MINISTRY OF ENERGY

STRATEGIC PLAN
2018 – 2022

KENYA VISION 2030

FLAGSHIP PROJECT

REPUBLIC OF KENYA

MINISTRY OF ENERGY

STRATEGIC PLAN
2018 – 2022

JUNE 2018

Towards Universal Access to Affordable Quality Energy for all Kenyans

FOREWORD

Energy is one of the key enablers to spur national economic growth and improved lives for all Kenyans. It has critical productive inter-linkages with other socio-economic activities, including industrial, agricultural and households. The Kenya Vision 2030 identifies energy as a key foundation for national transformation as well as an enabler in the realization of the Big Four Agenda.

In order to create an enabling environment for the implementation of the Big Four Agenda and delineate the functions of the National and devolved levels of Government, the Energy Act 2019 was enacted and came into effect in 2019. The Act was developed to respond to the need to consolidate the laws relating to energy; while promoting renewable energy, enhancing exploration and commercial utilization of geothermal energy, among other activities in the sector. These aspirations influenced the development of this Strategic Plan, covering 2018 – 2022.

The energy sector has experienced growth in the generation, transmission and distribution of power across the country over time. There was great development in renewable energy sources specifically in geothermal, solar and wind. The installed capacity increased from 1,634MW in 2013 to 2,812MW in 2019. In the same period, the number of households connected to electricity increased from 2.3 million to 7.5 million while the country's electricity access went up from 23 % to 75%. It is projected that by the end of the implementation of this Strategic Plan, the country will attain universal access to electricity.

Operational efficiency of the sector recorded recommendable improvement in the course of the implementation of the Medium Term II, attracting more private sector investments into the sector. The System Average Interruption Duration Index (SAIDI) improved from 715 in 2014, to 12.0 in 2019 whereas System Average Interruption Frequency Index (SAIFI) improved from 89 in 2014 to 6.9 in 2019, leading to Ease of Doing Business in the county. This significant success in the quality and reliability of the power supply puts the country in a position to attract more investment and accelerated economic growth, in tandem with the expectations of Sustainable Development Goals (SDGs), The African Agenda 2063, the Vision 2030 and Big Four Agenda development blueprints.

Hon. Charles Keter, EGH
Cabinet Secretary

PREFACE

The vision of the Ministry of Energy is to have affordable quality energy for all Kenyans. In the context of this vision, the Ministry's mission is to facilitate provision of clean, sustainable, affordable, reliable, and secure energy services at least cost while protecting the environment. This Strategic Plan sets energy sector development goals for Kenya as envisaged in Medium Term Plan III, Vision 2030 and the Big four Agenda.

The Strategic Plan identifies key challenges facing the sector. The challenges revolve around the competitiveness, quantity, quality and reliability of energy supply, high cost of energy, low per capita incomes, and low levels of industrialization, leading to reduced demand.

In order to address the identified challenges, the Strategic Plan focuses on four Key Results Areas (KRAs) as the pillars upon which its implementation will be measured and results reported. The Key Result Areas are access to power, reliability of supply, clean energy and environmental sustainability. The Strategic Plan describes the strategic goals and provides the roadmap that ensures clarity and focus for the growth of the sector.

The implementation of the Strategic Plan will require concerted efforts from individuals and institutions charged with various responsibilities. The Ministry will drive energy planning and oversight, and fast track the implementation of the Energy Act 2019. A robust resource mobilization strategy has been developed to ensure all the proposed programmes are fully implemented. The Ministry will continue to provide support and engage with stakeholders in order to build partnerships to realize the goals contained in this Strategic Plan.

Hon. Simon K. Kachapin
Chief Administrative Secretary (CAS)

ACKNOWLEDGEMENT

The formulation process of this Strategic Plan took cognizance of Articles 201 and 232 of the Constitution which provide for public participation and stakeholder engagement.. The successful completion of writing this document was as a result of the collective efforts by stakeholders during the engagement processes.

The development of this Strategic Plan could not have been possible without the involvement of other Government Ministries and Departments, Members of Parliament, County Governments, Semi-Autonomous Government Agencies (SAGAs) in the energy sector, the private sector players, development partners, researchers, civil society groups and the larger public.

I thank everyone who in one way or the other participated to produce this Strategic Plan. We acknowledge the support and inputs from development partners, County Governments, Private Sector, Chief Executive Officers of the State Corporations, Heads of Department and staff of the Ministry. In line with the Ministry's mandate on energy policy formulation and implementation, we will execute appropriate measures to ensure successful delivery of the energy targets in the Big Four Agenda, Vision 2030 and the Third Medium Term Plan 2018-2022.

Dr. (Eng.) Joseph K. Njoroge, CBS
Principal Secretary

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ACRONYMS AND ABBREVIATIONS

AG	Attorney General
AIDS	Acquired Immune Deficiency Syndrome
CAIDI	Customer Average Interruption Duration Index
CDM	Clean Development Mechanisms
Co-Gen	Co-generation
CPPMU	Central Planning and Projects Monitoring Unit
CSO	Civil Society Organizations
ESIA	Environmental and Social Impact Assessments
ESMP	Environmental and Social Management Plans
GDC	Geothermal Development Company
GIS	Geographic Information System
HIV	Human Immunodeficiency Virus
HPS	High Pressure Sodium
HRM&D	Human Resource Management and Development
ICT	Information (and) Communication Technology
IPPs	Independent Power Producers
KEMP	Kenya Electricity Modernisation Project
KenGen	Kenya Electricity Generating Company
KES/KSh	Kenya Shillings
KETRACO	Kenya Electricity Transmission Company
KFS	Kenya Forest Service
Km	Kilometres
KOSAP	Kenya Off-Grid Solar Access Project
KPLC	Kenya Power and Lighting Company
KV	Kilo Volts
KWS	Kenya Wildlife Service
LED	Light Emitting Diode
LILO	Line In Line Out
LTWP	Lake Turkana Wind Power
MoE	Ministry of Energy
MTEF	Medium Term Expenditure Framework
MTP	Medium Term Plan
MV	Mega Volts
MVA	Mega Volts Ampere
MVAR	Mega Volts Ampere Reactive
MW	Mega Watts
MWe	Mega Watts Energy
No.	Number
NuPEA	Nuclear Power and Energy Agency
O&M	Operations and Maintenance
PESTEL	Political Economic Social, Technological Environmental Legal (Analysis)
PFS	Preliminary Feasibility Report
PPA	Power Purchase Agreements

PPP	Private Public Partnerships
PIM	Public Investment Management
RAP	Resettlement Action Plans
RETS	Renewable Energy Technology Standards
RR	Research Reactor
SAGAs	Semi-Autonomous Government Agencies
SAIFI	System Average Interruption Frequency Index
SCMS	Supply Chain and Management Services
SER	Self-Evaluation Report
SP	Strategic Plan
SWOT	Strengths Weaknesses Opportunities Threats
TEGEG	Technical Evaluation of Kenya's Electrical Grid
ToU	Time of Use Tariff
UN	United Nations
USAID	United States Agency for International Development

EXECUTIVE SUMMARY

This Strategic Plan is divided into five chapters. Chapter One gives an overview and background against which the plan was developed; the mandate of the Ministry of Energy; global, regional and national development challenges facing the energy sector; and the role of the Ministry of Energy in national development. In the course of the implementation of the second Medium Term plan, power generation grew from 1,634MW to 2,812MW while the number of households connected to electricity increased from 2.3 million to 7.5 million. The country's access to electricity went up from 23% in 2013 to 75% with a projection to have universal access by 2022. The transmission and distribution network's circuit length increased from 179,270 to 213,700 kilometres for all voltage levels, representing a 19.2% annual growth rate.

Chapter Two explores the situations affecting the energy sector. It looks into the challenges and lessons learnt during the implementation of the Strategic Plan 2013-2017 while scanning the environment under the SWOT and PESTEL analysis. It analyses the role of the key stakeholders in the energy sector and the strategic goals upon which this Strategic Plan focuses on. Some of the key challenges identified were community conflicts and inflated costs arising from compensation for right of way for power infrastructure projects. The acquisition of way-leaves, encroachment, trace clearance, land acquisition and high initial geothermal development costs slowed down some projects and led to losses.

Chapter Three presents a summary of the Key Result Areas (KRAs). It provides strategic models to support the implementation of the Big Four Agenda and other priority areas. In order to support agriculture, the Ministry promises to ensure adequate supply of electricity to support irrigation farming and production of agricultural inputs while in universal healthcare, 3-phase power supply will be connected to all level 5 public hospitals across the country. The Ministry will facilitate the Time of Use (ToU) tariff to commercial and industrial customers during off-peak period to improve the competitiveness of the manufacturing sector. In Housing, proposed housing plans will be incorporated into the electricity access programs.

Chapter Four provides the implementation and coordination frameworks for the execution of the Strategic Plan while Chapter Five presents the monitoring, evaluation and reporting frameworks. Every year, SAGAs, Departments and Units shall develop Performance Contracts and Annual Work Plans drawn from the Strategic Plan. The management will hold regular meetings to review the status of implementation and identify areas requiring strategy change. Regular reports on the progress made towards the attainment of the goals will be shared among strategic stakeholders.

CHAPTER ONE: INTRODUCTION

1.0 Overview

This chapter presents an overview of the energy sector, the background under which the Strategic Plan (SP) was developed, and the role of the Ministry in the national development agenda. The chapter anchors the SP on the global development and challenges relative to the energy sector and provides the foundations for the Strategic Plan.

1.1 Background

Global development programs identify energy as a key variable in promoting economies, fighting poverty and improving livelihoods. Goal 7 of the Sustainable Development Goals (SDGs) point to access to affordable, reliable, sustainable and modern energy for all as the way to transform lives - while The African Agenda 2063 aim to promote environmentally sustainable and climate resilient economies and communities through the development of renewable energy sources.

In Kenya, Part 2 of the Fourth Schedule of the Constitution provides for County Governments to be responsible for County Integrated Development Planning (CIDP), including electricity and gas reticulation and energy regulation. Article 69 of the Constitution obligates the State to ensure sustainable exploitation, utilization, management and conservation of the environment and natural resources; and ensure equitable sharing of the accruing benefits. Globally, energy is considered a pathway to addressing socio-cultural issues; and environmental and economic challenges facing human beings.

Since 1996, a standard set of policies prescriptions for power sector reform has been widely used. The prescriptions included vertical and horizontal unbundling of power utilities, private sector participation, creation of an independent regulator, and competition in power generation (with associated cost-recovery pricing). Generation was split from transmission and distribution, Electric Power Act of 1997 was passed, birthing an independent Electricity Regulatory Board (ERB).

Sessional Paper No. 4 of 2004 on Energy set the basis for passage of the Energy Act 2006, as a result of this Kenya Electricity Generating Company Limited (KenGen) was partially privatized; ERB was transformed into the Energy Regulatory Commission (ERC), giving it greater independence and authority. The Energy Tribunal was established at the same time to deal with appeals and disputes arising from ERC decisions. The sector was further restructured, with the establishment of the Rural Electrification Authority (REA) in 2007; a separate transmission company, Kenya Electricity Transmission Company (KETRACO) in 2008; and the Geothermal Development Company (GDC), also in 2008.

In response to the provisions of the Constitution, the Energy Act 2019 was enacted and came into effect on 28th March 2019, repealing the Energy Act, 2006, the Kenya Nuclear

Electricity Board Order No. 131 of 2012 and the Geothermal Resources Act, 1982. The new Act consolidated the laws relating to energy in Kenya while creating an enabling environment for the implementation of the Big Four Agenda.

1.2 Mandate

The mandate of the Ministry of Energy is drawn from the Executive Order No. 1 of 2018 (Revised) on reorganization of Government. Under the Executive Order, the Ministry's mandate include National Energy Policy, Development and Management; Thermal Power Development; Rural Electrification Programme; Energy Regulation, Security and Conservation; Hydropower Development; Geothermal Exploration and Development; and Promotion of Renewable Energy.

The Executive Order places the following institutions under the Ministry's supervision: Renewable Energy Resource Advisory Committee; Nuclear Power and Energy Agency; Rural Electrification and Renewable Energy Corporation; Energy and Petroleum Tribunal; Energy and Petroleum Regulatory Authority; Kenya Power and Lighting Company; Kenya Electricity Transmission Company'; and Geothermal Development Company.

The Energy Act 2019 gives the Cabinet Secretary the responsibility to develop a conducive environment for the promotion of investments in energy infrastructure development, including formulation of guidelines in collaboration with relevant county agencies on the development of energy projects and to disseminate the guidelines among potential investors and other stakeholders.

1.3 Global, Regional and National Development Agenda

The United Nations' Sustainable Development Goals (SDGs) identify access to clean, affordable, reliable, sustainable and modern energy as the vehicle for poverty reduction. The goal No. 7 of the SDGs is geared towards increasing the share of renewable energy in the global energy mix and double the global rate of improvement in energy efficiency. The African agenda 2063 aspires to have a prosperous Africa, based on inclusive growth and sustainable development. The agenda promotes the basic necessities of life such as, water, food, sanitation, energy, public transport and ICT.

Energy poverty remains a serious obstacle to economic and human development in most parts of the African Continent. The continent's energy sector continues to face critical challenges, among them lack of access to modern energy services (especially in rural areas), poor infrastructure, low purchasing power, low investments and overdependence on traditional biomass to meet basic energy needs.

The Kenya National Energy Policy identifies the major challenges facing the energy sector. They include improving the competitiveness, quantity, quality and reliability of energy supply. High initial capital outlay; mobilizing adequate financial resources to undertake massive investments, high cost of energy, low per capita incomes, and low levels of industrialization are some of the other challenges identified in the policy. Electricity generation is predominately hydro, supplemented by geothermal and thermal

sources. Apart from wood fuel which is overexploited, the other renewable energy resources, though abundant are yet to be fully exploited.

1.4 Role of the Ministry of Energy vis-à-vis the National Development Agenda

The Role of the Ministry of Energy in national development agenda is contained in the Constitution of Kenya, the Vision 2030, the Big Four Agenda, Medium Term Plan III as well as the Sustainable Development Goals and Africa Agenda 2063 to which Kenya has made commitments.

The Constitution under Article 42 provides for the right of every person to a clean and healthy environment. Article 69(1) provides that the State shall (a) ensure sustainable exploitation, utilisation, management and conservation of the environment and natural resources, and ensure the equitable sharing of the accruing benefits. The Fourth Schedule of the Constitution provides for the functions of the National and County Governments in as far as provision and regulation of energy is concerned.

The Vision 2030, the country's blueprint aims to transform Kenya from a low income, agrarian economy into a newly industrialized middle-income country by 2030, with an average GDP growth rate of 10% per annum. In order for the country to achieve this Vision, there needs to be adequate, affordable and reliable power. The power will enhance manufacturing and promote investments. There will be need to promote development and use of renewable energy. This will call for generation of energy from geothermal, solar, wind, biogas ("Biogas for Better Life") and development of bio-energy including bio-ethanol and diesel value chains. The use of improved cooking stoves and charcoal kilns, and re-afforestation of water towers will be promoted. National Renewable Energy Master Plan and updated renewable energy database will be developed.

The Ministry introduced Feed-in Tariffs in 2008 (revised in 2010 and 2012) to encourage private investment into renewable energy by providing a secure long-term tariff mainly valid for a 20-year period and guaranteed access to the grid. In addition, the 2014 Energy Local Content Regulations aimed to fast-track implementation of the local content plan that focuses on Kenyan services, goods, labour and on-job training. The Ministry is exploring several other initiatives to boost generation, transmission and distribution; for instance, the development of power plants particularly the 310MW Lake Turkana Wind Power Project, and the two units in Olkaria that are expected to add approximately 210 MW of cheap power to the grid.

Low cost electricity will guarantee and accelerate the realization of the Big Four Agenda. Manufacturing is expected to be a major consumer as a result of increased investment in industries, and this will require massive energy, particularly in the textile and apparel, leather, agro-processing and the blue economy. In order to enhance food and nutrition security, focus will be on expanding food production and supply, reduction of food prices and supporting value addition in the food processing and value addition. Critical development areas that will demand energy include: large scale agriculture; adoption of

post-harvest technologies such as establishing additional strategic food reserve for storage; and developing cold storage facilities.

With regard to achieving 100% Universal Health Coverage (UHC) for all households, there will be demand for energy to support initiatives that enhance quality service delivery and affordable healthcare for citizens, including powering equipment and modern technologies in health facilities. In housing, the Government plans to provide at least 500,000 affordable and decent houses by 2022. It is expected that once the units are developed, the house demand for energy will equally increase. This Government development agenda and other priorities are expected to increase investment in the energy sector and support further national socio-economic growth.

CHAPTER TWO: SITUATIONAL ANALYSIS

2.0 Overview

This Chapter analyses the current situation within and without the Ministry of Energy that affects the development of the sector positively or adversely. It summarizes the performance of the Ministry during the implementation of MTP II, the challenges encountered as well as the lessons learnt. The chapter looks into the internal operating environment, using the SWOT Analysis model while the external operating environment is investigated by the use of the PESTEL Analysis model. The Chapter identifies the primary stakeholders and their expectations in the context of the Strategic Plan.

2.1 Review of the Implementation of the Strategic Plan 2013 – 2017

The Ministry's Strategic Plan (2013 – 2017) was aligned to the MTPII and sought to realise the following objectives:-

1. Strengthen the Policy, Legal and Institutional framework for the energy development and accelerating the speed of completion of projects
2. Improve access to competitive, reliable and safe supply of energy to all Kenyans
3. Promote Sustainable energy self-sufficiency
4. Promote efficient utilization and conservation of energy
5. Increased access to electricity in rural areas
6. Promote Exploration and development of geothermal and fossil resources
7. Promote development of new and renewable energy sources
8. Optimal utilization of both human and financial resources
9. Explore alternative financing models for energy sub-sector projects
10. Enhance Public-Private Partnerships in the provision of energy facilities and services.

