do they affect the project (1, 2, and 3)? 1 being lowest	Stakeholders most important goal	Stakeholder possible contribution	Communication means
Buildings	Building developers	3	3	Maximize benefits	Invest in Energy audits and efficiency measure	Workshops, seminars, animation videos or physical visits
	National Government	3	3			
	County	3	3			
	Utility companies	3	3			
	Financial Institutions	3	3	Maximise responsible investment	Incentivised Finance	
	Architects, Engineers	3	3	Design Responsibility	Compliant Design	
	Kenya Association of Manufacturers and other associations	2	2		Decarbonization of materials	
	Building owners	3	3			
	Civil Society	2	3		Consent intervention	
	Building users	3	3	Savings and utility	Cooperate in application of EE measures	Social media, animation Videos
	Building/ facilities managers	3	3	Building Performance	Building performance Disclosure	Workshops, seminars, animation videos or physical visits
	Building contractors	2	2	Make savings in the contract	Honesty and genuineness	Physical visit, Emails or calls, Newspapers
	Physical Planners	1	2	Structural safety and site suitability	Approval permit	Physical Visit, Workshop
	Town Planners	3	3	Setting orientation of buildings through urban planning	Integrate energy efficiency in urban planning	
	NEMA	1	2	Environmental impact assessment	Approval Permit	Workshops, Email, letters

Thematic Area	Stakeholder	How much does the project affect them (1,2,3)? 1 being lowest	How much do they affect the project (1, 2, and 3)? 1 being lowest	Stakeholders most important goal	Stakeholder possible contribution	Communication means
Industry and Agriculture	Manufacturers	3	3	To reduce energy use intensity	To adopt energy efficiency programs	Official Letters
	Development Partners	2	3	To support country initiatives that support a low carbon economy	To support the energy efficiency programs through technical assistance and financially	Official Letters
	Energy Auditors	3	3	To conduct high quality energy audits	To carry out energy audits to identify energy efficiency opportunities	Official Letters
	Energy Service Companies	3	3	To implement energy audit commendations	To implement the energy efficiency and renewable energy projects	Official Letters
	Financial Institutions	2	2	To provide loans and earn interest	To provide financing for the various energy efficiency and renewable energy projects	Official Letters
	National and County Government agencies	2	3	To implement, enforce and support various activities that support a low carbon economy	To coordinate the various activities on energy efficiency and renewable energy including demonstration projects	Official Letters

Thematic Area	Stakeholder	How much does the project affect them (1,2,3)? 1 being lowest	How much do they affect the project (1, 2, and 3)? 1 being lowest	Stakeholders most important goal	Stakeholder possible contribution	Communication means
Transport	Vehicle dealers, importers and manufacturers	3	3	Making profits	Availing electric vehicles.	Official letters to their associations. Media, Seminars & workshops
	Kenya Power	3	3	To sell more power in a cost effective operation and increase profits	Distributing power to charging stations.	Official Letters
	Pillion Passengers	1	2	To travel safely and arrive timely, at an affordable rate	Embrace use of electric light duty vehicles for transport	Adverts, press release, seminars
	Boda boda and Tuk Tuk Operators	3	3	To make profits	Compliance with provisions of the regulations	Adverts, press release, seminars
	Spare part dealers, workshop owners	3	3	To make sales, increase revenue and profits	Participation in retrofitting existing vehicles	Adverts, press release, seminars
	KEBS	3	3	Ensure quality conformance of products and services	Development and enforcement of standards	Official Letters
	Council of Governors	3	3	Devolution of services to citizens	Development of walking and cycling lanes in counties	Official Letters
	NTSA	3	3	Road safety and compliance	Development of regulations for standards and labelling	Official Letters
	EPRA	3	3	Enforce compliance with the charging station codes and ensure fairness in power pricing	Technical audits of the stations. Approval of special tariff for charging stations	Official Letters