A number of programmes and projects were identified for implementation in order to achieve the above mentioned objectives. The performance of Ministry in implementing key programmes and projects is summarized in the tables below:-

Table 1: Ministerial Performance under Strategic Plan 2013 -2017

No.	PROGRAMME/TARGETS	ACHIEVEMENTS
Increased Electricity Generation-(5000+ MW Generation)		
1.	Develop 1,920MW from coal	Signed PPA for development of 981.5MW coal plant in Lamu
2.	Develop 1,691MW from geothermal	Installed capacity of 412.2 MW of Geothermal realized through Olkaria 1AU 140MW, Olkaria 4, 140MW and Orpower 4 plants I & IV 56.6MW and Wellhead 75.6MW. 312.5MW with signed PPA
3.	Develop 630.4MW from wind	330.4MW from Ngong I Phase 2, Ngong II 20.4MW and LTWP 310MW, 150MW with signed PPA
4.	Develop 250MW from Medium Speed Diesel	250MW from Thika power 87MW, Triumph 83MW and Gulf 80MW
5.	24MW from Kindaruma hydro electricity re-development	24MW from Kindaruma optimization
6.	18MW biomass co-generation	2MW from Biojoule. 21.44MW of Cogeneration and biogas with signed PPA
7.	The 90MW emergency power plants to be phased out	120MW Aggreko emergency decommissioned
8.	The first 1,000MW of nuclear energy is to be developed and connected to the national transmission and distribution grid	Capacity building done and is ongoing, Preliminary site identification done.
Expand and upgrade the national power transmission and distribution grid, improve supply and reliability, reduce system losses, and to connect 200,000 new customers annually.		
1	Develop 4,602km of 132kV and above high voltage transmission lines and associated sub stations	1,123km transmission line completed and energized. 492kms of 132kV 46kms of 220kV 585kms of 400 kV 11 HV Substations
Increasing electricity access to 75-80% from currently 25-30% thus; transforming Kenyan peoples' lifestyles and spurring socio-economic growth		
1	To connect electricity grid or solar PV to 12,124 public primary schools	22,384 Primary schools electrified

No.	PROGRAMME/TARGETS	ACHIEVEMENTS
2	Connecting 6,090 public facilities not covered under the 12,124 Public Primary School Laptop Project, to the national electricity distribution grid and solar PV 205 secondary schools; 2,706 trading centres, 3,179 including health and Tea buying centres factories and water projects.	39,549 Public Facilities electrified
Promote the up-take of non-conventional renewable energy technologies such as solar electricity generators (PVs), solar water pumps, solar street lights, wind, biogas, small hydropower, solar water heaters bio-diesel and bio-ethanol, thereby increasing access to cleaner, safe and quality energy sources: Targeted is development of 150MW in three years or 50MW annually of electrical capacity from renewable energy resources.		
1	Install solar electricity generators (PV systems) in 500 off grid public facilities/institutions annually.	64 Public Facilities installed with Solar PV Systems (secondary schools & health facilities)
		1400 Solar PV systems were installed in public institutions;
2	Develop a national small hydro power atlas and 20 MW of small, mini, micro and pico-hydropower from various sites.	A national small hydro atlas was prepared, detailed feasibility assessment for 10 sites undertaken and one community small hydro project at Ngerechi, Muranga completed; 26 mini-grids implemented in 5 off-grid counties
3	Undertake 40 Investment Grade Audits and 80 General Audits to reduce Energy consumption by 10-30%.	30 General energy audits and 67 investment grade energy audits were carried out
4	Rehabilitate 1000 ha of degraded water catchment areas.	968 hectares of hydro dam catchments afforested
5	Construct 10 institutional biogas plants.	6 institutional biogas plants constructed
6	Construct 3,000 bio-digesters under the “Biogas for Better Life” initiative by individual households, and a further 250 through the Energy Centres.	6,050 domestic biogas plants installed in various parts of the country.
7	Provide 200 improved cooking stoves to public institutions	50 improved institutional cook stoves installed in public secondary schools.
8	Roll-out distribution of solar lanterns aimed at phasing out	380 solar lanterns and 480 solar PV kits were distributed to primary schools and public

No.	PROGRAMME/TARGETS	ACHIEVEMENTS
	kerosene use for lighting	offices respectively
Strengthen the Policy, Legal and Institutional framework for the energy development and accelerating the speed of completion of projects;		
1.	Fast-track the enactment of the Energy Bill and Energy Policy	Energy Policy reviewed; Energy Act 2019 in place
2.	Develop enabling regulations	Nuclear Safety and Security policy; Management of radioactive waste policy; Nuclear fuel cycle policy; A policy on the Management of the Kenya Nuclear Power Programme; A policy on capacity building; Policy on Institutional Infrastructure for Nuclear Procurement; National Geothermal Strategy; and National Nuclear Strategy.

There were other programmes that had been planned and were not implemented. These are also summarized in the table below:-

Table 2: Targets not achieved

No.	Planned Projects not Accomplished
1.	Install 20 wind/solar hybrid generators in isolated mini grids.
2.	Analyze Wind data and develop a national Wind Atlas and also carry out 5 pre-investment feasibility studies.
3.	Establish 5 new Energy Centres and enhance the capacity of the 16 existing ones.
4.	Undertake a pilot project of electricity generation from municipal/industrial solid waste.
5.	Undertake a pilot project on 5 community woodlots in 5 counties
6.	Up-date renewable energy database.
7.	Develop a value-chain for bi-ethanol production and feedstock for biodiesel.
8.	. To be shifted to projects achieved
9.	The existing 350MW of thermal power plants will be switched to operate on liquefied natural gas
10.	1,050MW from liquefied natural gas
11.	National Coal development Strategy
12.	Develop and implement ICT Policy; infrastructure; security; information and data access to the public; resource centre; and, integrated management information system.
13.	Develop legislation to promote and enforce efficiency in energy supply and adoption of energy efficiency technologies and practices.

2.2 Milestones

The following were the key milestones achieved in the energy sector during the implementation of MTPII:

1. The installed capacity in the power subsector expanded from 1,634MW in 2013 to 2,812MW in 2019. The additional capacity included 400.6MW of geothermal, 250MWmediumspeed diesel, 29.5MW hydro, 320.4MW of wind, 50MW from solar and 2MW of Biomass. Initial investments in solar generation were also made, notably the 250kW Strathmore solar plant and a series of small mini and micro solar grids in far-flung areas of the country.

2. The reserve capacity increased by 26% when all the effective 2,560 MW interconnected capacity is available to serve the 1,882MW peak demand. Further, the grid supply became robust with a diversified mix from three predominant sources, hydropower, geothermal and fossil thermal. Hydropower and geothermal contributed 35.4% and 28.6% respectively while fossil thermal plants constitute 33.8% of the existing effective capacity.

3. A total of 127 wells were drilled with a combined output of 739 MWe, made up of 89 geothermal wells drilled at Olkaria geothermal field with an output of 600Mwe and 38 geothermal wells drilled at Menengai Phase 1 & II field with an output of 139MWe.

4. In an effort to supply electricity to towns and regions off the interconnected grid, 13 gensets with a total capacity of 14.4MW were installed and commissioned in 6 counties namely Wajir, Mandera, Turkana, Marsabit, Garissa and Lamu.

5. A total of 84 bulk supply substations were completed within the MTP II period. These substations serve the objectives of facilitating load growth to absorb the new generation, reducing technical power losses, and reducing the frequency and duration of power interruptions.

6. An additional 23,780Kms of medium voltage lines were constructed thereby extending the MV network length to 73,597Kms, up from 49,818 KMs in 2013.

7. In the MTP II implementation period, customer connectivity to electricity increased from 2,188,972 in 2013 to 5,809,134. This translates to an increase of 3,620,162 against the target of 2,000,000 new customers. A total of 15,134 schools were connected to electricity bringing the total number of primary schools connected to 23,337 out of the 23,844 primary schools.

8. The average power interruptions per 1,000 customers per month improved from 7.5 in 2013 to 3.54 in 2017 while the average repair response time improved from 7.3 hours in 2012 to 2.06 hours as at June 2017. The System Average Interruption Duration Index (SAIDI) improved from 715 in 2014, to 12.0 in 2019 whereas System Average Interruption Frequency Index (SAIFI) improved from 89 in 2014 to 6.9 in 2019, leading to Ease of Doing Business in the county.

9. The Mwangaza Mitaani project initially covering Nairobi City targeted 783 streets and high masts but was later extended to cover 52 towns and 30 County Headquarters.

As at May 2017, a total of 35 towns and urban centres in 27 counties had been covered by the programme with 65,232 lanterns being installed. Out of these 2,197 High Pressure Sodium (HPS) lights have been refurbished and 5,672 new HPS and 57,363 LED lights installed. In addition, 104 high masts flood lights were installed in 6 informal settlements namely Kibera, Mathare, Korogocho, Ngomongo, Mukuru Kwa Njenga and Kiandutu.

10. In preparation for the introduction of nuclear power energy in Kenya, the following milestones were achieved:
    i. A country self-evaluation against 19 issues to identify gaps and areas of improvement necessary for successful implementation of the program was done. The Self Evaluation Report (SER) was subjected to an International Atomic Energy Agency's (IAEA) Integrated Nuclear Infrastructure Review (INIR) mission and a number of recommendations, suggestions and good practices were highlighted.

    ii. Technical Evaluation of Kenya's Electrical Grid (TEKEG) to Support Kenya's NPPs for nuclear power interconnection with the Electric Grid was carried out. The study recommended suitable interconnection schemes (between Nuclear Power Plant(s) and the Electric Grid) and fast-tracking of the on-going /expansion of transmission network and regional interconnections to ensure safe, efficient and effective evacuation of power to/from the nuclear power plant(s).

    iii. A Preliminary Feasibility Study (PFS) on Nuclear Power was carried out to gauge the feasibility of nuclear power in Kenya. Recommendations from the PFS were used in development of the 15 Year Strategic Plan (2013). The Strategic plan captures the implementation plan for the nuclear power program.

    iv. A Strategic Environmental Assessment (SEA) towards the development of comprehensive environmental protection program for nuclear in Kenya was carried out.

    v. Towards the identification of appropriate site(s) for nuclear power plants, a site selection criterion was developed and candidate sites identified.

2.3 Challenges

During the implementation of the 2013 – 2017 Strategic Plan, there were various challenges that affected the realisation of some of the strategic objectives. These are summarised below:

1. Right of Way for power infrastructure projects, (way leaves acquisition, encroachment, trace clearance) and land acquisition, leading to delays in project implementation and losses.

2. Inadequate financial resources – budget cuts and delayed disbursements

3. Insecurity and community conflicts in project areas leading to vandalism and threat to lives of project implementers

4. Inadequate technical capacity in some areas

5. Electricity demand growth falling short of projections

6. Insufficient coordination among some key partner Government Agencies

7. Limited cross-border power trade due to delay in regional interconnection projects

8. Prolonged droughts that affect hydro power production

9. Weak and inadequate infrastructure in transmission and distribution.

10. Resistance by communities/civil society groups to coal development projects

11. Inadequate information/sensitization on developments in the energy sector

2.4 Lessons Learnt

1. Working closely with communities and other Government agencies such as the National Land Commission and the County Governments will ensure minimum disruptions in the projects especially in acquiring way leaves and preventing encroachment after land acquisition.

2. Adequate resource mobilization prior to project development will mitigate the high initial geothermal development costs and the challenges of inadequate financial resources and delayed disbursements.

3. There is need to develop adequate technical capacity in emerging areas such as nuclear technology and renewable energy.

4. Production and generation of power needs to match the demand for power. There is need to work with other stakeholders to generate adequate demand for the power.

2.5 Environmental Scan

2.5.1 SWOT Analysis

The SWOT Analysis investigates the internal strengths and weaknesses as well as the external opportunities and threats that exist within the sector. Strategies have been identified to tap into the strengths and opportunities (table 3 and 5). Mitigation measures have also been proposed to address the weaknesses and threats (tables 4 and 6):

Table 3; Strengths

	Strengths	Strategies to Enhance the Strengths
1.	Strong governance and institutional structure in the sector Institutions	Enhance Performance Monitoring, Evaluation and Oversight.
		Improve coordination of roles and responsibilities of the SAGAs to eliminate duplication and overlap of roles
		Enhance accountability structures.
		Re-engineer service delivery processes
2.	Enabling legal and strategic framework such as the Energy Act 2019, and the National Electrification Strategy	Undertake periodic review of the existing policies/legislations, guidelines and plans to align them to the emerging issues
		Implement the Energy Act, 2019 and Service Delivery Instruments
3.	Ability to attract funding for projects from both domestic and international sources	Promote incentives to encourage generation projects
		Encourage openness in stakeholder engagement
		Cultivate political goodwill
4.	Skilled manpower within the Ministry and Agencies	Develop a Human Resource Development Strategy for the sector.
		Develop interagency/institutional collaboration framework amongst industry players
5.	Strengthened management systems	Develop integrated energy management system
		Enhance integration information systems

Table 4: Weaknesses

	Weaknesses	Strategies to Manage the weaknesses
1.	Inadequate data on energy, necessary for planning/insufficient enterprise resource planning systems	Have integrated systems (Data base) for the Ministry and the agencies
		Promote data demand and use for planning purposes
		The Ministry to take charge of special systems such as GIS and Project Management dashboard.
2.	Absence of collaborative framework among key stakeholders to create synergy and ensure effective implementation of the MoE development strategies.	Formulate a collaborative framework among the key stakeholders
		Enhance Performance monitoring, evaluation and oversight of the SAGAs and their deliverables.
		Enhance coordination of roles and responsibilities of the SAGAs to eliminate duplication & overlap of roles.
3.	Inadequate funding/delay in disbursement of funds affect the implementation of projects	Enhance accountability in expenditures.
		Ensure compliance with disbursement schedules.
		Lobby for more funding and diversify on revenue sources.
4.	Inadequate facilitation of government approvals required for project implementation	Develop a service charter on Letters of Support from inputs by the different players
		Develop a follow up mechanism between the different players i.e. Ministry, Treasury, A.G and the Financiers
5.	Lack of Integrated Communication Policy and Strategy; Community Relations and Stakeholder Engagement Strategy, Public Participation Guidelines and Corporate Social Responsibility (CSR) policy	Develop Sector Communication Policy
		Develop Integrated Communication Strategy
		Develop Community Relations and Stakeholder Engagement Strategy
		Develop Crisis Management and Communication Plan
		Develop Public Participation Guidelines
		Develop Corporate Social Responsibility Policy

Table 5: Opportunities

No.	Opportunities	Strategies to Exploit the Opportunities
1.	Growing national economy driven by Government priorities such Big 4 agenda and the Vision 2030.	Accelerate supply of affordable and reliable power from cheap renewable sources.
2.	A variety of energy resources.	Enhance diversification of the country's energy mix.
3.	Emerging regional energy services such as consultancy, drilling, geo-scientific studies, O&M services etc.	Export technical capabilities and services to other countries in need.
4.	Availability of alternative financing frameworks.	Explore innovative financing approaches
5.	Regional power market	Fast-track regional interconnectivity projects.
		Invest in power projects beyond boarders
6.	Global technological growth	Enhance research and promote the use of new technologies in energy development.
7.	Energy identified as an enabler for Vision 2030 and Big 4 Agenda	Develop mechanisms to create and sustain demand for energy
		Develop strategies to lower and maintain affordable energy costs (e.g. Adherence to the Least Cost Power Development Plan)
		Promote inter-linkages between the energy sector and other sectors when developing plans.
8.	Existing political goodwill	Regularly engage with members if the Senate and the National Assembly, civil society groups and communities to support the developments in the energy sector.

Table 6: Threats and Mitigation Strategies

No.	Threats	Strategies to Mitigate Against Threats
1.	Land access rights, adverse stakeholder and community perceptions on Government projects.	Enhance public participation, community relations and access to information plans.
2.	High upfront development cost	Diversify financing options
		Use locally available resources
3.	Resource Sustainability	Enhance resource management e.g. re-injection for geothermal and conservation of water catchment areas Internal Capacity building

No.	Threats	Strategies to Mitigate Against Threats
4.	Environmental and safety issues	Implement Environment and Social Impact Assessment (ESIA) reports
		Implement environmental and social management plans
		Involve Communities in decision making and problem solving.
5.	Reduced budgetary allocation by National Treasury due to competing needs	Look for alternative sources of funding.
6.	Slowdown in key productive sectors, reducing demand for electricity	Give incentives to investors such as ToU tariff, rebate programs and exploring cheaper sources of power
7.	Geopolitical shifts affecting regional interconnection projects and power trade.	Enhance engagement with key stakeholders in bilateral and multilateral agreements
8.	Erratic international oil prices	Diversify the energy mix
		Fast-track the implementation of fuel stabilization fund
9.	Terrorism threats	Seek collaborative synergy with relevant institutions to secure critical energy infrastructure
10.	The drive for lower tariffs, rendering key agencies financially unviable	Rationalize the Supply-Demand balance to ensure cost reflective tariffs.
		Stakeholder engagement and alignment of tariffs
11.	Entry of regional players and utilities in the Kenyan energy market as a result of regional integration	Remain competitive and continuously engage policy makers.
12.	Changing energy legal, regulatory and policy frameworks that may decentralize energy to county governments as primary drivers	Work with devolved units and policy makers on shared functions.
13.	Climate change which affect energy sources e.g. poor hydrological conditions	Diversify the country's energy mix.
		Adopt energy efficiency and conservation strategies
14.	Cyber Security threat	Invest in ICT Security Systems

2.5.2 PESTEL Analysis

PESTEL Analysis is used to investigate the general factors in the external environment that have potential impact on the implementation of this strategy. The impact could be positive or adverse.

Table 7: PESTEL Analysis

No.	ISSUES	IMPLICATIONS ON STRATEGY	STRATEGIES TO ENHANCE/MITIGATE
Political			
1.	Regional Integration	Regional integration will increase the market and stability for power.	Active participation and representation in the regional power market initiatives
			Lobbying for fast-tracking of project delivery in the regional bodies.
	Change of Government development priorities	National political influence may fast-track or slow down project implementation	Enhance the political goodwill through stakeholder participation and engagement
			Complete ongoing projects as per medium term plans
		Deviation from planned targets	Ensure utilization resources are aligned to planned activities
	Devolution of Government	Reshaping the process of service delivery and development planning	Enhance active involvement by the national and county governments in project implementation process
		Potential to increase market size for local industries, thus raising power demand	Update and align electricity supply master plan to accommodate the role of county governments.
Economic			
2.	Competing Government	Reduced budgetary	Ensure innovative resource

No.	ISSUES	IMPLICATIONS ON STRATEGY	STRATEGIES TO ENHANCE/MITIGATE
	priorities	allocations	mobilization and efficient utilization of funds
	High cost of land for projects	High cost of land leads to higher capital costs for future projects	Undertake participatory feasibility studies and community relations exercises.
	Volatility of macro-economic factors	High rate of inflation, changes in the fuel prices, interest rates, forex variations and cost of project inputs affect the overall costs of projects.	Enhance project coordination and control so as to complete the projects as per the stipulated timelines.
	Government financial policies and changes in taxation.	Slows down or speeds up implementation of projects	Develop a proactive approach to planning, forecasting and ensure adequate stakeholder engagement.
Social			
3.	Land acquisition for projects from communities, private land and Trust land.	Land speculation and agitation, leading to increased project costs and delayed implementation.	Ensure valid valuation of land by the National Land Commission (NLC)
			Enhance community participation and engagement.
	Rising education and literacy levels	Social expectations of the community may determine acceptance or resistance of the project	Closely monitor implementation of Environmental Social Management Plan (ESMP) and Resettlement Action Plan (RAP).
			Enhance community sensitization and involvement.
	High population growth rate and distribution.	Increased energy demand and cost of projects	Increase access and stability of power supply

No.	ISSUES	IMPLICATIONS ON STRATEGY	STRATEGIES TO ENHANCE/MITIGATE
	Proliferation of both traditional and social media outlets	Real-time information sharing and engagement with communities and other stakeholders.	Empower Communication specialists in the sector with skills through training and freedom to engage with stakeholders through traditional and social media
			Utilize the emerging media outlets including FM vernacular radio stations and social media to inform and engage with citizens and stakeholders
			Promote the existing Energy Journalism Excellency Awards (EJEA).
Technological			
4.	Advancement in technology	High efficient delivery of services and Organizational change in operations	Adopt and keep pace with technology advancement and process automation
		Necessitates re-training and re-tooling of personnel.	
	Cyber-crime threat	Increased cyber-attacks.	Invest in Cyber Security
	Increasing intermittencies in the power system	Intermittencies affect the power system stability, reliability and power cost, leading to losses due to frequent fluctuations in power supply	Develop regional interconnection infrastructure
			Leverage on Information Technology to improve service delivery
			Promotion of research and innovation in adopting new technologies

No.	ISSUES	IMPLICATIONS ON STRATEGY	STRATEGIES TO ENHANCE/MITIGATE
			Develop and maintain adequate levels of dispatchable generation technologies in the energy mix
			Geographic aggregation to smoothens the variability of intermittency of wind and solar energy over large distances due to geographical diversity
Environmental			
5.	Climate change: Environmental activism; International protocols on environment with punitive measures; International environment protection policies	Changes in weather patterns adversely affect projects operations and implementation. Costs of compliance with international obligations	Adopt favorable environmental policies and plans.
			Enhance public participation on environmental issues
			Implement existing environmental frameworks
			Encourage active participation in the review of the policies
Legal			
6.	Land and environmental laws and policies	Delay in execution of projects	Lobby for favorable land policies.
	Global, regional and national policy changes	Compliance of global policies increase bankability of projects	Comply with the global policies and regulations
		Delays in the formulation of requisite regulations affect project implementation and operations	

No.	ISSUES	IMPLICATIONS ON STRATEGY	STRATEGIES TO ENHANCE/MITIGATE
	Adoption of Energy Auction system and PPP mode of engagement	Greater reduction of the tariff cost and higher private sector participation	Fast-track the operationalization of the Energy Auction System and the PPPs
	Energy Act 2019	Expanded agencies mandates within the Ministry.	Develop and implement regulations to operationalize Energy Act 2019.
		Energy Act 2019 has provided for devolution of specific functions to the county government.	
		Opportunity for further diversification as an energy solutions provider.	

2.6 Stakeholder Analysis

The Analysis identifies the primary stakeholders, their expectations from the Ministry as well as the Ministry's expectation from them. The analysis is as shown in the table below:

Table 8: Stakeholder Analysis

Name of stakeholder	Stakeholder expectation from The Ministry	Ministry's expectation from the stakeholder
The Presidency	Implementation of Presidential commitments including Big 4 Agenda	Policy Direction
		Engagement of regional and international partners
	Timely Signing and reporting of performance contracts.	
	Custodian of effectiveness and efficiency in public service delivery.	
The National Treasury	Prudent utilization of funding	Timely disbursement of funds.
	Participation in planning and budgeting	
		Adequate allocation of resources for projects
	Timely reporting	
Ministry of Interior and	Timely reporting of project implementation status.	Addressing cross cutting challenges affecting project

Name of stakeholder	Stakeholder expectation from The Ministry	Ministry's expectation from the stakeholder
Coordination of Government		implementation
		Coordination between various agencies in projects delivery
		Security of the infrastructure
Other Ministries Departments and Agencies	Coordinated approach in implementation of government programmes	Collaboration in delivery of projects. Develop synergies to gain value for money.
National Land Commission	Adequate planning and consultations on various projects/programmes	Transparency and speedy processes in compensation and resettlement
Constitutional Commissions and Independent Offices	Implementation of the various circulars and guidelines on specific issues	Provide technical support to various projects as well as adequate guidelines
Private Sector	Reliable and affordable power	Create adequate demand for power
County Governments	Continuous engagement on energy reticulation and community engagements	Collaboration in the provision of energy services to the citizenry.
		Investments to spur demand for energy
Investors	Provide opportunities for investments in the sector by providing an enabling legal and regulatory environment	Timely delivery of projects and supply of power at least cost
Parliament	Full implementation of the legislation and policies passed	Develop policies and laws that are supportive to the sector
	Submission of timely reports for oversight	
	To be involved in energy sector planning	
General Citizenry	Clean, Reliable and affordable power supply	Create demand for power
		Adopt energy saving technologies
	Public participation in the implementation of energy projects and other activities	Protect investments and infrastructure
Civil Society	Consultations, equity and considerations	Community sensitizations

Name of stakeholder	Stakeholder expectation from The Ministry	Ministry's expectation from the stakeholder
Organizations	on environmental concerns	and mobilization
	To be involved in project implementation cycles	
	Accountability and transparency in project implementation	
Media /Journalists	Timely, accurate and truthful updates on the activities and programmes undertaken by the Ministry.	Fair reporting on the activities, projects and programs implemented by the Ministry
	Participation and engagements in the activities of the Ministry	Create awareness among communities to resolve conflicts and support development endeavors of the Ministry
	Cordial working relations with players in the energy sector	Inform and educate stakeholders on the investment opportunities in the energy sector
		Play oversight role on matters affecting the energy sector
	Empowered with knowledge and skills to effectively report on energy matters	
Development Partners	Prudent utilization of allocated funds to deliver value to citizens.	Provide support in the various areas of energy development.

2.7 Strategic Issues

1. Access to power

The United Nation's Sustainable Development Goal7 (SDG - 7) obliges States to ensure every human being gets access to clean, affordable, reliable and modern energy. Over the last decade, the installed generation capacity has considerably grown, rising from 1,310MW in 2008 up to 2,715MW in 2019. This represents an average growth rate of 7.8% annually. The Geothermal installed capacity increased from 14.8% in 2013 to 28.5 % of the total effective capacity while its contribution to the energy generation mix was over 45%, reducing dependency on both petrol-thermal and large hydros that bear significant challenges of cost and vulnerability to the vagaries of weather respectively.

In the second Medium Term Plan, there were 20 plants lined up for construction amounting to 2,144MW, largely in renewable energy technologies. This capacity aimed to power projects lined up under the Big four Agenda as well as in opening up new investment areas in the counties. Since 2013, an additional 5.2 million households were connected, an increase from 2.3 million to 7.5million. The country's current electricity

access is at 73% in comparison to 23% in 2013 and it is projected the country will attain universal access to electricity by the end of 2022.

There has been significant processing of wind, solar and small hydro plant approvals realized. Twelve projects amounting 326MW were approved up to power purchase level. This placed the country in the same league as developed countries in pursuing projects that have global environmental benefits while meeting their own power requirements. The transmission and distribution network's circuit length increased from 179,270 to 213,700 kilometres for all voltage levels. This represented a 19.2% annual growth rate. Over 47 high voltage lines and associated infrastructure were in various stages of construction which when fully completed would open up vast areas of hitherto underdeveloped swathes, but with vast economic potential. The total line lengths of these ongoing projects is 3824KM all targeted for completion by 2020.

The street lighting project was initiated to provide adequate public lighting to industrial, residential areas, commercial centres, roads, railway and public transport facilities and create a conducive environment for a 24-hour economy as envisaged in the Vision 2030. The works entail installation of new lighting infrastructure networks, refurbishment of the existing street lighting infrastructure, operation and maintenance. Under second Medium Term Plan 52 major cities and towns were covered by this project including all County Headquarters.

Off-grid projects were integrated as additional models for enhancing electrification and to address local remote power demand and power outages. The Kenya Off-grid Solar Access Project (KOSAP) was launched to increase access to modern energy services in underserved counties in the country. KOSAP, supported by funding from the development partners would provide clean energy to an estimated 690,000 households in 14 underserved counties namely; Turkana, Marsabit, Samburu, Isiolo, Mandera, Wajir, Garissa, Tana River, Lamu, Kilifi, Kwale, Taita Taveta, West Pokot and Narok.

The Ministry developed an elaborate National Electrification Strategy aimed at achieving universal access to electricity by 2022. It was estimated that there were approximately 10 Million households in the country. Through Last Mile Connectivity Project (LMCP) a total of over five million new households were targeted for connectivity using grid and off-grid solutions. The LMCP targeted to maximize utilization of over 46,000 existing distribution transformers spread across the country and installation of additional transformers on existing power lines.

2. Reliability of Power Supply

Energy bears meaningful impact on the economy when it is adequate and reliable. There were challenges that affected reliability of power supply in many parts of the country. Among the challenges were network inefficiency, high costs of operations and maintenance, old and dilapidated infrastructure as well as vandalism and encroachments into wayleaves. The reliability of the power supply continues to be enhanced through

network automation, system reinforcement and use of modern technologies. Some of the projects and activities that are under implementation to enhance supply reliability included System audits to identify weak points in the network, initiate accurate calculation and monitoring of System Average Interruption Frequency Index (SAIFI), Customer Average Interruption Duration Index (CAIDI) and System Average Interruption Duration Index (SAIDI) power supply quality indices using the completed FDB system. To further improve the power supply reliability, Live Line Maintenance in the distribution network will be rolled out.

3. Clean Energy and Environmental Sustainability

Global statistics indicate that every year, indoor air pollution kills 4.3 million people – most of them women and children. Energy provided by fossil fuels is the main contributor of climate change, representing 60% of all greenhouse gases.

Kenya is a signatory to various Energy and Environmental Protocols and has made commitments to invest in renewable energy, disseminate its use as well as put in place energy saving policies and climate change mitigation programmes. Additionally, conservation of catchment areas and restoration of environment where there is extraction has been mainstreamed in the energy sector. Key areas of focus include decarbonisation of the energy mix, investments in renewable energy, research and development on emerging technologies and adoption of efficient use of energy systems.

4. Enabling environment

The Ministry continues to put in place measures to ensure an enabling environment to allow investments in the sector. Formulation of policies, legislative frameworks, strategies and plans to address various challenges will be critical in creating an enabling environment for the sector to thrive. There will be focus on the development of appropriate governance instruments to facilitate energy planning, stakeholder engagement, public participation and community involvement in the development of the sector. Robust funding mechanisms for the energy projects will be necessary for the success of the sector.

CHAPTER THREE: STRATEGIC MODEL

3.0 Overview

This chapter presents overall strategic direction of the Ministry. It is guided by the Vision, Mission and Core Values. The model also identifies the key result areas and the corresponding strategic objectives that the Ministry seeks to deliver between 2018 and 2022.

3.1 Vision Statement

Affordable quality energy for all Kenyans

3.2 Mission of the Ministry

To facilitate provision of clean, sustainable, affordable, competitive, reliable and secure energy services at least cost while protecting the environment.

3.3 Core Values

i. Professionalism and integrity in public service delivery

ii. Commitment to customer service

iii. Transparency and accountability

iv. Inclusivity and impartiality in sharing of public resources

v. Respect for diversity.

vi. Responsiveness and involvement in policy decision making processes.

3.4 Summary of Key Result Areas

3.4.1 Big Four Agenda

Reliable and low cost electricity will guarantee and accelerate the realization of Big Four Agenda. Key strategies to enhance this include; intensification of energy diversification that ensure more cheaper power in the energy mix for affordability, promoting transition from traditional fuels to modern sources, adoption of energy efficiency technologies, promotion of off-grid options, boosting generation, transmission and distribution systems to upscale the availability of power that sustain demand, and private sector investment in the renewable energy through secure long term tariffs and guaranteed access to the grid.

3.4.2 Priorities under Medium Term Plan III

The Third Medium Plan identifies various priorities for the energy sector. The priorities include:

(i) Increase Power Generation: The programme aims at promoting development and use of renewable energy sources geared towards creating a reliable, adequate and cost-effective energy supply regime to support industrial development. Installed generation capacity is expected to grow from 2812 to 5,221 MW by 2022. This will be achieved from the following identified sources:

- 93MW from Hydro Power Projects
- 913MW from Geothermal Power Projects
- 800MW from Wind Power Projects
- 157MW from Biomass Power Projects
- 442MW from Solar Power Projects
- 328MW from Coal Power Project
- 400MW from Imports.

(ii) Nuclear Power Development Programme: This will involve development of legislative and regulatory frameworks; site identification for the nuclear power plants; continued capacity building through both national programme and international partnerships; public education and advocacy; establishment of a Research and Development Institute for the energy sector.

(iii) Power Transmission: A total of 5,121Km of power transmission lines, 77 high voltage substations and ultra-modern National System Control Centre will be constructed. Townships in the off grid regions will be interconnected to the national grid; and regional interconnector transmission lines (Ethiopia-Kenya, Kenya-Uganda and Kenya-Tanzania) will
be constructed.

(iv)Last Mile Connectivity Project: A total of 5 million new households are targeted for connection to electricity through grid and off-grid solutions; 15,739 public facilities other than primary schools will be connected; and public street lighting project will be completed. In order to stimulate the 24-hour economy and catalyse the manufacturing sector, the cost of off-peak power to heavy industries will be reduced by 50%.

(v) Distribution Network Expansion and Improvement: The Sector targets to construct 116 new primary distribution substations with a distribution capacity of 2,809 Megavolt-Ampere (MVA). A total of 1,244 Km of associated 66KV and 33 Kilo Vaults (KV) lines will be constructed. A total of 20 new bulk supply substations will be constructed and 336.5 Megavolt-Ampere Reactive (MVAR) - power compensation equipment will be installed in 15 transmission substations.

(vi) Improved Reliability of Power Supply: The programme will improve the reliability of

power supply by at least 20% by 2022. This will be achieved through replacing overhead distribution power lines across major towns and their environs with underground distribution power lines. System audits to identify weak points in the network will be undertaken while accurate calculation and monitoring of power supply quality indices will be initiated.

(vii) Renewable Energy Technologies: The programme will include preparation of a renewable energy resources inventory and resource map; formulation of a national strategy for coordination of research in renewable energy; and promoting the use of municipal waste for energy production. It will involve the promotion of appropriate local capacity for the manufacture, installation, maintenance and operation of basic renewable technologies such as bio-digesters, solar systems and turbines. The technologies will enhance harnessing opportunities offered under clean energy development mechanisms. There will be more focus on international co-operation on the development of renewable energy sources and climate change.

3.4.3 Strategic Key Result Areas and Strategic Objectives

Based on its mandate, vision and mission of the Ministry, the performance in the last planning period, environmental analysis and the aspirations of MTP III, the Ministry has identified four key result areas as the foundations of this Strategic Plan. They include:

1. Access to energy
2. Adequacy and reliability of supply
3. Clean energy and environmental sustainability
4. Enabling Environment

In each of the Key Result Areas (KRAs), strategic objectives and respective implementation strategies have been identified as summarised in the table below:

Table 9: Key Result Areas and Strategic Objectives

Key Result Area	Strategic Objectives	Implementation Strategies
Access to energy	Universal access to electricity by 2022 through grid and off grid solutions	Connect all household trough grid and off grid solutions
	Universal access to modern household energy by 2030	Promote utilization of household energy using clean modern technologies
	Promote indigenous energy resources for industry using modern technology	Enhance and facilitate coal energy development for industrial use
		Facilitate Geothermal energy development for electricity and non-electricity industrial use.
		Promote the adoption and use of nuclear energy
Adequacy and	Ensure adequate, reliable	Expand, upgrade and improve efficiency

Key Result Area	Strategic Objectives	Implementation Strategies
Reliability of Supply	and secure electricity system	of the distribution network
		Promote and facilitate electricity market and regional interconnectivity
		Build and operate a reliable and efficient transmission infrastructure
		Increase the country's installed capacity by 5,221 MW by 2022
		Enhance security management system for national energy infrastructure
		Establish mechanisms to grow demand and ensure affordable consumer tariffs
		Enhance plant availability & provision of ancillary services
Clean Energy and Environmental Sustainability	increase share of clean and renewable energy for environmental sustainability	Increase electricity generation capacity from renewable energy sources.
		Decarbonize the energy mix
		Promote clean cooking and heating solutions.
		Facilitate Clean Energy Research
		Adopt efficient use of energy
		Enhance environmental conservation and sustainability by integration of environmental consideration into energy projects
		Develop strategy and resource mapping for renewable energy
		Harness opportunities offered under Clean Development Mechanisms (CDM)
		Promote alternative uses of geothermal energy
Enabling Environment for the growth of the sector	Create enabling environment for energy development and consumption	Improve governance for energy sector
		Build adequate capacity to enhance provision of quality and efficient services and enhance the image of the Ministry
		Facilitate decision making and coordination of services in energy sector
		Strengthen legal and regulatory frameworks
		Build a proactive and responsive energy sector through communication, involvement and engagement with citizenry and stakeholders

Key Result Area	Strategic Objectives	Implementation Strategies
		Improve mobilization, utilization and management of financial resource

CHAPTER FOUR: IMPLEMENTATION AND COORDINATION FRAMEWORK

4.0 Overview

This chapter presents the implementation and coordination framework for the Strategic Plan (SP). Implementation of the various strategic objectives will be undertaken by the Ministry, its SAGAs and County Governments. The Ministry will provide leadership in the coordination and implementation of the SP. The chapter provides for the financing mechanisms the implementation of the strategic plan.