Thematic Area	Stakeholder	How much does the project affect them (1,2,3)? 1 being lowest	How much do they affect the project (1, 2, and 3)? 1 being lowest	Stakeholders most important goal	Stakeholder possible contribution	Communication means
Utilities	Kenya Power,	3	3	Customer certification	Facilitate collection of energy efficiency cost benefits	
	Development partners, UN agencies	1	3	Support sustainable development and energy efficiency	Provision of resources for fund program and projects	
	Industries, commercial building owners	3	3	Achieve energy cost savings	Sign up their facilities/projects to the program	
	Financial institutions	1	1	Business benefit	Fund managers	
	EPCs/ESCOs	3	2	Business benefits	Implementation of the ECMs	
	Insurance companies,	1	2	Business benefit	Indemnity covers for professional Insurance cover for projects	
	Kenya Power/ KETRACO/ REREC/NuPEA	3	3	Reduce revenue leakages	Implementing agency	
	Electricity consumers	3	3	Lower user tariffs	Vigilance in reporting incidents of power theft and asset vandalism	Media campaigns
	Development Partners/ financiers	1	3	Efficiency in utilities	Financing projects and capacity building	Convening regular development roundtable
	Energy generating companies (KenGen & IPPs)	2	1	Realizing adequate return on investment	Providing reliable project information	Investment prospectus
	County Governments	2	2	Reliable and stable supply that can attract investments	Collaboration during planning	Joint planning forums

Thematic Area	Stakeholder	How much does the project affect them (1,2,3)? 1 being lowest	How much do they affect the project (1, 2, and 3)? 1 being lowest	Stakeholders most important goal	Stakeholder possible contribution	Communication means
Utilities	Advocacy groups	2	3	Low user tariffs	Support in consumer awareness	Holding annual stakeholder forums
	Prospective investors	3	2	Adequate, reliable power and at low user tariffs	Providing information on planned investments	Information updated on Website
	KenGen/ NuPEA	3	3	Optimal operation of its power plants	Provision of ancillary service Battery storage	
	IPPs	1	1	Enhanced dispatch on grid	Battery storage	
	MOE	3	3	Grid stability	Policy	
	Electricity consumers	3	3	Lower user tariffs	Vigilance in reporting incidents of power theft and asset vandalism	Media campaigns
	EPRA	1	3	Regulations	Regulatory Approval	

Thematic Area	Stakeholder	How much does the project affect them (1,2,3)? 1 being lowest	How much do they affect the project (1, 2, and 3)? 1 being lowest	Stakeholders most important goal	Stakeholder possible contribution	Communication means
Cross Cutting Issues	National Government and Council of Governors (COG)	3	3	Enhance coordination of EE activities	Participation, Country Energy Plans	Workshops, Seminars
	Kenya Association of Manufacturers (KAM)	3	3	Enhanced MoU	MoU Contribution	Seminars
	EPRA	3	3	EE Data Repository	Annual Audit Reports	Workshops, Seminars
	Academia	2	3	Research data		
	Ministry Of Education	2	3	Enhanced curricula	Curricula review	Workshops
	Financial Institutions	3	3	Maximise responsible investment	Incentivised Finance	
	Non Government Actors	2	3		Consent intervention -Participation	

Appendix 1:
KNEECS Implementation Matrix

Strategic Objective	Focus Area	Priority	Key Activities	Performance indicator	OUTPUT TARGET					RESPONSIBILITY	Expected Budget (Kshs. Million)				
					2021/2022	2022/2023	2023/2024	2024/2025	2025/2026		2021/2022	2022/2023	2023/2024	2024/2025	2025/2026
Improve the energy efficiency of household electrical appliances	Adoption of additional mandatory MEPS for TVs, computers and Lights	IMMEDIATE WINS	Design and implement campaigns and capacity building events targeting importers, distributors and consumers of General Service Lighting, TV sets and computer monitors to sensitize them on the plans to start enforcing their MEPS	Workshops, social media posts, newspaper and TV adverts	20	-	-	-	-	EPRA	4.35				
		SHORT TERM WINS (0 -2 YEARS)	Conduct a baseline market study on the use of computers, TV sets and General Service Lighting for development of a Regulatory Impact Assessment (RIA).	A report detailing the current situation and projecting savings due to adoption of MEPS	1					EPRA and MoE		4.1			
			Conduct stakeholder engagement workshops to collect views and sensitize the public on inclusion of new MEPS into Regulations	Workshops held across the country						EPRA and MoE		6			
			Amend the regulations to add the five new MEPS and start enforcement	Percentage increase in efficiency of the appliances using base year of 2020	-	3	3	3	3	EPRA		1.2	-		
			Publicize the introduction of new MEPS for mandatory compliance both to buyers and importers	Number of workshops, newspaper features, press releases	10	10	10	10	10	EPRA		-	10		
			Incorporation of the new appliances into the Single Window System module, for permit clearance	Changed Single Window System						KENTRADE and EPRA		-	-		