4.1 Structure of the Ministry

4.1.1 SAGAs within the Ministry of Energy

Energy and Petroleum Regulatory Authority –EPRA is responsible for regulation of the energy sector. Functions include tariff setting and oversight, coordination of the development of Indicative Energy Plans, monitoring and enforcement of sector regulations.

Rural Electrification and Renewable Energy Corporation -REREC is charged with the mandate to implement the Rural Electrification Programme. It also promotes the use of renewable energy in the country.

The Kenya Electricity Generating Company (KenGen) is the main electricity generation entity. The company is listed at the Nairobi Stock Exchange with the shareholding of 70% by the Government of Kenya and 30% by private shareholders. The Company accounts for about 69% of the installed capacity from various power generation sources that include hydropower, thermal, geothermal and wind.

Kenya Electricity Transmission Company (KETRACO), incorporated in December 2008 is a State Corporation, 100% owned by the Government of Kenya. The Mandate of KETRACO is to plan, design, construct, own, operate and maintain new high voltage (132kV and above) electricity transmission infrastructure that will form the backbone of the National Transmission Grid & regional inter-connections.

Nuclear Power and Energy Agency –NuPEA is charged with the responsibility of developing a comprehensive legal and regulatory framework for nuclear energy use in Kenya as well as capacity building activities in the power sector.

The Kenya Power and Lighting Company (KPLC) is the off-taker in the power market buying power from all power generators on the basis of negotiated Power Purchase Agreements (PPAs) for onward transmission, distribution and supply to consumers. It is responsible for most of the existing transmission and distribution systems in Kenya. The transmission system comprises 220kV, 132kV and 66kV transmission lines. KPLC is a listed company on the Nairobi Stock Exchange with the ownership structure being 50.1% by the GoK, whereas the private shareholders own 49.9%.

Geothermal Development Company (GDC) is a fully owned Government Special Purpose Vehicle (SPV) intended to undertake surface exploration of geothermal fields, undertake exploratory, appraisal and production drilling and manage proven steam fields as well as enter into steam sales agreements with investors in the power sector.

Independent Power Producers (IPPs) are private investors in the power sector involved in generation either on a large scale or for the development of renewable energy under the Feed-in -Tariff Policy. As at June 2018, they accounted for 708MW. This is approximately 31% of the country's installed capacity from thermal, geothermal, hydro, Biogas and cogeneration.

The Energy and Petroleum Tribunal is an independent legal entity that was set up to arbitrate disputes in the sector.

4.1.2 Departments/ Directorates/ Units

From the functional analysis of the Ministry Energy it is recommended that the Ministry be organized into three (3) Technical Directorates and one (1) Directorate comprising of Administration and Support Services. Divisions/Sections/Units are as follows:-

(i) Electrical Power Development Directorate
(ii) Renewable Energy Directorate
(iii) Geo-Exploration Directorate
(iv) Support Services Division/Sections/Units.
- Administration Division
- HRM & D
- Finance
- Accounts
- SCMS
- CPPMU
- ICT
- Public Communication
- Legal Services
- Internal Audit

Detailed structures and functions of the Directorates are attached in annex 4.
The Ministry's Approved establishment comprises a total of 822 staff across different job groups. This includes 313 support services and 509 technical services. There is however, a variance of 442 staff of which 350 is from technical and 92 from corporate support services. There is therefore need for more technical officers to be brought on board to drive the strategy. A detailed discussion of the staff establishment showing the different job and staff categories is summarized in Annex 5.

Table 10: Summary of Ministry's Establishment

SUMMARY	Authorized	In post	Variance

Total Support	313	221	-92
Total Technical	509	160	-349
Grand Total	822	381	-441

4.2 Financial Resources

This section outlines the financial requirements for implementation of the strategy. These are capital requirements for the five year period.

4.2.1 Financial Resources Requirements

These are summarized in the table below:-

Table 11: Resource Requirements

Key Result Area	Resource Requirements						
	Baseline estimates (Ksh. Mn) 2018/19	Projected Estimates (Ksh. Mn)					
		Year 2 2019/20	Year 3 2020/21	Year 4 2021/22	Year 5	Year 6	Total
KRA1	13,174	19,206	20,990	16,331	17,964	19,761	107,426
KRA2	51,576	105,861	92,024	57,543	63,297	69,627	439,928
KRA3	1,356	7,648	6,468	3,142	3,456	3,802	25,872
KRA4	469	555	580	625	688	756	3,673
Total	**66,575**	**133,270**	**120,062**	**77,641**	**85,405**	**93,946**	**576,899**

4.2.2 Resource Gaps

The resource gaps compare the estimates against what has been allocated under the current MTEF period for the first three years of implementation. The resource gaps are identified and summarized in the table below:

Table 12: Resource Gaps

Expenditure	Requirement Estimates (Ksh. Mn) (As per current 3-year MTEF period)			Allocation (Ksh.Mn) 2019/20	Variance (Ksh.Mn)
	Year1 2019/20	Year 2 2020/21	Year3 2021/22		
Recurrent	3,940	4,233	4,459	5,752	(1,812)

Development	129,330	115,829	73,182	71,667	57,663
Total	133,270	120,062	77,641	77,419	55,851

4.2.3 Resource Mobilization Strategies

The strategic directions outlined in this strategic plan include ongoing and new ventures/endeavours for which funding will be mobilized. A Resource Mobilization Strategy will be developed to support the implementation of the Strategic Plan. Taking into account the increased competition for scarce resources, thinking of, and creating options for new, diverse, and multiple funding streams with a mix of strategies to generate revenue for the sector will help in managing development programs and projects.

The Ministry will use the following resource mobilization strategies:

1. Lobby for increased budgetary allocations
2. Seek the support of bilateral and multilateral donors in some aspects
3. Engage in PPPs for enhanced projects implementation
4. Partner with private sector and CSOs in undertaking Feed-in Tariff Projects and generation projects

4.3 Risk Analysis and Mitigation Measures

The description of risks and the categorization (High, Medium or Low) and planned actions for mitigation, monitoring and reporting of the risks is summarised in the table below.

Table 13: Risk Matrix

Type of risk	Description of the risk from the MoE perspective	Rate the level of risk (High, Medium, Low)	Mitigation of risk
Market Risk	Exposures arising from fluctuations in market rates of various parameters such as interest rates and tariffs of market products	Medium	Enhance Planning and forecasting
Operational Risk	Exposures to the Ministry that could arise as a result of failures or deficiencies related to/ or occasioned by systems, processes and people	Medium	Undertake regular Audits for Assurance
	Community Conflicts	High	Enhance public participation, stakeholder engagement and

Type of risk	Description of the risk from the MoE perspective	Rate the level of risk (High, Medium, Low)	Mitigation of risk
			community involvement
Technology Risk	Exposures occasioned by reliance on technology for the purpose of carrying out business transactions	High	Install security measures to prevent hacking and system interruptions
Strategic Risk	The Ministry and its agencies may fail to achieve strategic objectives	Low	Align Performance Contracts to to strategic objectives while utilizing existing intellectual capital
Liquidity Risk	The Ministry and its Agencies may not have sufficient liquid funds to meet its obligations	Medium	Need for implementation of a robust resource mobilization strategy
Governance Risk	Failure to establish documented governance arrangements, establishing r organizational/departmental structures with well-defined transparent and consistent reporting lines and roles, responsibilities and accountabilities	Medium	Restructure and reposition all the departments to respective mandates and strategic objectives.
Reputation Risk	The Ministry's reputation could be adversely impacted by the actions of some officers and agents	Medium	Train, empower and motivate through organizational listening
Political Risks	Exposures arising out of the changing political landscape	Medium	Develop strategies to counter political eventualities
Environmental Risks	Exposures that arise out of changes in the environment	High	Develop climate change mitigation measures.

Type of risk	Description of the risk from the MoE perspective	Rate the level of risk (High, Medium, Low)	Mitigation of risk
			Invest in environmental conservation
Other Risks	Exposure to other risks may affect the performance of the Ministry	Medium	Develop integrated crisis management / mitigation and communication plan.

CHAPTER FIVE: MONITORING, EVALUATION AND REPORTING

5.1 Overview

Monitoring and Evaluation (M&E) will be used to assess the performance of projects and programmes implemented under this strategic plan. Monitoring, evaluation and reporting will improve the current and future management of outputs, outcomes and impact. Monitoring will be a continuous assessment of programmes based on early detailed information on the progress or delay of the ongoing assessed activities. Evaluation will involve examination of relevancies, effectiveness, efficiency and impact of activities in the light of specified objectives. Reporting will be the systematic and timely provision of essential information used as a basis for decision-making and an integral part of the monitoring function.

The Public Investment Management Framework 2018, developed by the National Treasury and Planning provides guidelines for efficient and effective public investment management that includes project planning, selection, budgeting, implementation, completion, reporting, monitoring, evaluation, asset management and sustainability to ensure value for money and optimal use of public resources.

In the Framework, the Accounting Officer shall ensure project schedules are strictly adhered to as far as possible and fund requests are made in accordance with Work Plans, Procurement Plans, and Cash Flow Plans. The Accounting Officer submits consolidated project performance report to the National Treasury on a quarterly and annual basis within the deadlines provided in the PFM Act, 2012. The Framework provides that every project Work-Plan should include a monitoring plan that clearly provides for the following:

i. Monthly progress implementation reporting
ii. Cumulative quarterly progress implementation reporting
iii. Cumulative annual progress implementation reporting
iv. Risk monitoring and assessment of emerging risks and mitigation measures

An effective monitoring and evaluation mechanism will help to ensure cost effectiveness, timeliness and quality in achieving the objectives in the strategic plan.

This Strategic Plan will be subjected to a continuous review of performance on the various deliverables. It will follow the public sector monitoring and evaluation standards. There shall also be annual reviews of the plan. The reviews will be focused on how the available inputs have been used and what outputs and short term outcomes have been produced. The review shall focus on challenges, issues and key lessons learnt.

5.2 Monitoring and Evaluation Framework

The following M&E framework will be adopted in order to ensure successful implementation of the Strategic Plan:

i. Every year, agencies, departments and units shall develop Work-Plans with annual targets derived from the strategic plan.

ii. The Principle Secretary will delegate powers to CPMU the role of monitoring the implementation of the Strategic Plan

iii. There shall be a Ministerial Monitoring and Evaluation Committee to provide monitoring and evaluation frameworks for the implementation of this Strategic Plan and review areas requiring strategy change.

iv. There shall be a Ministerial Unit to monitor and evaluate performance of the SAGAs

v. The Monitoring and Evaluation Committee will avail quarterly progress reports to the Accounting Officer on the progress made towards the attainment of the strategic goals.

5.2.1 Monitoring

This will involve monitoring the implementation of the planned activities and evaluating their impacts on the desired goals. The monitoring activities will result in identifying any gaps or deficiencies which will then be addressed by the Accounting Officer. Daily, weekly, monthly and quarterly reporting on the progress made will be critical.

To ensure effective participation in plan implementation and in line with P.I.M Framework, the Sector will put in place mechanisms and ensure:

- Integrate project requirements in the Annual Work Plans, Annual Procurement Plans and Cash Flow Plan, which will form the basis for budget execution and Performance Contracting
- Establishment of standard formats for data collection and reporting;
- Clearly spell out documents to be prepared, periods covered, and details of information to be supplied
- Implementation of the Performance Management system that will make every officer accountable to the use of resources and attainment of set objectives
- Ensure that public investment projects progress will be monitored against plans, targets, and milestones set out in the Project Implementation plan and the signed project contract or project implementation;
- Undertake regular and periodic project monitoring visits

- Effective use of available resources to ensure smooth implementation of the strategic plan.

5.2.2 Evaluation

The purpose of evaluation is to measure the actual performance against target levels and establishing the size of variance, causal factors for the variance and recommending appropriate remedial measures, including a review of the objectives and/or strategies. The Ministry will develop an evaluation plan which will help to determine objectively the relevance, effectiveness and efficiencies of the activities proposed in the strategic plan. A mid-term evaluation will be undertaken with the purpose of verifying that the plan is on the right track and provide information to correct observed deficiencies including the revision of objectives, strategies or activities. The mid-term review will be conducted end-2020. The final evaluation will assess the achievement of the activities of the plan and identify and document the success or failure. The final evaluation will be undertaken at the end of the plan period which is June 2023.

The evaluations will be guided by key questions to address key evaluation criteria including relevance, effectiveness, efficiency, impacts and or sustainability. Some of the questions shall include:

- To what extent were the planned objectives consistent with the needs and expectations of the Presidency and the citizenry?
- How were the financial, technical and human resources utilized to achieve the desired results?
- To what extent the objectives were achieved, or are expected to be achieved, taking into account their relative importance?
- What were/are the positive and negative effects achieved/produced during the strategy implementation period?
- What were/are the major obstacles to reaching the desired goals in the strategic plan? What can be done to overcome these obstacles?
- What are the lessons learnt that can inform further strategy development for the Ministry of Energy?

5.2.3 Review of the Strategic Plan

A mid-term review of the Strategic Plan will be carried out to determine the level of necessity for reviewing the Strategic Plan. The report of this review will guide implementation of programs during the remaining duration of the Plan. At the end of the implementation process, a terminal or end-term review will be carried out to assess overall implementation rate and provide critical learning points for the next Strategic Plan.

5.3 Reporting on Performance

Reporting will provide a useful way of communicating with key stakeholders regarding the implementation of programmes and thus gaining valuable feedback and support. The implementation of this SP will be linked to an implementation framework. The framework will entail linking activities and resources to desired results. In ensuring that the strategic priorities are implemented, the strategic initiatives will be integrated into the Medium Term Expenditure Framework and the Performance Contracts. These will then be cascaded down to agencies, respective departments and ultimately to individual officers to ensure accountability for results. In all the projects and programmes, the following shall be the standard guidelines for reporting:

- Development of project concept note, and/or feasibility study in the standard templates;
- Contract documents and the financing agreements where applicable always available;
- Project progress reports and regularly updated projects status reports in line with the monitoring plan; and
- Contracts or projects agreement variations approved by the relevant authorities.

Annex 1: Implementation Matrix

Key Result Area 1: Access to Energy **Strategic Objective 1:** Universal Access to electricity by 2022 through grid and off grid solutions **Strategic Objective 2:** Universal Access to modern household energy by 2030 **Strategic Objective 3:** Promote indigenous energy resources for industry using modern technologies												
No.	Strategies	KPI	Target	Programme/projects	Output	Responsible	Y1	Y2	Y3	Y4	Y5	Budget (Million KES)
1.1	Connect all household through grid and off grid solutions	Number of households connected	5.6 million	KOSAP	277,000 Households	MoE KPLC RERE C	1,100,000	1,200,000	1,100,000	1,100,000	1,100,000	134,750
				Last Mile	5,050,400							
				BADEA	600 Public facilities connected							
				KEMP	272,000 Households connected							
1.2	Enhance and facilitate coal energy development for industrial use.	Coal Energy Developed for industrial use	40%reduction in imported coal for industrial use	Public Education and Awareness on Clean Coal Technologies	Estimated populations reached through various media	MOE	1	1	1	1	1	100
				Prefeasibility Resources Assessment Studies	Evaluation reports	MoE		1	1	-	-	60
				Coal Exploration and Development Strategy	Strategy in place	MoE		1	1	1	1	70
			1	Conference on	Conference	MoE		-	-	-	1	50

Key Result Area 1: Access to Energy **Strategic Objective 1:** Universal Access to electricity by 2022 through grid and off grid solutions **Strategic Objective 2:** Universal Access to modern household energy by 2030 **Strategic Objective 3:** Promote indigenous energy resources for industry using modern technologies												
No.	Strategies	KPI	Target	Programme/projects	Output	Responsible	Y1	Y2	Y3	Y4	Y5	Budget (Million KES)
				Geothermal and coal	held							
			1	Resettlement plan	RAP report	MoE		-	1	-	-	150
			1	Geothermal exploration and development	reports	MoE				1	-	120
1.3	Facilitate Geothermal energy development for industrial use excluding electricity supply.	No. of industries	11	KenGen Green Energy Park Exploration of low and medium enthalpy geothermal resources	Industries supplied with steam & brine	MOE KenGen GDC		-	1	2	2	100
				Menengai Direct Uses				-	-	-	2	150
				Naivasha industrial park				-	-	-	4	500
1.4	Promote the adoption and use of nuclear energy	Percent implementation of preparatory activities	100%	Nuclear Power Plant Site identification	2 sites	MOE NuPEA		-	1	1	-	1500
		Report		Reactor Technology	Reactor			-	-	-	1	50

Key Result Area 1: Access to Energy **Strategic Objective 1:** Universal Access to electricity by 2022 through grid and off grid solutions **Strategic Objective 2:** Universal Access to modern household energy by 2030 **Strategic Objective 3:** Promote indigenous energy resources for industry using modern technologies												
No.	Strategies	KPI	Target	Programme/projects	Output	Responsible	Y1	Y2	Y3	Y4	Y5	Budget (Million KES)
				Assessment	Technology Assessment report							
		Awareness Level		Stakeholder/Public Awareness	Populations reached		-	1	1	1	1	400
		Human Resource Capacity Levels		Capacity building for Nuclear Power	Number of capacity building initiatives		1	1	2	2	2	540
		Legislations and policy		Nuclear Policy Legislation	Nuclear Energy Policy, Nuclear Regulatory Act Nuclear Conventions ratification (nuclear safety, security and safeguards) Nuclear fuel cycle policy		5%	15%	25%	25%	30%	670

Key Result Area 1: Access to Energy **Strategic Objective 1:** Universal Access to electricity by 2022 through grid and off grid solutions **Strategic Objective 2:** Universal Access to modern household energy by 2030 **Strategic Objective 3:** Promote indigenous energy resources for industry using modern technologies												
No.	Strategies	KPI	Target	Programme/projects	Output	Responsible	Y1	Y2	Y3	Y4	Y5	Budget (Million KES)
					Policy on Institutional Infrastructure for Nuclear Procurement Policy on Capacity Building							
1.5	Develop Research and Development Institute	Research and Development Institute developed	1	Functional Research and Development Institute	Institute	NuPEA NACOSTI	-	-	-	1		5,000
1.6	Strategy on the Management and Implementation of IAEA projects in all	Strategy developed on safe implementation of Nuclear Programs	1	Management and Implementation of Safe Nuclear Program	Management and Implementation of Safe Nuclear Strategy	NuPEA	1	1	1	1	1	300

Key Result Area 1: Access to Energy **Strategic Objective 1:** Universal Access to electricity by 2022 through grid and off grid solutions **Strategic Objective 2:** Universal Access to modern household energy by 2030 **Strategic Objective 3:** Promote indigenous energy resources for industry using modern technologies												
No.	Strategies	KPI	Target	Programme/projects	Output	Respo nsible	Y1	Y2	Y3	Y4	Y5	Budget (Million KES)
	fields of Nuclear Science and Technology in Kenya	in key sectors										

Key Result Area 2: Adequacy and Reliability of Supply **Strategic Objective:** Ensure adequate reliable and secure electricity system												
No.	Strategies	KPI	Target	Programme/projects	Output	Responsible	Y1	Y2	Y3	Y4	Y5	Budget (Million KES)
2.1	Expand, Upgrade & improve efficiency of the distribution network	Length in Kms of the distribution network available& MVA of substations installed	793 MVA	Proposed substations	MVA of substations installed	MOE KPLC	232MVA	239MVA	86MVA	226MVA	10MVA	130,000
			29,451 KM	Proposed distribution lines	KM of lines constructed		853KM	5784KM	6,832 KM	7,050 KM	8,932 KM	

Key Result Area 2: Adequacy and Reliability of Supply **Strategic Objective:** Ensure adequate reliable and secure electricity system												
No.	Strategies	KPI	Target	Programme/projects	Output	Responsible	Y1	Y2	Y3	Y4	Y5	Budget (Million KES)
2.2	To build and operate a reliable and efficient transmission infrastructure	Length in Kms of transmission lines in place	5,000Km	Construct high voltage transmission line 132kV 220kV 400kV 500kV	5000kms as follows:- 1,766km 935km 1,663km 634km	MOE KETRACO	436	1,686	467	457	2021.5	329,000
				Substation MVA	13,176 MVA of substations		1380	3889	3,302	616	3,350	
2.3	Increase the country's installed capacity by2,740 MW by 2022	MW of additional capacity installed	2,740	Geothermal	913 MW	MOE GDC REREC KenGen IPPs	424	862	371	371	775	406,000
				Wind	800MW							
				Solar	442MW							
				Biomas	157MW							
				Hydro	93MW							
				Imports	400MW							
				LNG	200MW							
	Increase Electricity Generation Capacity from Geothermal Sources	No.	280	Geothermal Steam wells Developed	No. of Geothermal wells drilled	GDC KenGen	10	68	79	62	61	232,201

Key Result Area 2: Adequacy and Reliability of Supply **Strategic Objective:** Ensure adequate reliable and secure electricity system												
No.	Strategies	KPI	Target	Programme/projects	Output	Responsible	Y1	Y2	Y3	Y4	Y5	Budget (Million KES)
2.4	Enhance security for national energy infrastructure	No, of reported security breaches on infrastructure	1	Develop and implement Information S-ecurity Guidelines ISO/IEC 27000 certification	100% implementation of ISO/IEC 27000 Certification	MoE & all SAGAs	-	10%	60%	30%	-	50
				Facilitate Deployment of CIPU in major/vital installations	100% installations	MoE & all SAGAs	-	25%	25%	25%	25%	50
2.5	Enhance Plant availability & provision of ancillary services	%plant availability	95%	Enhanced maintenance practices.	100% compliance	MOE KenGen IPPs KPLC KETRACO	-	95%	95%	95%	95%	200
				Plant upgrade & rehabilitation.	100%							
				Plant automations	100%							
				Develop and implement a resource management plan	Resource availability & sustainability e.g. water, Diesel, steam	MOE KenGen	-	-	-	50%	50%	10

Key Result Area 2: Adequacy and Reliability of Supply **Strategic Objective:** Ensure adequate reliable and secure electricity system												
No.	Strategies	KPI	Target	Programme/projects	Output	Responsible	Y1	Y2	Y3	Y4	Y5	Budget (Million KES)
					etc							
		MW provided through ancillary services	200	Install a 200MW LNG plant to offer ancillary services	MW installed	MOE KPLC	-	-	-	200	-	200
2.6	Improve Distribution network Efficiency	CAIDI	2.8 hrs	Network management projects	24 Network management projects	MOE KPLC	5	8	3	6	2	37 ,000
		SAIFI	22.5									
		Technical losses	9.4%									

Key Result Area 3: Clean Energy and Environmental Sustainability **Strategic Objective:** Increase share of clean energy for environmental sustainability												
No.	Strategies	KPI	Target	Programme/projects	Output	Responsible	Y1	Y2	Y3	Y4	Y5	Budget (Million KES)
3.1	Increase electricity generation capacity from renewable energy sources.	MW generated from renewable energy	2540 MW	Renewable Energy subsidy support mechanisms for potential developers	At least 4 Subsidy support mechanisms established	MOE		2	1	1	-	20
				Mobilize financial resources to support renewable energy development	100% of renewable energy projects funded	MOE REREC		20	45	25	10	40
				Develop Renewable Energy inventory	Inventory of Renewable Energy Resources by March 2020	MOE REREC		-	-	-	2	500
				Energy auctions	5 Energy Auctions	MOE REREC		1	1	1	1	200
				Establish a national geothermal database management system	1 Geothermal database established	MOE GDC		1	-	-	-	15
3.2	Increase production of steam as a source of industrial	MWe of geothermal steam generate	566 MWe	Olkaria project Bogoria-Silali project Menengai project	566 MWe produced 138 wells drilled	GDC/KenGen	41 12	63 19	150 37	153 35	159 35	90,000

Key Result Area 3: Clean Energy and Environmental Sustainability **Strategic Objective:** Increase share of clean energy for environmental sustainability												
No.	Strategies	KPI	Target	Programme/projects	Output	Responsible	Y1	Y2	Y3	Y4	Y5	Budget (Million KES)
	energy	d										
3.3	Decarbonize the energy mix	MW reduction of thermal energy generated	0	Conversion of thermal plants to run on LNG	Feasibility Studies	MOE		-	1	-	-	100
					Strategic partnership identified			-	-	1	-	40
					4 No. of Proposals			-	1	2	`-	5
				Develop a position paper on the role of nuclear power in decarbonization.	1 No. Position Paper	MoE, NuPEA		1	-	-	-	10
3.4	To promote clean cooking and heating solutions.	Proportion increase of households adopting clean cooking and heating solutions	20%	Biogas resource development	10 Institutional Biogas plants constructed	MOE REREC	2	2	2	2	2	80
					1000 Domestic household biogas digesters constructed	MOE REREC	200	200	200	200	200	150
				Bioethanol cooking fuels	500 Domestic household access to bioethanol cooking solutions	MOE REREC	50	100	135	110	105	3.5
				Create awareness on modern clean cooking solutions in all counties	47 counties outreach (conferences, ASK Shows, exhibitions,	MOE REREC	-	12	12	12	11	100

Key Result Area 3: Clean Energy and Environmental Sustainability **Strategic Objective:** Increase share of clean energy for environmental sustainability												
No.	Strategies	KPI	Target	Programme/projects	Output	Responsible	Y1	Y2	Y3	Y4	Y5	Budget (Million KES)
					digital and print media)							
3.5	Facilitate Clean Energy Research	Number of targeted researches on clean energy	2 Annually	Formulate a national strategy for coordinating research in renewable energy	1 No. Of Research Strategy developed	MOE NUPEA REREC	-	2	2	2	2	100
				Collaboration on research, training, and technology modelling with learning institutions (7 National Poly technics and 3 Universities)	10 Proposals developed	MOE REREC	-	2	4	4	-	8
					Training Programmes implemented on clean energy	MOE REREC		-	3	1	1	21
				Capacity Building for clean/renewable energy programme	500 Competent and skillful workforce to implement the Renewable Energy programme trained	MOE, KP EPRA REREC KETRACO KENGEN, GDC	100	100	100	100	100	175
				Establishment National Energy research	National energy lab established	MOE REREC		-	-	-	1	100

Key Result Area 3: Clean Energy and Environmental Sustainability **Strategic Objective:** Increase share of clean energy for environmental sustainability												
No.	Strategies	KPI	Target	Programme/projects	Output	Responsible	Y1	Y2	Y3	Y4	Y5	Budget (Million KES)
				laboratory of renewable energy research facility								
				Establishment of Africa Geothermal Centre of Excellence	Geothermal Centre of Excellence established	GDC KENGEN MOE		-		-	1	100
				Establish new Energy Centre	5 New Energy Centres Established	MOE REREC		1	1	2	1	1,000
				Enhance the existing energy centres	12 Energy centres enhanced			3	3	3	3	360
				Comprehensive feasibility study for the Research Reactor (RR) project in Kenya	RR Feasibility Study Report	NuPEA		-	1	-	-	20
				Biodiesel Research, Design, Development of technologies	2 Biodiesel Fabrication technologies at Numerical Machining Complex	MOE REREC		-	-	1	1	22
				Bioethanol promotion,	National Ethanol production plant	MOE REREC		15	40	20	25	25

Key Result Area 3: Clean Energy and Environmental Sustainability **Strategic Objective:** Increase share of clean energy for environmental sustainability												
No.	Strategies	KPI	Target	Programme/projects	Output	Responsible	Y1	Y2	Y3	Y4	Y5	Budget (Million KES)
				standardization and labeling	established							
3.6	To adopt efficient use of energy	Proportion increase in households and institutions adopting energy efficient technologies	20%	Operationalizing legislative and regulatory framework on clean energy	1 No. Framework in place	MOE		1	-	-	-	25
				Develop Renewable Energy Technology Standards (RETS)	100% Completion of RETS standards	MOE REREC	20	20	20	20	20	50
				Develop strategies to scale up adoption of cleaner cook stoves	3 strategies developed	MOE & Partners		1	1	1	-	24
				Energy Efficiency and conservation programme	50 investment grade audits	MOE/EPRA		-	15	20	25	200
				Create incentives for use of clean/renewable energy		MOE REREC		1	1	1	1	10
				Upgrade technology for supplying modern and sustainable energy services	Research papers on emerging Efficient and Effective energy technologies	MOE REREC	-	-	1	-	1	100

Key Result Area 3: Clean Energy and Environmental Sustainability **Strategic Objective:** Increase share of clean energy for environmental sustainability												
No.	Strategies	KPI	Target	Programme/projects	Output	Responsible	Y1	Y2	Y3	Y4	Y5	Budget (Million KES)
3.7	Enhance environmental conservation and sustainability by integration of environmental consideration into energy projects	Proportion of projects integrating environmental considerations	100%	Develop environmental policy	Policy developed	MOE	-	-	1	-	-	20
				Strategic Environmental Assessment for identified projects	100% Completion of SEA Reports	MOE KENGEN GDC/NUPEA REREC KETRACO	-	100	100	100	100	20
				Re-afforestation of water towers	1000hectares under hydro-dam catchment protected	MOE REREC	200	200	200	200	200	640
				Promote use of fast maturing trees for energy production including wood-fuel	3 woodlots established	MOE REREC	-	-	1	2	-	5
				Environmental Impact Assessment for the Nuclear Power Program	Environmental Impact Assessment report	MoE NUPEA	-	-	1	-	-	20
				Environmental and Social Impact Assessment for Coal	Report	MoE	-	-	1	-	-	20
3.8	Developing a strategy	Strategy and	1	Formulate strategy for Renewable	1 No. Renewable Energy Strategy	MOE REREC	-	-	1	-	-	15

Key Result Area 3: Clean Energy and Environmental Sustainability **Strategic Objective:** Increase share of clean energy for environmental sustainability												
No.	Strategies	KPI	Target	Programme/projects	Output	Responsible	Y1	Y2	Y3	Y4	Y5	Budget (Million KES)
	and resource mapping for renewable energy	Mapping Report		Energy								
				Conduct survey for resource mapping	1 No. Resource Mapping Report	MOE REREC	-	-	1	-	-	30
3.9	To harness opportunities offered under Clean Development Mechanisms (CDM)	Number of opportunities under CDM that have been harnessed	4	Register potential CDM Projects	100% of projects registered	MOE REREC		1	-	-	-	5
				Implementation of specified CDM projects	At least 4 projects implemented	MOE REREC		1	1	1	1	50

	Key Result Area 4: Creating the Enabling Environment **Strategic Objective:** Create the enabling environment for energy development											
.	**Strategies**	**KPI**	**Target**	**Programme/ projects**	**Output**	**Responsible**	**Y1**	**Y2**	**Y3**	**Y4**	**Y5**	**Budget**
4.1	To improve governance for energy sector	Policies Developed	13	**The policies cited below will be developed and implemented**								
				Energy Policy	Energy Policy	MoE/Agencies		1	-	-	-	10
				Data and Information Policy	Data and Information Policy	MoE		-	1	-	-	5
				Integrated Information and Communication Energy Policy	Integrated Information and Communication	MoE		1	1	1	1	10

	Key Result Area 4: Creating the Enabling Environment **Strategic Objective:** Create the enabling environment for energy development											
.	**Strategies**	**KPI**	**Target**	**Programme/ projects**	**Output**	**Respons ible**	**Y1**	**Y2**	**Y3**	**Y4**	**Y5**	**Budget**
					Energy Policy							
				Fleet Management Guidelines	Fleet Management Guidelines	MoE		-	-	1	-	5
				Risk Management policy on energy projects	Risk Management policy on energy projects	MoE		1	1	1	1	5
				Energy efficiency and energy conservation policy	Energy efficiency and energy conservation policy	MoE		-	1	1	1	10
				Develop energy storage policy	Policy document	MOE	-	-	1	-	-	10
				Public Communication policy	Communication policy	MoE		1	-	-	-	10
				Environmental liability policy	Environmental liability policy	MoE		1	-	-	-	3
				Nuclear Development Policy	Nuclear development policy	NUPEA		-	1	-		5
				Gender mainstreaming policy	Gender mainstreaming policy	MoE	1	1	1	1	1	20
				Workplace HIV/AIDS policy	Workplace HIV/AIDS policy	MoE		1	1	1	1	10
				Persons With Disability Policy	Persons With Disability Policy	MoE		1	1	1	1	10
				Drug and substance abuse policy	Drug and substance abuse policy	MoE		1	1	1	1	10
				Workplace safety and Health policy guidelines	Workplace safety and Health policy guidelines developed	MoE		1	1	1	1	10
		Guidelines developed	10	**The guidelines cited below will be developed and implemented**								

	Key Result Area 4: Creating the Enabling Environment **Strategic Objective:** Create the enabling environment for energy development											
.	**Strategies**	**KPI**	**Target**	**Programme/ projects**	**Output**	**Responsible**	**Y1**	**Y2**	**Y3**	**Y4**	**Y5**	**Budget**
				Public participation guidelines	Public participation guidelines	MoE		1	-	-	-	10
				Complaints handling and access to information guidelines	Complaints handling and access to information guidelines	MoE		1	-	-	-	5
				Security , Health and safety guidelines	Security and safety guidelines	MoE		1	-	-	-	5
				National Values and Cohesion guidelines	National values and cohesion guidelines	MoE		1	1	1	1	10
				Development of SGBV guidelines	SGBV guidelines developed	MoE		1	1	1	1	10
				Youth Women and PLWD Empowerment guidelines	Youths, Women and PLWD empowerment guidelines	MoE		1	1	1	1	10
				The guidelines cited below will be developed and implemented								
				Website/social media communication guidelines	Website/social media communication guidelines	MoE		1	1	1	1	10
				Data / Knowledge management guidelines	Knowledge management guidelines	MoE		1	-1	1	1	15
				Monitoring and Evaluation and Public Investment Management Regulations Interface Guidelines developed	Interface Guidelines	MoE	1	1	1	1	-1	100
				Guidelines to operationalize the new Energy Act 2019	Guidelines to operationalize the new Energy Act	MoE		1	1	1	1	10

	Key Result Area 4: Creating the Enabling Environment **Strategic Objective:** Create the enabling environment for energy development											
.	**Strategies**	**KPI**	**Target**	**Programme/ projects**	**Output**	**Responsible**	**Y1**	**Y2**	**Y3**	**Y4**	**Y5**	**Budget**
					2019							
		Strategies developed	7	Public Communication strategy	Public communication strategy	MoE		1	1	1	1	**15**
				ICT strategy	ICT strategy	MoE		1	-	-	-	3
				HR strategy	HR strategy	MoE		1	-	-	-	3
				Coal Strategy	Coal Strategy	MoE		1	1	-	-	10
				Nuclear strategy	Nuclear strategy	MoE		-	1	-	-	5
				Renewable strategy	Renewable strategy	MoE		1	1	-	-	5
				Stakeholders/Community Outreach strategy	Stakeholders/community outreach strategy	MoE		1	-	-	-	5
		Institutional Surveys Undertaken	5 annually	Work environment survey	Work environment survey			1	1	1	1	3
				Employee satisfaction survey	Employee satisfaction survey	MoE		1	1	1	1	3
				Customer satisfaction surveys	Customer satisfaction surveys	MoE		1	1	1	1	3
				Occupational Safety and Health Audit	Occupational Safety and Health Audit	MoE		1	1	1	1	3
				Gender impact assessment in energy projects	Gender impact survey	MoE		-	1	-	-	10
				Service delivery instruments – Service Charters, Public Complaints Handling Mechanisms, Service	Service delivery instruments	MoE		1	2	1	1	10