Strategic Objective	Focus Area	Priority	Key Activities	Performance indicator	OUTPUT TARGET					RESPONSIBILITY	Expected Budget (Kshs. Million)				
					2021/2022	2022/2023	2023/2024	2024/2025	2025/2026		2021/2022	2022/2023	2023/2024	2024/2025	2025/2026
Improve the energy efficiency of household electrical appliances	Adoption of additional mandatory MEPS for TVs, computers and Lights	LONG TERM WINS (2-5 YEARS)	Assess the performance of the appliances under MEPS in this category and come up with improved MEPS	Improved MEPS for the three appliances					3	KEBS, EPRA	4.35			3.2	
Improve the energy efficiency of household thermal energy	Clean cooking	IMMEDIATE WINS	Design and implement campaigns and capacity building events targeting importers, distributors and consumers of biomass cook stoves, electric burners and gas cookers on plans to start enforcing MEPS	Workshops, social media posts, newspaper and TV adverts	20	20									
			Carrying out of a baseline survey for use of cook-stoves in Kenya and an impact assessment study for adoption of cook-stove, electric burners and gas cookers MEPS	A study covering these two areas	1					MoE, EPRA		4.1			
			Development of MEPS for biomass cook stoves, electric burners and gas cookers	Standards developed	-	1				KEBS, EPRA, MoE	-	3			
		SHORT TERM WINS (0 -2 YEARS)	Capacity building for laboratory testing of cook stoves	Number of Labs established		2				KIRDI			43		
			Development of standards for cooking fuels	Number of fuel standards (bioethanol, biodiesel, briquettes)		3						3			
			Rollout of voluntary MEPS	Percentage number of households using MEPS meeting cookstoves		10	30	50		KIRDI					
		LONG TERM WINS (2-5 YEARS)	Performance assessment of the adopted MEPS with view of improving them to a new level	New MEPS					1	EPRA, KEBS, MoE				3.2	

Strategic Objective	Focus Area	Priority	Key Activities	Performance indicator	OUTPUT TARGET					RESPONSIBILITY	Expected Budget (Kshs. Million)				
					2021/2022	2022/2023	2023/2024	2024/2025	2025/2026		2021/2022	2022/2023	2023/2024	2024/2025	2025/2026
Enhance the energy performance of new buildings	Energy Efficiency Performance/ carbon Emissions	IMMEDIATE WINS	Carrying out baseline study for building stock data. Data to develop Energy Use Index.	Energy Use Index for buildings	1						5				
			Establish the Share of newly built buildings floor area compliant with energy efficiency requirements in the total building stock	Baseline ratio	1						1				
			Ensure the draft Building Code/ Legislation includes requirements for building energy performance	Energy performance factored in the building code	1						1				
			Carrying out capacity building on Energy Efficiency for National and County Government	Workshops, Training Manuals and Training Videos: Training Report	5						600				
			Carrying out capacity building and awareness on Energy Efficiency for building professionals, artisans and institutions training building professionals on building energy performance	Workshops, Training Manuals and Training Videos: Training Report.	5					MoE, EPRA, NCA	600				
		SHORT TERM WINS (0 -2 YEARS)	Benchmarking on MEPS; how they are being implemented in pilot buildings	Benchmarking Report		1						2.5			
			Develop/ Adopt relevant standards similar to CIBSE buildings energy conservation standards for public and commercial buildings	Kenya Standards in place								5	5		
			Develop minimum energy performance standards and labels for new commercial, residential and public buildings.	Standards Developed and Gazetted	10	40	50			EPRA, KEBS, MoE, CoG, KGBS, MTIHUD	1	4	5		
			Purchase and customise a tool for Energy Efficiency ongoing online data reporting.	Online Tool		10	30	50				2			