	Key Result Area 4: Creating the Enabling Environment **Strategic Objective:** Create the enabling environment for energy development											
.	**Strategies**	**KPI**	**Target**	**Programme/ projects**	**Output**	**Responsible**	**Y1**	**Y2**	**Y3**	**Y4**	**Y5**	**Budget**
				Delivery Registers.								
2	To build adequate capacity to enhance provision of quality and efficient services and enhance the image of the Ministry	Human Resource Capacity Levels	90%	Interns engaged	120 interns engaged	MoE		30	30	30	30	40
				New recruits	50 new recruits engaged	MoE		10	15	15	10	100
				Organisational structures reviewed	New Organizational structures	MoE		1	-	-	-	5
				Staff trained	400	MoE		100	100	100	100	50
				HR&D Plan	HR&D Plan	MoE		1	-	-	-	1
				Succession Management plan	Succession Management plan	MoE		1	-	-	-	1
3	To facilitate decision making and coordination of services in energy sector	Availability of energy data for decision making	100%	Create Energy Planning Unit	Functional Energy Planning Created	MoE			-	1	-	20
				National Integrated Energy Plan	NIE Plan	MoE		-	1	-	-	10
				Integrated Energy Planning Framework	Integrated Framework Developed	MoE		-	1	-	-	10
				Media Relations plan and promotion of Energy Journalism Excellency Awards (EJEA).	Media Relations Plan developed	MoE		1	1	1	1	20
				Corporate Social Responsibility Plan	Corporate Social Responsibility Plan	MoE		1	1	1	1	15
				Monitoring and evaluation framework	Framework	MoE		1	-	-	-	3

	Key Result Area 4: Creating the Enabling Environment **Strategic Objective:** Create the enabling environment for energy development											
.	**Strategies**	**KPI**	**Target**	**Programme/ projects**	**Output**	**Responsible**	**Y1**	**Y2**	**Y3**	**Y4**	**Y5**	**Budget**
				Integrated energy information management system (Dashboard)	Website Dashboard			-	1	-	-	6
				Resettlement Action Plan for Coal Block A,B, C and D	Action Plan developed	MoE	-	-	1	1	1	100
4	To strengthen the Legal and Regulation framework for the energy sector	Percentage of legal and regulatory gaps identified and addressed	100%	Legal and regulatory Gap Analysis Study	1 study undertaken	MoE		1	-	-	-	5
				Develop/Review existing the regulations to align to the Energy Act 2019	Develop/Review existing the regulations to align to the new law	MoE		-	1	-	-	15
				Requisite Bills developed	All requisite bills developed	MoE		-	1	1	1	20
				Legal redress mechanism	Legal redress mechanism in place	MoE		1	-	-	-	3
				Conduct an enforcement audit	Areas for enforcement identified	MoE		-	1	-	-	3
				Enforcement framework developed	Enforcement framework in place by June 2020	MoE		-	1	-	-	3
				Reporting guidelines on enforcement developed	Reporting guidelines on enforcement developed	MoE		-	1	-	-	3
				Monitoring compliance regulations	Monitoring compliance regulations	MoE		-	1	-	-	3
5	To improve mobilization, utilization and management of financial resource	Percentage of projects funded	100%	Resource mobilization strategy	Resource mobilization strategy by Dec. 2019	MoE		1	-		-	3

	Key Result Area 4: Creating the Enabling Environment **Strategic Objective:** Create the enabling environment for energy development											
.	**Strategies**	**KPI**	**Target**	**Programme/ projects**	**Output**	**Responsible**	**Y1**	**Y2**	**Y3**	**Y4**	**Y5**	**Budget**
				Annual Finance performance reports	Annual Finance performance reports in place	MoE		1	1	1	1	4
				Procurement plans	Annual Procurement plans in place	MoE		1	1	1	1	4
				Budget plan and financial reports	Budget plan and financial reports	MoE		1	1	1	1	4
				Risk based Audit	Risk based Audit	MoE		1	1	1	1	4

Annex 2: Financial Requirements

Programme/projects	Output	Responsible	Annual Budget KES'000,000					Global Budget
			Y1	Y2	Y3	Y4	Y5	
KOSAP	277,000 Households connected	MoE KPLC REREC	-	3000	3000	4000	5000	15,000
Last Mile	5,000,000 Households connected			25,000	25,000	25,000	25,000	100,000
BADEA	600 Public facilities connected				1,100	1,100	1,100	3,300
KEMP	272,000 Households connected		5,000	7,500	3,000	950	-	16,450
Public Education and Awareness on Clean Coal Technologies	Estimated populations reached through various media	MOE		25	25	25	25	100
Prefeasibility Resources Assessment Studies	Evaluation reports	MoE		30	30	-	-	60
Coal Development Strategy	Report			20	-	-	-	20
Conference on Geothermal and coal	Conference			-	-	-	50	50
Resettlement plan	Report			-	150	-	-	150
Geothermal exploration and development	Report					120	-	120
KenGen green energy park Exploration of low and medium enthalpy geothermal resources	Industries supplied with steam & brine	MOE KenGen GDC			10	40	40	100
Menengai Direct Uses					-	-	150	150
Naivasha industrial park					-	-	500	500
Nuclear Power Plant Site identification	Final nuclear power plant sites identified – (Preferred	MOE NuPEA	300	300	400	400	100	1500

Programme/projects	Output	Responsible	Annual Budget KES'000,000					Global Budget
			Y1	Y2	Y3	Y4	Y5	
	and Alternative sites)							
Report Reactor Technology Assessment	Reactor Technology Assessment report		5	10	15	10	10	50
Awareness Level Stakeholder/Public Awareness	Effective implementation of nuclear stakeholder engagement strategy		50	70	80	100	100	400
Human Resource Capacity Levels Capacity building for Nuclear Power	Nuclear power programme Human Resource development strategy implemented Nuclear institutional capacity building		70	80	120	120	150	540
Nuclear Policy Legislation	Nuclear Energy Policy, Nuclear Regulatory Act Nuclear Conventions ratification (nuclear safety, security and safeguards)		50	120	150	150	200	670
Nuclear Power Plant citing	2 sites identified	NuPEA	-	-	51,588	51,588	-	130,000
Proposed substations	MVA of substations installed	MOE KPLC	-	1,948	2,748	1,024	2,078	
Proposed distribution lines	KM of lines constructed			4,734,	6,056	6,308	6,662	
Construct high voltage transmission line 132kV 220kV 400kV 500kV	1,766km 935km 1,663km 634km 13,176 MVA of substations	MOE KETRACO	20, 263	34, 915	92, 216	85,783	94, 918	329,000
	658MW	MOE GDC	32,074	117,158	65,453	89,956	101,359	406,000
Wind	Substation MVA							

Programme/projects	Output	Responsible	Annual Budget KES'000,000					Global Budget
			Y1	Y2	Y3	Y4	Y5	
Solar	Geothermal	REREC Ken Gen IPPs						
Co-gen	163MW							
Hydro	77.06MW							
Imports	200MW							
LNG	200MW							
Develop and implement security policy ISO/IEC 27000 certification	100% implementation of ISO/IEC 27000 Certification	MoE & all SAGAs		5	30	15	-	50
Deployment of CIPU in major/vital installations	100% installations	MoE; KPLC; KETRACO		12.5	12.5	12.5	12.5	50
Enhanced maintenance practices.	100% compliance	MOE KenGen IPPs KPLC KETRACO		40	40	40	40	200
Plant upgrade & rehabilitation.	100%							
Plant automations	100%							
Develop and implement a resource management plan	Resource availability & sustainability e.g. water, Diesel, steam etc		-	-	-	5	5	10
Install a 200MW LNG plant to offer ancillary services	MW installed	MOE/KenGen		-	-	200	-	200
Develop energy storage policy	Policy document	MOE& SAGAs	-	-	1	-	-	1
Network management projects	24 Network management projects	MOE KPLC	7708	12333	4625	9250	3083	37,000
Renewable Energy subsidy support mechanisms for potential developers	Subsidy support mechanisms established	MOE		10	5	5	-	20
Mobilize financial resources to support renewable energy development	100% of renewable energy projects funded	MOE REREC		8	18	10	4	40
Develop Renewable Energy Policy and Strategy-	Inventory of Renewable	MOE		-	-	-	500	500

Programme/projects	Output	Responsible	Annual Budget KES'000,000					Global Budget
			Y1	Y2	Y3	Y4	Y5	
Policy taken to policy and legal	Energy Resources	REREC						
Energy auctions	5 Energy Auctions	MOE REREC		50	50	50	50	200
Establish a national geothermal database management system	1 Geothermal database established	MOE GDC		15	-	-	-	15
Olkaria project Bogoria-Silali project Menengai project	566 MWe produced	GDC/KenGen	5	8	19	20	20	90,000
	138 wells drilled		2	2	5	4	4	
Conversion of thermal plants to run on LNG	Feasibility Studies	MOE		-	100	-	-	100
	Strategic partnership identified			-	-	40	-	40
	No. of Proposals			-	-	5	-	5
Develop a position paper on the role of nuclear power in decarbonization.	Position Paper	MoE, NuPEA		10	-	-	-	10
Biogas resource development	10 Institutional Biogas plants constructed	MOE REREC		20	20	20	20	80
	1000 Domestic household biogas digesters constructed	MOE REREC		50	30	30	40	150
Bioethanol cooking fuels	500 Domestic household access to bioethanol cooking solutions	MOE REREC		1	0.8	0.9	0.8	3.5
Create awareness on modern clean cooking solutions in all counties	47 counties outreach (conferences, ASK Shows, exhibitions, digital and print media)	MOE REREC		25	25	25	25	100

Programme/projects	Output	Responsible	Annual Budget KES'000,000					Global Budget
			Y1	Y2	Y3	Y4	Y5	
Formulate a national strategy for coordinating research in renewable energy	Research Strategy developed	MOE NUPEA REREC		25	25	25	25	100
Collaboration on research, training, and technology modelling with learning institutions (7 National Poly technics and 3 Universities)	10 Proposals developed	MOE REREC		2	2	2	2	8
	Training Programmes implemented on clean energy	MOE REREC		-	12.75	4.25	4.25	21
Capacity Building for clean/renewable energy programme	500 Competent and skillful workforce to implement the Renewable Energy programme trained	MOE KP EPRA REREC KETRACO KENGEN GDC		45	43	43	44	175
Establishment National Energy research laboratory of renewable energy research facility	National energy lab established	MOE REREC		-	-	-	100	100
Establishment of Africa Geothermal Centre of Excellence	Geothermal Centre of Excellence established	GDC KENGEN MOE		-	-	-	100	100
Establish new Energy Centre and enhance the existing one's	5 New Energy Centres Established	MOE REREC		200	200	400	200	1,000
Enhance the existing energy centres	12 Energy centres enhanced			90	90	90	90	360
Comprehensive feasibility study for the Research Reactor (RR) project in Kenya	RR Feasibility Study Report	NuPEA		-	-	-	20	20

Programme/projects	Output	Responsible	Annual Budget KES'000,000					Global Budget
			Y1	Y2	Y3	Y4	Y5	
Biodiesel Research, Design, Development of technologies	2 Biodiesel Fabrication technologies at Numerical Machining Complex	MOE REREC		-	-	11	11	22
Bioethanol promotion, standardization and labelling	Reports and standards developed for National Ethanol production plant established	MOE REREC		3.75	10	5	6.25	25
Operationalizing legislative and regulatory framework on clean energy	Framework in place	MOE		25	-	-	-	25
Develop Renewable Energy Technology Standards (RETS)	% Completion of RETS standards	MOE REREC		12.5	12.5	12.5	12.5	50
Develop strategies to scale up adoption of cleaner cook stoves	3 strategies developed	MOE & Partners		8	8	8	-	24
Energy Efficiency and conservation programme	50 investment grade audits	MOEP/EPRA		-	50	67	83	200
Create incentives for use of clean/renewable energy		MOE REREC		2.5	2.5	2.5	2.5	10
Upgrade technology for supplying modern and sustainable energy services	Research papers on emerging Efficient and Effective energy technologies	MOE REREC		-	50	-	50	100
Develop environmental policy	Policy developed	MOE		-	20	-	-	20
Strategic Environmental Assessment for identified projects	100% Completion of SEA Reports	KENGEN GDC NUPEA		4	3	4	4	15

Programme/projects	Output	Responsible	Annual Budget KES'000,000					Global Budget
			Y1	Y2	Y3	Y4	Y5	
		REREC KETRACO						
Re-afforestation of water towers	1000hectares under hydro-dam catchment protected from siltation	REREC		160	160	160	160	640
Promote use of fast maturing trees for energy production including wood-fuel	3 woodlots established	MOE REREC		-	1.5	3.5	-	5
Environmental Impact Assessment for the Nuclear Power Program	Environmental Impact Assessment report	MoE NUPEA		-	20	-	-	20
Formulate strategy for Renewable Energy	Renewable Energy Strategy	MOE REREC		-	15	-	-	15
Conduct survey for resource mapping	Resource Mapping Report	MOE REREC		-	30	-	-	30
Register potential CDM Projects	100% of projects registered	MOE REREC		5	-	-	-	5
Implementation of specified CDM projects	At least 4 projects implemented	MOE REREC		12.5	12.5	12.5	12.5	50
Energy Policy	Energy Policy	MoE/Agencies		50	-	-	-	50
Data and Information Policy	Data and Information Policy	MoE		-	3	-	-	3
Integrated Information and Communication Energy Policy	Integrated Information and Communication Energy Policy	MoE		-	3	-	-	3
Risk Management policy on energy projects	Risk Management policy on energy projects	MoE		3	-	-	-	3
Energy efficiency and energy conservation policy	Energy efficiency and energy conservation policy	MoE		-	5	-	-	5

Programme/projects	Output	Responsible	Annual Budget KES'000,000					Global Budget
			Y1	Y2	Y3	Y4	Y5	
Communication policy	Communication policy	MoE		3	-	-	-	3
Environmental liability policy	Environmental liability policy	MoE		3	-	-	-	3
Nuclear development policy	Nuclear development policy	NUPEA		-	5	-	-	5
Gender mainstreaming policy	Gender mainstreaming policy	MoE		3	-	-	-	3
Workplace HIV/AID policy	Workplace HIV/AID policy	MoE		3	-	-	-	3
Persons With Disability Policy	Persons With Disability Policy	MoE		1	-	-	-	1
Drug and substance abuse policy	Drug and substance abuse policy	MoE		1	-	-	-	1
Public participation guidelines	Public participation guidelines	MoE		1	-	-	-	1
Development of SGBV guidelines	SGBV guidelines developed	MoE		1	-	-	-	1
Workplace safety and Health policy guidelines	Workplace safety and Health policy guidelines developed	MoE		1	-	-	-	1
Complaints handling and access to information guidelines	Complaints handling and access to information guidelines	MoE		1	-	-	-	1
Security and safety guidelines	Security and safety guidelines	MoE		1	-	-	-	1
National values and cohesion guidelines	National values and cohesion guidelines	MoE		1	-	-	-	1
Youth and women empowerment guidelines	Youth and women empowerment guidelines	MoE		1	-	-	-	1

Programme/projects	Output	Responsible	Annual Budget KES'000,000					Global Budget
			Y1	Y2	Y3	Y4	Y5	
Website/social media communication guidelines	Website/social media communication guidelines	MoE		1	-	-	-	1
Knowledge management guidelines	Knowledge management guidelines	MoE		1	-	-	-	1
Performance management guidelines	Performance management guidelines	MoE		1	-	-	-	1
Guidelines to operationalize the new Energy Act 2019	Guidelines to operationalize the new Energy Act 2019			5	-	-	-	5
Public communication strategy	Public communication strategy	MoE		1	-	-	-	1
ICT strategy	ICT strategy	MoE		1	-	-	-	1
HR strategy	HR strategy	MoE		1	-	-	-	1
Coal Strategy	Coal Strategy	MoE		2.5	2.5	-	-	5
Nuclear strategy	Nuclear strategy	MoE		-	1	-	-	1
Renewable strategy	Renewable strategy	MoE		2.5	2.5	-	-	5
Stakeholders/community outreach strategy	Stakeholders/community outreach strategy	MoE		-	1	-	-	1
Work environment survey	Work environment survey			0.25	0.25	0.25	0.25	1
Employee satisfaction survey	Employee satisfaction survey	MoE		0.25	0.25	0.25	0.25	1
Customer satisfaction surveys	Customer satisfaction surveys	MoE		0.25	0.25	0.25	0.25	1
Occupational Safety and Health Audit	Occupational Safety and Health Audit	MoE		0.25	0.25	0.25	0.25	1
Service delivery instruments	Service delivery instruments	MoE		0.25	0.25	0.25	0.25	1

Programme/projects	Output	Responsible	Annual Budget KES'000,000					Global Budget
			Y1	Y2	Y3	Y4	Y5	
Service Charter	1	MoE		-	1	-	-	1
Interns engaged	120 interns engaged	MoE		1	1	1	1	4
New recruits	50 new recruits engaged	MoE		20	30	30	20	100
Organizational structures reviewed	By June 2020	MoE		5	-	-	-	5
Staff trained	400	MoE		12.5	12.5	12.5	12.5	50
HR&D Plan	By Sept 2019	MoE		1	-	-	-	1
Succession management plan	By xxxxx	MoE		1	-	-	-	1
Create Energy Planning Unit	Functional unit by June 2020	MoE		20	-	-	-	20
National Integrated Energy Plans – Coal Renewable and Electricity		MoE		-	10	-	-	10
Integrated Energy Planning Framework eg County Energy Plans		MoE		-	10	-	-	10
Media relations plan		MoE		1	-	-	-	1
Monitoring and evaluation framework		MoE		1	-	-	-	1
Integrated energy information management system		MoE		-	6	-	-	6
Legal and regulatory Gap Analysis Study	1 study undertaken	MoE		1	-	-	-	1
Develop/Review existing the regulations to align to the new law	Develop/Review existing the regulations to align to the new law	MoE		-	15	-	-	15
Requisite Bills developed	All requisite bills developed	MoE		-	-	10	10	20
Legal redress mechanism	Legal redress mechanism in place	MoE		1	-	-	-	1
Areas for enforcement identified	Areas for enforcement identified	MoE		-	1	-	-	1