Strategic Objective	Focus Area	Priority	Key Activities	Performance indicator	OUTPUT TARGET					RESPONSIBILITY	Expected Budget (Kshs. Million)				
					2021/2022	2022/2023	2023/2024	2024/2025	2025/2026		2021/2022	2022/2023	2023/2024	2024/2025	2025/2026
Enhance the energy performance of new buildings	Energy Efficiency Performance/ carbon Emissions	LONG TERM WINS (2-5 YEARS)	Adopt/develop regulation to Implement and enforce Minimum Energy Performance Standards for Buildings for national and county levels							EPRA, KEBS, MoE, CoG, KGBS, MTIHUD					
			Publicize the introduction of these new MEPS for mandatory compliance to whole of society	Number of workshops, newspaper features, press releases			10			EPRA			5	5	
			Performance assessment of the adopted MEPS with view of improving them to a new level	New MEPS						EPRA, KEBS, MoE			5		
Improve Energy Performance of Existing buildings through retrofits	Retrofits/ Refurbishment	IMMEDIATE WINS	Conduct pilot energy performance renovations and retrofitting in select public buildings to increase capacity and build market for energy efficiency. Prioritising Energy Efficient Lighting	10buildings per year	1		10							10	
			Government Decree on adoption of the programme for the energy efficient upgrade and renovations of existing buildings and representative technical documentation.	Ministerial Decree on adoption of the programme for the EE upgrade and renovation of existing buildings	1						2				
			Increased compliance with Energy Management Regulations 2012; increase implementation awareness	National Communication strategy for Targeted Awareness	1					MoE, KAM					
			ESCO implementation strategies for energy-efficient upgrade and renovation of existing public buildings	To be adopted from Utilities and Industry thematic areas	1										
			Training programmes for building professionals on how to perform energy-efficient building renovation and to adhere to Energy Audit recommendations when doing the renovations	Workshops, Training Manuals and Training Videos: Training Report	5						600				

Strategic Objective	Focus Area	Priority	Key Activities	Performance indicator	OUTPUT TARGET					RESPONSIBILITY	Expected Budget (Kshs. Million)				
					2021/2022	2022/2023	2023/2024	2024/2025	2025/2026		2021/2022	2022/2023	2023/2024	2024/2025	2025/2026
Promotion of new green public buildings	Green building adoption led by MoE	IMMEDIATE WINS	Training programmes on green buildings for; Government; national and county	Workshops, Training Manuals and Training Videos: Training Report	5	5					600	600			
			Training programmes on green buildings for; Developers And Professionals	Workshops, Training Manuals and Training Videos: Training Report	5						300				
			Training programmes on green buildings for Material manufacturers	Workshops, Training Manuals and Training Videos: Training Report	5						150				
			Training programmes on green buildings for Financiers and de-risk insurers/ underwriters	Workshops, Training Manuals and Training Videos: Training Report	1						75				
			Training programmes on green buildings for General public	Workshops, Training Manuals, Animation and Training Videos:	5						300				
			Baseline study on green building materials to decarbonise construction materials	Materials Report and Database	1						10				
			Adoption of ISO 52000-1:2017: Greenhouse gas emission factors for each building energy source							KEBS	1				
			Recognition/ adoption of IFC EDGE green building rating standards							KEBS	1				
			Recognition/ adoption of Green Star Africa-Kenya Green Building Rating System							KEBS	1				
		SHORT TERM WINS (0 -2 YEARS)	Develop fiscal incentives for green buildings including tiered awards	Published incentives	1					MoE, KGBS, EPRA, KAM CEEC		10			
			Develop building passports which should include bill of materials, embodied energy, description of systems, annual maintenance schedules	Digital Building Passports	1					MoE, KGBS, EPRA, KAM CEEC		20			