Programme/projects	Output	Responsible	Annual Budget KES'000,000					Global Budget
			Y1	Y2	Y3	Y4	Y5	
Enforcement framework developed	Enforcement framework in place by June 2020	MoE		-	1	-	-	1
Reporting guidelines on enforcement developed	Reporting guidelines on enforcement developed	MoE		-	1	-	-	1
Monitoring compliance regulations	Monitoring compliance regulations	MoE		-	1	-	-	1
Resource mobilization strategy	Resource mobilization strategy by Dec. 2019	MoE		1	-	-	-	1
Annual Finance performance reports	Annual Finance performance reports in place	MoE		1	1	1	1	4
Procurement plans	Annual Procurement plans in place	MoE		1	1	1	1	4
Budget plan and financial reports	Budget plan and financial reports	MoE		1	1	1	1	4
Risk based Audit	Risk based Audit	MoE		1	1	1	1	4

Annex 3: List of Committed Projects (generation and Transmission)

Generation

Project	Project type	Capacity (MW)	Implementing agency	Target Effective Date	Expected commercial Operation Date	Total costs Ksh Million
Olkaria V	Geothermal	158	KenGen		Jul-19	
Olkaria I Unit 6	Geothermal	83	KenGen		Jun-21	
Quantum/QPEA	Geothermal	35	IPP	Mar-18	Dec-20	7,854
Sosian – Menengai	Geothermal	35	IPP	Oct-18	Dec-20	7,854
Orpower 22 (Menengai)	Geothermal	32.5	IPP	Apr-15	Dec-20	7,854
Olkaria VI – PPP	Geothermal	140	KenGen		Jun-23	
Olkaria I Rehabilitation	Geothermal	51	KenGen		Jun-21	
Olkaria Modular	Geothermal	61.75	KenGen		Dec-20	
Olkaria I & IV Uprating	Geothermal	40	KenGen		Jun-21	
Brine Power – Olkaria	Geothermal	15	KenGen		Jun-21	
Menengai I Stage 2	Geothermal	60	IPP		Jun-23	13,400
Kinangop	Wind	60	IPP	Dec-12	Jun-20	15,300
Kipeto Energy	Wind	100	IPP	Sep-17	Jun-20	25,000
Chania Green	Wind	50	IPP	Dec-17	Dec-20	12,500
Prunus	Wind	50	IPP	Jan-14	Jun-22	12,500
Bahari Winds (Electrawinds Kenya)	Wind	90	IPP	May-17	Jun-23	22,500
Apperture Green ltd	Wind	50	IPP		Dec-22	
Ngong Wind Farm III	Wind	11	KenGen		Jun-21	
Meru (Isiolo) wind farm	Wind	80	KenGen		Jun-23	
Marsabit Wind – Phase 1	Wind	300	KenGen		Jun-23	
Ol-danyat Energy	Wind	10	IPP		Dec-23	2,500
GOGO Upgrade	Hydro	60	KenGen		Dec-23	
Mt. Kenya Community Based Organization	Hydro	0.6	IPP	Sep-14	Dec-20	183
KTDA Ltd. North Mathioya-Metumi	Hydro	3.6	IPP	Feb-17	Jun-19	1,101
Tindinyo Falls Resort	Hydro	1.5	IPP	Jan-14	Jun-20	459
Kirinyaga Power Company Ltd & KTDA Power Company Ltd (Lower Nyamindi)	Hydro	0.8	IPP	Feb-17	Jun-19	245
Greater Meru Power Company Ltd (Iraru)	Hydro	1	IPP	Feb-17	Dec-19	306

Project	Project type	Capacity (MW)	Implementing agency	Target Effective Date	Expected commercial Operation Date	Total costs Ksh Million
& KTDA Power Company Ltd						
Greater Meru Power Company Ltd (South Mara) & KTDA Power Company Ltd	Hydro	1.5	IPP	Feb-17	Jun-19	459
Settet Power Company Ltd (Kipsanoi) & KTDA Power Company Ltd	Hydro	0.6	IPP	Jul-14	Dec-20	183
KTDA Ltd Nyambunde/Nyakwana	Hydro	0.5	IPP	Aug-17	Jul-22	153
Kleen Energy Ltd	Hydro	6	IPP	Jan-15	Dec-19	1,836
KTDA Itare	Hydro	1.3	IPP		Jun-20	397
Matunguru Hydro	Hydro	7.8	IPP		Dec-20	2,387
Global Sustainable Buchangu	Hydro	4.5	IPP		Dec-20	1,377
Global Sustainable Kaptis	Hydro	14.5	IPP		Dec-20	4,437
Hydel	Hydro	5	IPP		Dec-22	1,530
Nithi Hydro Power Ltd (Frontier)	Hydro	5.6	IPP		Jun-20	1,713
Tenwek	Hydro	0.25	IPP		Jun-19	76
Greenlight Holdings	Hydro	1.5	IPP		Jun-22	459
Western Hydro	Hydro	10	IPP	Mar-16	Jun-20	3,060
Kinanthumbi small hydro	Hydro	0.51	IPP	Nov-17	Jun-20	156
Gatiki small hydro (Power Tech. Solutions)	Hydro	9.6	IPP	Dec-17	Jun-21	2,937
Ethiopia – Kenya	Import	200	IPP		Apr-20	
Gas Turbine	LNG	200	KenGen		Dec-22	
Atten Kesses Kenya Ltd	Solar	40	IPP	Jan-18	Jun-20	6,120
Malindi Solar Group (Vateki)	Solar	40	IPP	Dec-17	Jun-20	6,120
Selenkei (Radiant)	Solar	40	IPP	Sep-17	Dec-20	6,120
Eldosol (Cedate)	Solar	40	IPP	Oct-17	Dec-20	6,120
Marco Borero Co.Ltd	Solar	1.5	IPP	Oct-17	Jun-20	230
Hannan Arya Energy (K) Ltd	Solar	10	IPP	Mar-18	Dec-21	1,530
Kenergy Renewables Ltd (Rumuruti)	Solar	40	IPP	Sep-18	Dec-21	6,120
Kopere Solar Park (Subuiga)	Solar	40	IPP	Jun-18	Jun-22	6,120
Makindu Solar – Rareh Holdings Company	Solar	30	IPP	Mar-18	Dec-22	4,590
Kensen	Solar	20	IPP		Jun-20	3,060

Project	Project type	Capacity (MW)	Implementing agency	Target Effective Date	Expected commercial Operation Date	Total costs Ksh Million
Kaptagat	Solar	40	IPP		Dec-21	6,120
Belgen	Solar	40	IPP		Dec-20	6,120
Lzera Ranch	Solar	10	IPP		Dec-19	1,530
Solarjule	Solar	10	IPP		Dec-21	1,530
Tarita Green (Isiolo)	Solar	40	IPP		Dec-21	6,120
Tarita Green (Elgeyo)	Solar	40	IPP		Dec-21	6,120
Sunpower Kenya (Makindu – Kibwezi I)	Solar	40	IPP		Jun-20	6,120
Asachi	Solar	30.6	IPP		Dec-20	4,681
Gitaru Solar	Solar	40	KenGen		Jun-21	
Astonfield Sosian Solar Ltd	Solar	10	IPP		Dec-19	1,530
Greenmilenia Energy Ltd	Solar	40	IPP		Dec-18	6,120
Muhoroni	Solar	100	REREC		Dec-22	
Lamu	Solar	50	REREC		Jun-23	
Kwale International Sugar	Co-gen	10	IPP	Aug-15	Dec-20	1,326
Rea Vipingo (DWA Estates)	Co-gen	1.44	IPP	Mar-18	Jun-20	190
Crystal Energy Solutions	Co-gen	40	IPP		Dec-21	5,300
Sistainable Energy	Co-gen	40	IPP		Dec-21	5,300
Sukari Industries	Co-gen	22	IPP		Jun-19	2,917
Thika Way Investment (Homabay Biogas One)	Biogas	8	IPP	Dec-17	Jun-22	1,060
Roadtech Solutions Ltd	Biogas	10	IPP	Jan-17	Jun-23	1,326
Tower Power/Cummins Phase I	Biomass	2	IPP	Feb-14	Dec-21	265
Tower Power/Cummins Phase II	Biomass	5	IPP	Feb-14	Dec-21	663
Transmara Sugar Co	Co-gen	25	REREC		June-22	
Raising Masinga	Hydro	0	KenGen		2022	
Wellhead Leasing	Geo-thermal	50	KenGen		2024	
Pumped Hydro Power	Hydro	300	KenGen		2024	
Karura Hydro	Hydro	90	KenGen		2024	
Eburu	Geo-thermal	25	KenGen		2024	
Olkaria VII	Geo-thermal	140	KenGen		2024	

Project	Project type	Capacity (MW)	Implementing agency	Target Effective Date	Expected commercial Operation Date	Total costs Ksh Million
Olkaria VIII	Geo-thermal	140	KenGen		2025	
Olkaria IX	Geo-thermal	140	KenGen		2025	
Amu Coal Power Plant	Coal	981.5	IPP		2024	200,000
TOTAL		**4870.95**				

List of Committed Projects (Transmission)

	NAME	DESCRIPTION	Est. Capacity (MW)	ESTIMATED COST (KSH B)	TARGET COMPLETION DATE	PURPOSE
	2019 TRANSMISSION LINE AND SUBSTATION PROJECTS					
1	LOIYANGALANI SUSWA 400KV	436kV loiyangalani Suswa 400kV transmission Line with substations	1200	4	Sep-18	
	Sub-Total 2019	436		4		
	2020 TRANSMISSION LINE AND SUBSTATION PROJECTS					
2	LESSOS - KABARNET LINE	65km 132kV single circuit line, 23 MVA Substation at Kabarnet	100	1.2		
3	OLKARIA - NAROK LINE	68km 132kV single circuit line. 132/33kV 23MVA substation at Narok	100			
4	MWINGI – KITUI – WOTE LINE	112km 132kV single circuit line. 1no. 23 MVA, 2 no. 7.5 MVA 132/33kV substations at Kitui, Wote, & Sultan Hamud	60			
5	220/132kV RABAI TRANSFORMERS	Rabai 220/132 1x90MVA	90	0.6	Mar-19	
6	NAIROBI RING 220 KV SUBSTATIONS	2x 200 MVA 220/66 KV substations at Isinya, Athi River, Kimuka and Malaa	400	9.6	Aug-19	System reinforcement within Nairobi Metropolitan
7	KENYA SYSTEM REINFORCEMENT	Construction of 400/220kV substation at Suswa and capacitor banks at Athi River and 90MVA 220/66kV Transformer at Nairobi North	800	4.5	Jun-19	
8	SONDU – ONGENG (HOMABAY/NDHIWA) 132kv	69km 132kV single circuit Line, 1 No. 23MVA Sub-station at Homa Bay and 1 No. 15MVA Sub-station at Ndhiwa		2.3	Dec-19	Improve power supply quality, meet demand growth, increase reliability of power and increase electricity access
9	OLKARIA – LESSOS – KISUMU LINE	279km 400/220/132kV double circuit line, 220/132 1x150 MVA, 132/33 1x45MVA Kibos substation	200	14.3	Jan-20	Improve power flow to Western Kenya, interconnect the grid
10	KENYA- TANZANIA INTERCONNECTOR	96km 400kV double circuit line between Isinya and Namanga	1300	5	Jun-20	Connect Kenya to Southern African Power pool and integration of regional power

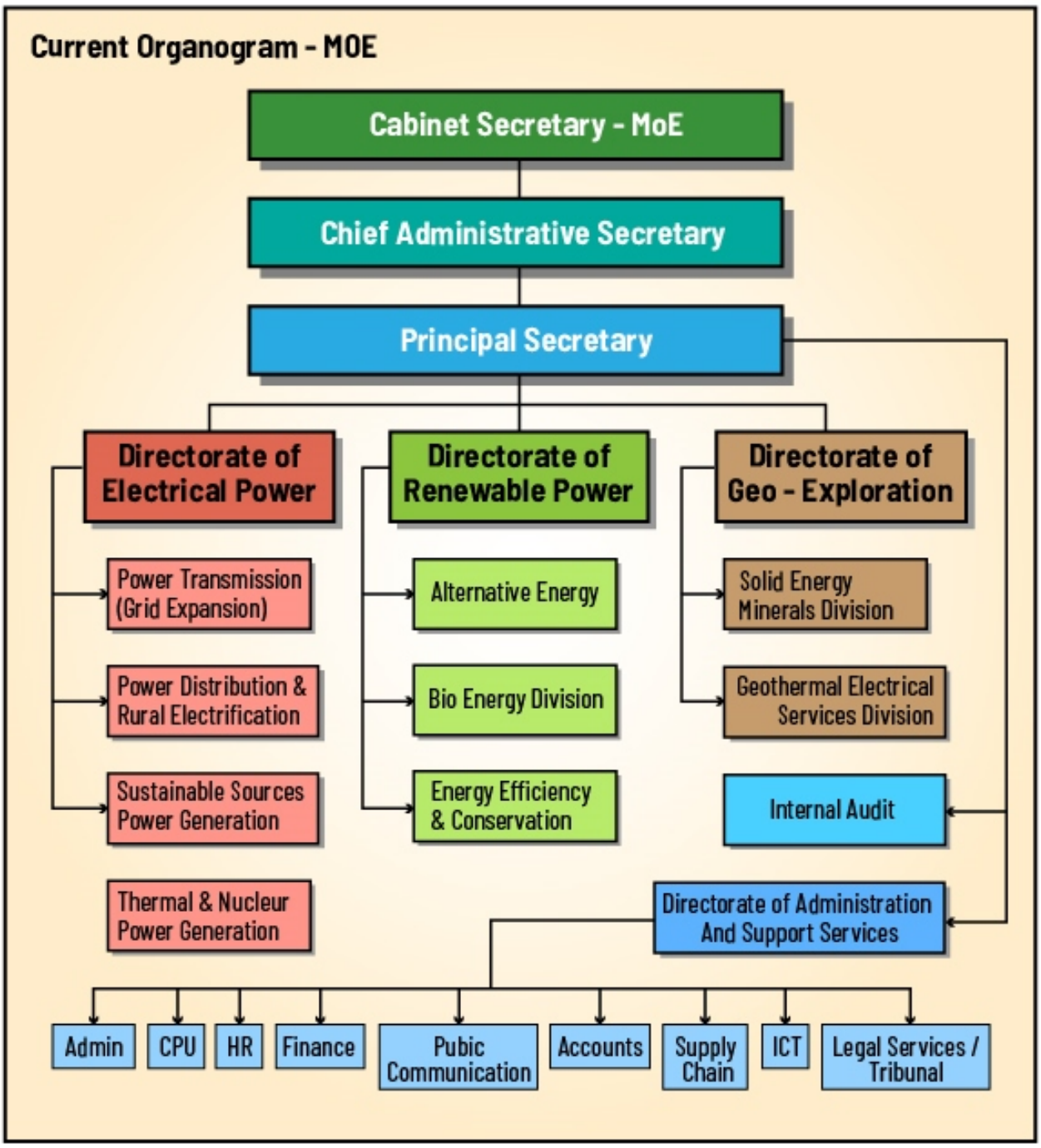
	NAME	DESCRIPTION	Est. Capacity (MW)	ESTIMATED COST (KSH B)	TARGET COMPLETION DATE	PURPOSE
						market in NELSAP countries
11	NANYUKI-ISIOLO-MERU 132kV LINE	70km, 132kV single circuit line, 132/33kV, 23MVA substation at Isiolo-70km.	100	2.3	Jun-20	Improve power supply quality, meet demand growth, increase reliability of power and increase electricity access
12	NANYUKI-ISIOLO 132kV 5km UG LINE	5km UG cable Construction of Nanyuki-Isiolo line on-going				
13	TURKWEL-ORTUM-KITALE	137km 220kV single circuit line with substation at Ortum	100	3.16	Jun-20	
14	ISINYA (KAJIADO)-NAMANGA	80km 132kV single circuit line with 1x23 at Machakos, Konza, Kajiado and Namanga (80km)	60	8.7	Apr-20	Reinforce transmission and distribution network, enhance grid access for more connectivity and alternative supply paths
15	NANYUKI- RUMURUTI 132KV	79km 132kv transmission line	23	4.4	Jun-20	
16	NANYUKI - RUMURUTI 132KV	14.5km UG cable, 79km 132kv transmission line		2.2	Jun-20	
17	EASTERN ELECTRICITY HIGHWAY (ETHIOPIA – KENYA INTERCONNECTOR)	612km 500kV HVDC bipolar, 400kV substation	2000	32.4	Apr-20	Power flow from Ethiopia to and through Kenya for regional trade
	Sub-Total 2020	1685.5		90.66		
	2021 TRANSMISSION LINE AND SUBSTATION PROJECTS					
18	MARIAKANI SUBSTATION	400/220kV, 4X200MVA substation		2.7	Sep-20	Reinforce transmission and distribution network, enhance grid access for more connectivity
19	LESSOS – TORORO LINE (KENYA-UGANDA INTERCONNECTOR)	132km, 400kV double circuit line and 2x75 MVA transformers at lessos substation	200	3.1	Nov-20	
20	UPLANDS(LIMURU SUBSTATION	upland 132/66 2x60MVA	120	1.6	Jun-21	
21	GARSEN -HOLA -GARISSA	240km 220kV single circuit Line and		8.6	Jun-21	

	NAME	DESCRIPTION	Est. Capacity (MW)	ESTIMATED COST (KSH B)	TARGET COMPLETION DATE	PURPOSE
	LINE	Sub-station at Hola and Bura				
22	AWENDO -ISEBANIA LINE	50km 132kV single circuit Line and Sub-stations at Isebania		11.7	Dec-21	
23	ISINYA- KONZA	45km 400kV double circuit line			Dec-21	
24	MAKINDU SUBSTATION	Makindu 400/132 2x150	300	3.21	2021	
25	12 SUBSTATION EXTENSIONS WORKS FOR IMPROVED RELIABILITY()	Malindi 220/33 45MVA , Garsen 220/33 23MVA Kitale 220/132 110MVA Kibos 220/132 150MVA Bomet132/33 23MVA Narok 132/33 23MVA Kyeni 132/33 23MVA Mwingi 132/33 23MVA Wote 132/33 23MVA Kitui 132/33 23MVA Kabarnet 132/33 23MVA Olkaria IAU 220/132 105MVA	639	9.064	2021	
	Sub-Total 2021	467		39.974		
	2022 TRANSMISSION LINE AND SUBSTATION PROJECTS					
26	SULTAN HAMUD-LOITOKTOK	120km 132kv transmission line and substation at Loitoktok 132/33kv 23MVA		4.7	Dec-21	
27	RABAI- BOMANI-KILIFI LINE	67km, 132kV double circuit line with associated substations		3	Aug-21	
28	KAMBURU - EMBU – KIBIRIGWI-THIKA 220kV	150km, 220kV d/c line with bay extension at Kamburu and establishment of 1x150MVA 220/132kV substation at Embu, Kiganjo & Thika		11.6	2022	
29	SOTIK – KILGORIS	50km, 132kV d/c Line, s/c strung with a new 2x23MVA 132/33kV substation at Kilgoris	46	1.1	2022	
30	MENENGAI- OL KALOU - RUMURUTI	70km of 132kV and establishment of 132/33kV substation at Ol Kalau and bay extensions at Menengai and Rumuruti		3.43	2022	
	Sub-Total 2022	457		23.83		
	2023 TRANSMISSION LINE AND SUBSTATION PROJECTS					
31	NATIONAL SYSTEM CONTROL CENTRE	National System Control Centre (building and SCADA/EMS system) - Main and Back up around Nairobi, approx. 70km apart	n/a	5	2023	National Grid & Regional Power Interchange Management
32	VOI –TAVETA 132KV	110km, 132KV single circuit transmission line, with substation at Taveta.	23	4.1	2023	