Strategic Objective	Focus Area	Priority	Key Activities	Performance indicator	OUTPUT TARGET					RESPONSIBILITY	Expected Budget (Kshs. Million)				
					2021/2022	2022/2023	2023/2024	2024/2025	2025/2026		2021/2022	2022/2023	2023/2024	2024/2025	2025/2026
Promotion of new green public buildings	Green building adoption led by MoE	LONG TERM WINS (2-5 YEARS)	Memorandum of Understanding with Kenya Green Building Society	Signed Agreement		-	-	-		EPRA, KEBS, MoE, CoG, KGBS,		0.5			
			Develop Direct Grants and rebates schemes to overcome upfront cost barriers	Gazettement of grant and rebate scheme		-	1	-		EPRA, KEBS, MoE, CoG, KGBS, CBK, Treasury			5		
			Nationwide review of county level spatial plans to include low carbon and energy efficiency	Updated county spatial plans including low carbon and energy efficiency		1	1	1		EPRA, TCPAK, MoE, KGBS		392	392	392	
Increase the reach of successful industrial energy efficiency programmes	Industrial efficiency	SHORT TERM (0 -2 YEARS)	Industry Benchmarks (Sectoral approach)	10 Sectors	5	5				MOE		20	20		
			Baseline Study and validation	1 industrywide study	1					KAM EPRA		20			
		LONG TERM (2-5 YEARS)	Undertaking of energy audits both general audits and investment grade audit at firm level.	1100 General Audits 1100 Investment Grade Audits	350	500	500	500		KAM CEEC	599.5	619.5	885	870	870
			Follow up visits to check implementation of ECMS	2200 follow up visits	350	500	500	500		KAM CEEC EPRA	10.5	10.5	10.5	15	15
			Energy audit impact studies	6 studies			3	3		KAM CEEC, EPRA				15	15
Improve the acceptance of energy audits and implementation of energy audit recommendations	Capacity Building	SHORT TERM (0 -2 YEARS)	Conduct annual training for certification	50 Certified energy professionals (CEM, CEA, CMVP, Solar professional programs)	10	10	10	10	10	KAM CEEC, EPRA	5	5	5	5	5
Enhance the implementation of energy efficiency measures	Implementation ECMs	LONG TERM (2-5 YEARS)	Projects implemented M&E reporting	Estimated industrial energy savings (938GWh)	938 GWh	938 GWh	938 GWh	938 GWh	938 GWh	MOE, KAM, Financiers Development partners Technology partners	1000	1000	1000	1000	1000
	Derisking of Energy Conservation Measures		Registration of energy service companies	Five (5) ESCOs created	2	3				MOE, KAM, EPRA	400	600			
	Funding for energy efficiency and renewable energy projects		Establishment of an ESCO fund	A fund created						Treasury, KAM, MoE, Development partners	10000	10000	5000	5000	5000

Strategic Objective	Focus Area	Priority	Key Activities	Performance indicator	OUTPUT TARGET					RESPONSIBILITY	Expected Budget (Kshs. Million)				
					2021/2022	2022/2023	2023/2024	2024/2025	2025/2026		2021/2022	2022/2023	2023/2024	2024/2025	2025/2026
		SHORT TERM (0 -2 YEARS)	Formulation of implementation guidelines for ESCOs	A model template for ESCO financing						EPRA, KAM,KPLC, Technology providers, Financiers	6				
			Modelling for a credit facility							KAM, Treasury, AG	2				
Develop Fuel Economy Standards and Labelling for vehicles	Develop and adopt fuel economy standards and labelling for vehicles. The labels will include average fuel Regulatory actions	IMMEDIATE WIN	Conducting a baseline study for fuel performance of existing light duty vehicles in Kenya	A baseline study report	1	-				KEBS State department of transport MoE, EPRA, MONR	4	-	-		
		SHORT TERM (0 -2 YEARS)	Development of standards and labelling.	Standard developed	-	1				KEBS, EPRA	-	3.84	-		
		LONG TERM (2-5 YEARS	Development of regulations to enforce the standards	A regulation gazetted	-	-				NTSA, State Department of Transport, KEBS, MoE	-	-	6.4		
Increase adoption and uptake of E-Mobility	Financial mechanisms to increase ownership of electrical vehicles in Kenya	IMMEDIATIE WINS	Create awareness on EE in vehicles and e-mobility. Capacity building and awareness to relevant government arms with a role in progressing this agenda	Number of awareness workshops and seminars	5	5				MoE,	5	5			
			Carry out a baseline study and simulations to compare adoption of e-mobility to use of internal combustion engine e vehicles	A baseline study report	1	-					10	-			
			Lower import duty and road taxes for electric vehicles.	Finance Bill lowering the duties and taxes passed	-	1				Treasury, Ministry of Devolution and National Development	-	6			
			Create a community of practice to share knowledge on emerging opportunities in the EV industry	A community platform developed	-	1				MoE	-	5			
		SHORT TERM (0 -2 YEARS)	Vocational training of technical/trade certificate holders in the EV repair and maintenance technology or conversion of ICEs to EVs	Number of artisans trained		25				MoE, NITA		10			

Strategic Objective	Focus Area	Priority	Key Activities	Performance indicator	OUTPUT TARGET					RESPONSIBILITY	Expected Budget (Kshs. Million)				
					2021/2022	2022/2023	2023/2024	2024/2025	2025/2026		2021/2022	2022/2023	2023/2024	2024/2025	2025/2026
		LONG TERM (2-5 YEARS)	Support the retrofitting of existing ICE, light duty vehicles into EVs.	Reduction in fuel consumption per 100 kilometers travelled			6.5 l/100 km	-	-	MoE, Treasury, KIRDI			320		
			Support Design and development of EVs.	Percentage shared of locally produced EV in the market			2%	3.5%	5%				8	8	8
			Development of a monitoring and reporting framework for the Piloting activities.	A portal developed			1	-	-				15		
			Enforcement of standards for charging stations.	Technical and compliance audits			40	40	40						
			Performance assessment on effectiveness of implemented regulation with a view for improvement.	An assessment report			-	-	1						10
Reduce fuel consumption through better vehicle movement management	Reduction of overall fuel consumption of motor vehicles and develop and implement traffic management plans	IMMEDIATIE WINS	Revamp and encourage non-human intervention of traffic management using the installed intelligent traffic lights that adjust release intervals to reduce traffic jams.	No of initiatives undertaken	2						2				
			Reviving the non-functioning traffic lights in the city	No of traffic lights revived	200						8				
			Develop policy restricting the age of second-hand vehicles imported into Kenya to a maximum of five years	Policy developed	1					Treasury	-				
Enhance public modes of transport		IMMEDIATIE WINS	Create campaigns for modal shift to public transport and non-motorized modes	No of campaigns	5						5				

Strategic Objective	Focus Area	Priority	Key Activities	Performance indicator	OUTPUT TARGET					RESPONSIBILITY	Expected Budget (Kshs. Million)				
					2021/2022	2022/2023	2023/2024	2024/2025	2025/2026		2021/2022	2022/2023	2023/2024	2024/2025	2025/2026
		LONG TERM (2-5 YEARS)	Complementary walking and cycling infrastructure developed with support from county governments	Length of NMT and cycling lanes developed						KENHA, KURA, COG	200	200	200	200	200
			Develop bus Rapid Transport infrastructure	Length of infrastructure developed						KENHA, KURA, COG	600	600	600	600	600
			Develop Commuter rail infrastructure	Length of rail developed						KENYA RAILWAYS, COG	1200	1200	1200	1200	1200
Create and implement models for utility-financed energy efficiency	Establishment of ESCOs Business model	SHORT TERM WINS (0 -2 YEARS)	Develop concept paper for the expansion of Kenya Power's business activities to support the implementation of EE programmes and provide services to customers to identify, design, implement and verify energy efficiency projects	Concept paper	1					Kenya Power, development partners (AFDB) local financiers and investors, insurance companies, industries & other large commercial building owners	22				
	Pipelined Projects	LONG TERM WINS (3-5 Y EARS	Develop a business model, and a finance models to support identified projects	Business and financing framework			1					25			
			Develop a pipeline of projects that would comply with requirements for financing via the Super ESCO mechanism.	Value of project (KES Billion)				2	3					2	3
Improve the efficiency of the energy supply system and delivery infrastructure	System investments	SHORT TERM WINS (0 -2 YEARS)	Carryout a study on the most cost-effective investments in supply infrastructure for reducing system losses, Including upgrades to transmission and distribution infrastructure for efficient and quality power, and potential for cost-effective investments in modern energy monitoring, smart metering, enhancements to existing meter calibration and power factor threshold	Study report	1					KenGen, Kenya Power, REREC, EPRA KETRACO, IPPS	100				

Strategic Objective	Focus Area	Priority	Key Activities	Performance indicator	OUTPUT TARGET					RESPONSIBILITY	Expected Budget (Kshs. Million)				
					2021/2022	2022/2023	2023/2024	2024/2025	2025/2026		2021/2022	2022/2023	2023/2024	2024/2025	2025/2026
		LONG-TERM WINS (3-5 YEARS)	Implementation of the study report recommendations	% of report recommendations implemented			30	50	80						
	Distribution loss reduction	LONG TERM WINS (2-5 YEARS	Enhanced transformer & feeder metering, and install distribution transformer management system	% transformers and feeder metered	20	50	60	100				7.1b			
			• Conduct consumer awareness • Conduct system mapping of high-risk areas where power theft is prevalent, • Re-meter and relocation of inaccessible meter	% of inaccessible meter relocated								12b			
			Install meter data management system									1.5b			
Grid stability, including, ancillary services, adoption of modern energy storage for system stabilization, and distributed generation	Ancillary services	SHORT-TERM WINS (0-2 YEARS)	Carry out a study on ancillary services requirements, energy storage requirement and energy generation distribution.	Study report	1					KenGen, Kenya Power, REREC, EPRA KETRACO, IPPS.	30				
		LONG-TERM WINS (2-5 YEARS)	Develop framework to facilitate implementation and compensation for ancillary services and implementation of ancillary services business	Implementation of Ancillary services						KenGen, Kenya Power, REREC, EPRA KETRACO, IPPS.		20			
	Energy storage	LONG-TERM WINS (2-5 YEARS)	Implement energy storage technologies,	Installed storage capacity (MWh)			1			KenGen, Kenya Power, REREC, EPRA KETRACO, IPPS.		200			

Appendix 2: Reporting Matrix

Objective	Activity	Start Date	End Date	Status	Comments
Objective one	Activity One				
	Activity Two				
	Activity Three				

Objective	Activity	Start Date	End Date	Status	Comments
	Number of audited facilities				
Increase the adoption of energy efficiency programmes	Number of certified energy efficiency professionals				
	Activity Three				
Enhance the implementation of the recommended EE measures	Establishing of a credit line to support the implementation Monitoring, Evaluation and Reporting of achievements Establishment of an operational framework for ESCOs				
Support EPRA in enforcement and compliance activities	Conduct compliance inspections				
Improve EE in the agricultural value chain					

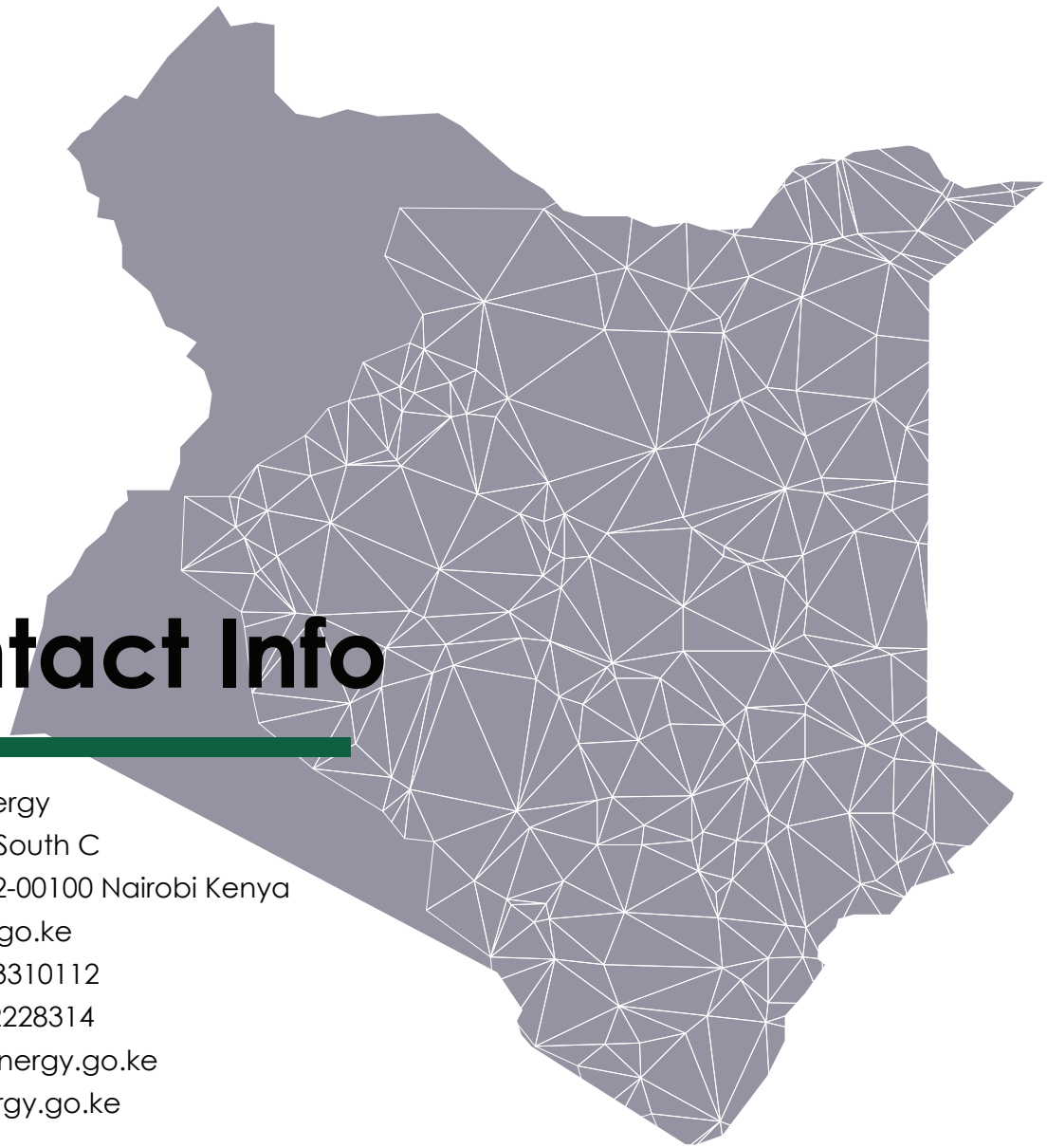
Objective	Activity	Start Date	End Date	Status	Comments
Improve the efficiency of the energy supply system and delivery infrastructure	Study on cost-effective investments in electricity supply infrastructure				
	Implementation of study report recommendations				
	Transformer & feeder metering				
	Installation of distribution transformer management system				
	System mapping of high-risk areas				
	Re-metering and relocation of inaccessible meters				
	Installation of meter data management system				
	Consumer awareness				
Grid stability, including, ancillary services, adoption of modern energy storage for system stabilization, and distributed generation	Carry out a study on ancillary services requirements, energy storage requirement and energy generation distribution				
	Develop framework to facilitate implementation and compensation for ancillary services and implementation of ancillary services business				
	Implement energy storage technologies				

Appendix 3: Communication Plan

Content	Frequency per year	Method of Communication	Target Audience	Responsible
Status of plans to incorporate 5 more MEPS into the current regulations	Four times, each quarter	Official letter	The PS, Ministry of Energy	Director General, EPRA
Status of plans to incorporate 5 more MEPS into the current regulations	Four times, each quarter	Official letter	The PS, Ministry of Energy	Director General, EPRA
Energy Auditing	Quarterly	Official Letter	MoE	CEEC -KAM
Capacity Building	Semi-Annually	Official Letter	EPRA	CEEC -KAM
Implementation of ECMs	Annually	Official Letter	Audited Facilities	Director General EPRA
Compliance Inspections ESCOs	Once every 3 years	Official Letter	Designated Facilities	Director General EPRA

Content	Frequency per year	Method of Communication	Target Audience	Responsible
Progress reports		Official letter/reports	The PS, Ministry of Energy, Development partners	
Study reports		Official letter/reports	The PS, Ministry of Energy, Development partners	
		Workshops	Kenya Power, development partners (AFDB industries & other large commercial building owners local financiers Investors/ESCOs insurance companies,	
		Media release and publications	Awareness for the public and sector	
Status of the study	As per TOR	Progress report	The PS, Ministry of Energy	Project Manager
Status of implementation of study recommendations	Four times, each quarter	Progress report	The PS, Ministry of Energy	Heads of implementing agencies
Distribution system losses reduction measures	Monthly	Official letter	The PS, Ministry of Energy	MD, KPLC
Commercial losses reduction measures	Monthly	Official letter	The PS, Ministry of Energy	MD, KPLC
Study on ancillary services requirements, energy storage requirement and energy generation distribution	2	Official letter, Public Notices	Utilities, MOE, Public	EPRA
Framework to facilitate implementation and compensation for ancillary services and implementation of ancillary services business	2	Letters, Email	Utilities, MOE, Public	EPRA

Ministry of Energy



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