	NAME	DESCRIPTION	Est. Capacity (MW)	ESTIMATED COST (KSH B)	TARGET COMPLETION DATE	PURPOSE
33	MERU –MAUA 132KV	35km 132kV Line and 132/33 1x23MVA Substation at Maua	23	2.6	2023	
34	THIKA 400/220KV –THIKA 220/132KV SUBSTATIONS INTERTIE (BAY EXT)	1km Thika 400/220KV –Thika 220/132KV Substations Intertie (bay Ext)		0.7	2023	
35	RUMURUTI – MARALAL/LOOSUK 132KV	148km Rumuruti – Maralal/Loosuk 132kV	23	4.7	2023	
36	WERU – KILIFI 220KV	48.5km Weru – Kilifi 220kV	300	5.2	2023	
37	MALINDI -WERU (CIRCUIT II) 220KV	22km Malindi -Weru (Circuit II) 220kV		1.8	2023	
38	KIENI – CHOGORIA 132KV	23km Kieni – Chogoria 132kV	23	1.8	2023	
39	GILGIL – THIKA – MALAA– KONZA 400KV	205km 400kV double circuit line, with 400/200 2x400MVA Gilgil, 400/200 2x400MVA Kimuka, 400/200 2x400MVA Lessos substations	800	22.7	2023	
40	RUMURUTI – KABARNET 132KV	111km Rumuruti – Kabarnet 132kV		4.22	2023	
41	MACHAKOS – MWALA – SARARA (T-OFF OF KINDARUMA – JUJA LINE) 132KV	80km Machakos – Mwala – Sarara (T-off of Kindaruma – Juja line) 132kV	23	5.2	2023	
42	MARIAKANI – DONGO KUNDU 220KV LINE	55km Mariakani – Dongo Kundu 220kV Line		5.7	2023	
43	RANGALA - BONDO – NDIGWA 132KV	57km Rangala - Bondo – Ndigwa 132kV	23	3.4	2023	
44	RONGAI - KERINGET 132KV	43km Rongai - Keringet 132kV	23	2.4	2023	
45	KILGORIS – (ISEBANIA/KIHANCHA) 132KV	40km Kilgoris – (Isebania/Kihancha) 132kV	23	2.9	2023	
46	REINFORCEMENT OF 132KV MNTL AND ELECTRIFICATION OF SGR PHASE 1	57.5 km Reinforcement of 132kV MNTL and Electrification of SGR Phase 1	300	15.1	2023	
47	WERU – GALANA 220KV LINE	51km Weru – Galana 220kV Line	120	3.9	2023	
48	LESSOS-LOOSUK 400KV	185km Lessos-Loosuk 400kV		17.4	2023	
49	KISUMU(KIBOS) – BONDO 132KV	61km Kisumu(Kibos) – Bondo 132kV		3.3	2023	

	NAME	DESCRIPTION	Est. Capacity (MW)	ESTIMATED COST (KSH B)	TARGET COMPLETION DATE	PURPOSE
50	JUJA - RUARAKA 132KV	6.5km Juja-Ruaraka 132KV		0.2	2023	
51	MUSAGA-WEBUYE 132KV	18km Musaga-Webuye 132KV		0.3	2023	
52	LAMU 220KV –LAMU COAL 220KV	20km Lamu 220KV –Lamu Coal 220KV		2.04	2023	
53	MALAA-LAMU 400KV	520km Malaa-Lamu 400KV	1600	48.8	2023	
54	SOY/MOI BARRACKS 132/33KV SS	1km Soy/Moi Barracks 132/33kV SS	23	1.05	2023	
55	SOY/MOI BARRACKS – KAPSOWAR 132KV	78km Soy/Moi Barracks – Kapsowar 132kV		3.8	2023	
56	MENENGAI – RONGAI 400KV	45km Menengai – Rongai 400kV		3.5	2023	
	Sub-Total 2023	2021.5		171.81		
	TOTAL	5067				

ANNEX 3: CURRENT ORGANIZATION STRUCTURE



ANNEX 4: MINISTRY STAFF ESTABLISHMENT AND DIRECTORY

1.0 Proposed Organizational Structure and Functions

The functional analysis of the Ministry Energy and recommended organization into three (3) Technical Directorates and one (1) Directorate comprising of Administration and Support Services Divisions/Sections/Units as follows:-

1. Electrical Power Development Directorate;
2. Renewable Energy Directorate;
3. Geo-Exploration Directorate; and
4. Support Services Division/Sections/Units.
    a. Administration Division
    b. HRM & D
    c. Finance
    d. Accounts
    e. SCMS
    f. CPPMU
    g. ICT
    h. Public Communication
    i. Legal Services
    j. Internal Audit

1.1 Office of the Principal Secretary

The Principal Secretary is the Administrative Head and Accounting Officer of the Ministry and is responsible for efficient management of its operations. This office therefore needs to be properly facilitated and the team recommends that it be staffed as follows;

S/No.	Designation	JG	Proposed Staffing Levels
	Principal Secretary	----	1
	Principal Office Administrator	N	1
	Senior Assistant Office Administrator	L	1
	Principal/Chief Driver	J/K	1
	Driver II/I/Senior	G/F/E	1
	Support Staff	D/E/F	2
	Total		**7**

1.2 Directorate of Electrical Power Development

The Directorate will be headed by a Secretary, Electrical Power, Job Group 'T' who will be responsible to the Principal Secretary in the management and coordination of Electrical power function.

The functions of the Directorate include:-

Develop and review electrical energy policy formulation and development;

Coordinate updating of the Least Cost Power Development Plan;

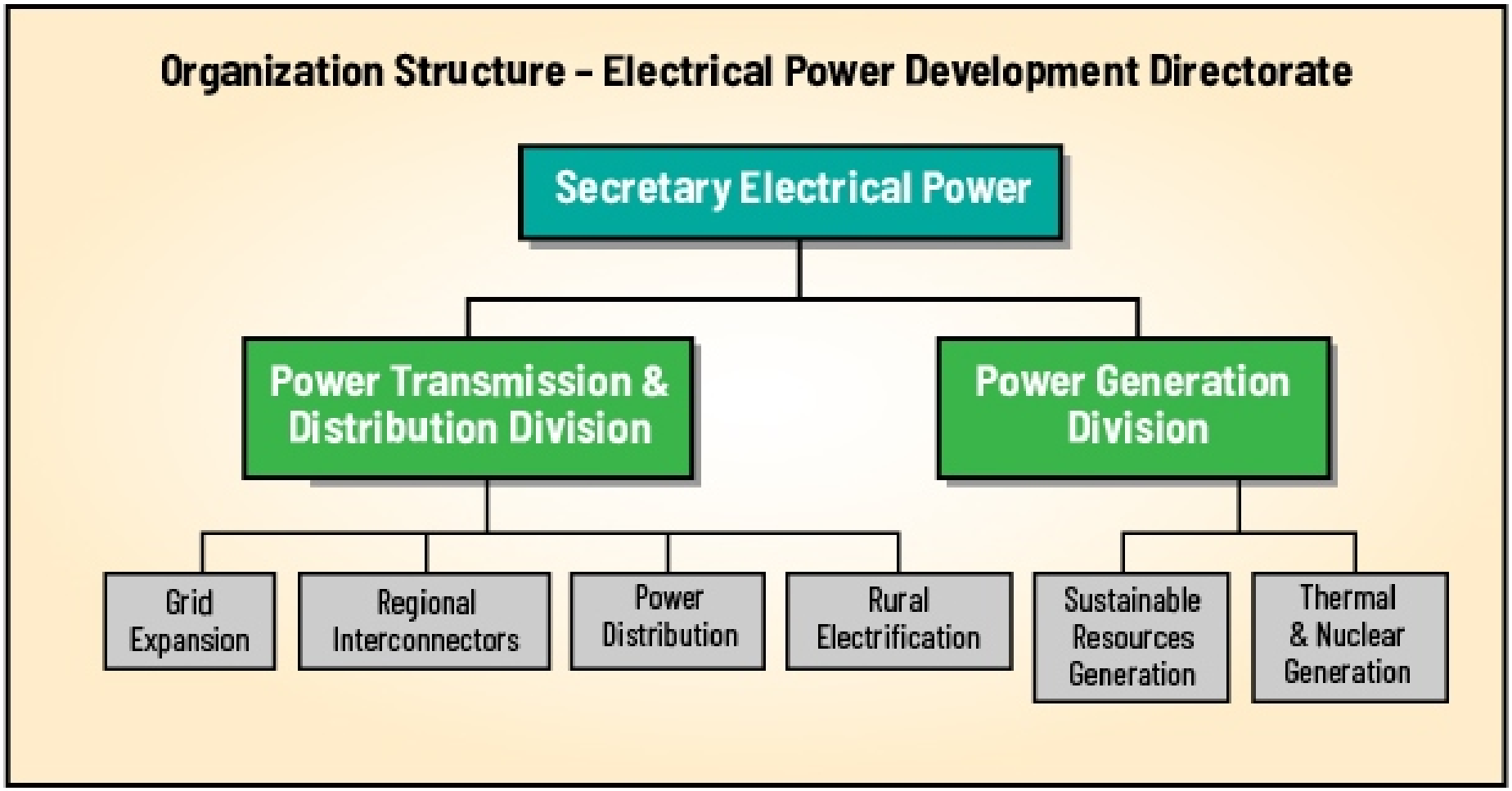
Coordinate tariff policy formulation;

Initiate development of technical standards in electrical power;

Undertaking regional power studies;
Appraisal and review of feasibility studies on national electrical power projects;
Coordinate National Energy Power planning; and
Monitoring and evaluation of Generation, Transmission, Distribution and Rural Electrification Projects.
The Directorate will comprise two (2) Divisions:-

1. Power Transmission and Distribution Division
2. Power Generation Division

ORGANIZATION STRUCTURE – ELECTRICAL POWER DEVELOPMENT DIRECTORATE



Power Transmission and Distribution Division

The Division will be headed by a Chief Engineer (Electrical) Job Group 'S' who will be responsible to the Secretary, Electrical Power, Job Group 'T' in the management and coordination of Power Transmission and distribution function. The functions of the Division include:-

1. Coordination and review of feasibility studies on power transmission and grid expansion projects; power distribution and Rural Electrification projects;
2. Development of technical standards on power transmission and distribution systems;
3. Monitoring and evaluation of power transmission and grid expansion projects; power distribution and Rural Electrification projects;
4. Review of Environmental Impact Assessment (EIA) reports on power transmission and grid expansion projects, power distribution and Rural Electrification projects;
5. Supervise consultancy works on power transmission and grid expansion, power distribution and Rural Electrification projects;
6. Coordination of preliminary design and cost estimation of Rural Electrification projects;

Power Generation Division

The Division will be headed by a Chief Engineer (Mechanical) Job Group 'S' who will be responsible to the Secretary, Electrical Power, Job Group 'T' in the management and coordination of Power Generation function. The functions of the Division include:-

1. Monitoring and evaluation of Hydro, Major wind, Geothermal, Cogeneration, thermal and nuclear power generation Projects;
2. Reviewing of Environmental Impact Assessment report studies related to Hydro, major Wind, cogeneration, thermal and nuclear power generation Projects;
3. Coordination and review of feasibility studies on Hydro, major Wind, Cogeneration, thermal and nuclear power generation Projects;
4. Supervise and coordinate consultancy work on electrical power generation; and
5. Supervise and review the collection, collation and analysis of data on power technologies.

The following is the proposed staffing levels for Electrical Power Development Directorate.

Designation	Job Group	Proposed staffing levels
Secretary, Electrical Power	T	1
Transmission and Distribution Division		
Chief Engineer (Electrical)	S	1
Senior Principal Supt Engineer (Electrical)	R	2
Senior Principal Supt Engineer (Mechanical)	R	1
Principal Supt Engineer (Electrical)	Q	2
Principal Supt Engineer (Mechanical)	Q	1
Chief Supt Engineer (Electrical)	P	2
Chief Supt Engineer (Mechanical)	P	2
Senior Supt Engineer (Electrical)	N	3
Senior Supt Engineer (Mechanical)	N	2

Designation	Job Group	Proposed staffing levels
Supt Engineer (Electrical)	M	3
Supt Engineer (Mechanical)	M	2
Engineer II/I (Electrical)	K/L	3
Engineer II/I (Mechanical)	K/L	2
Sub-Total		**27**
Inspectors		
Principal/Chief Superintendent (Electrical)	M/N	1
Superintendent/Senior Superintendent (Electrical)	K/L	4
Inspector/Senior Inspector- Electrical	H/J	4
Sub - Total		**9**
Total		**36**
Power Generation Division		
Chief Engineer (Mechanical)	S	1
Senior Principal Supt Engineer (Mechanical)	R	1
Senior Principal Supt Engineer (Electrical)	R	1
Principal Supt Engineer (Mechanical)	Q	1
Principal Supt Engineer (Electrical)	Q	1
Chief Supt Engineer (Mechanical)	P	2
Chief Supt Engineer (Electrical)	P	1
Senior Supt Engineer (Mechanical)	N	4
Senior Supt Engineer (Electrical)	N	2
Supt Engineer (Mechanical)	M	4
Supt Engineer (Electrical)	M	2
Engineer II/I (Mechanical)	K/L	4
Engineer II/I (Electrical)	K/L	2
Sub - Total		**24**
Grand Total		**60**

The proposed Electrical Power Development organogram

1.4 Directorate of Renewable Energy

The Directorate will be headed by a Secretary, Renewable Energy, Job Group 'T' who is responsible to the Principal Secretary in the management and coordination of Renewable Energy function.

The functions of the Division include:-

1. Development and review of policies, strategies and guidelines for Renewable and energy efficiency and conservation;
2. Promotion of renewable energy and energy efficiency and conservation technologies;
3. Coordination of research in renewable energy and energy efficiency.

4. Provision of an enabling framework for the efficient and sustainable production, distribution and marketing of Alternative Energy and Bioenergy Technologies.
5. Promotion of development of appropriate local capacity for the manufacture, installation, maintenance and operation of renewable technologies.
6. Establishing linkages with international partners on programmes focusing on renewable energy and energy efficiency technologies.
7. Harness opportunities offered under climate change programmes and projects to promote the development and exploitation of renewable energy, and energy efficiency and conservation;
8. Monitoring and evaluation of renewable energy, energy efficiency and conservation projects.
9. Collaboration with international, regional and local stakeholders in harmonization of renewable energy policies and standards.
10. Promotion of off-grid and decentralized electrical systems and hybrids for electricity access.
11. Feed-in-tariff policy development, promotion and review.
12. Initiate development of performance standards and labels for energy efficient equipment and appliance.
13. Promotion of Private Sector participation in development of renewable energy initiatives;
14. Administration of the Kenya Energy Sector Environment and Social Responsibility Program (KEEP) Fund

The Directorate will comprise three (3) Divisions:-

Alternative Energy Technologies;
Energy Efficiency & Conservation; and
Bio-Energy.

Alternative Energy Technologies (AET) Division

The Division will be headed by a Director of Renewable Energy, JG "S" who will be responsible to the Secretary, Renewable Energy, Job Group 'T' in the management and coordination of Alternate Energy Technologies function.The functions of the Division include:-

1. Coordination of promotion and utilization of alternative energy technologies including Solar, wind, small hydropower and electricity cogeneration;
2. Provision of an enabling framework for the efficient and sustainable production, distribution and marketing of Alternative Energy ;
3. Spearheading piloting of new and innovative alternative energy technologies;
4. Facilitate the promotion of off-grid and decentralized electrification systems and hybrids in ASAL areas;
5. Oversee the development and promotion of local manufacturing capacity and assembly of plant, equipment and appliances;
6. Coordination of research, development and dissemination of alternate energy technologies;
7. Feed-in-tariff policy development, promotion and review.

8. Monitoring and evaluation of alternative energy technology projects; and
9. Initiate development of renewable energy technologies standards.

Energy Efficiency and Conservation Division

The Division will be headed by a Director of Renewable Energy, JG "S" who will be responsible to the Secretary, Renewable Energy, Job Group 'T' in the management and coordination of Energy Efficiency and Conservation function.The functions of the Directorate include:-

1. Coordination of research on energy efficiency and conservation;
2. Initiate development and promotion of minimum energy performance standards, labels and regulations;
3. Review designs for installation of energy efficiency & conservation systems;
4. Promotion of private sector participation in energy efficiency and conservation programmes;
5. Harness opportunities offered under climate change programmes and projects to promote energy efficiency and conservation;
6. Initiate development of standards and labels for energy efficient equipment and appliances in consultation with the Kenya Bureau of Standards;
7. Undertake development of local capacity in energy audits and energy management practices;
8. Collaboration with international, regional and local stakeholders in harmonization of energy management standards.
9. Management and administration of the Kenya Energy Sector Environment and Social Responsibility Program (KEEP) Fund
10.

Bio-Energy Division

The Division will be headed by a Director, Renewable Energy, JG "S" who will be responsible to the Secretary, Renewable Energy, Job Group 'T' in the management and coordination of Bio-energy function.The functions of the Division include:-

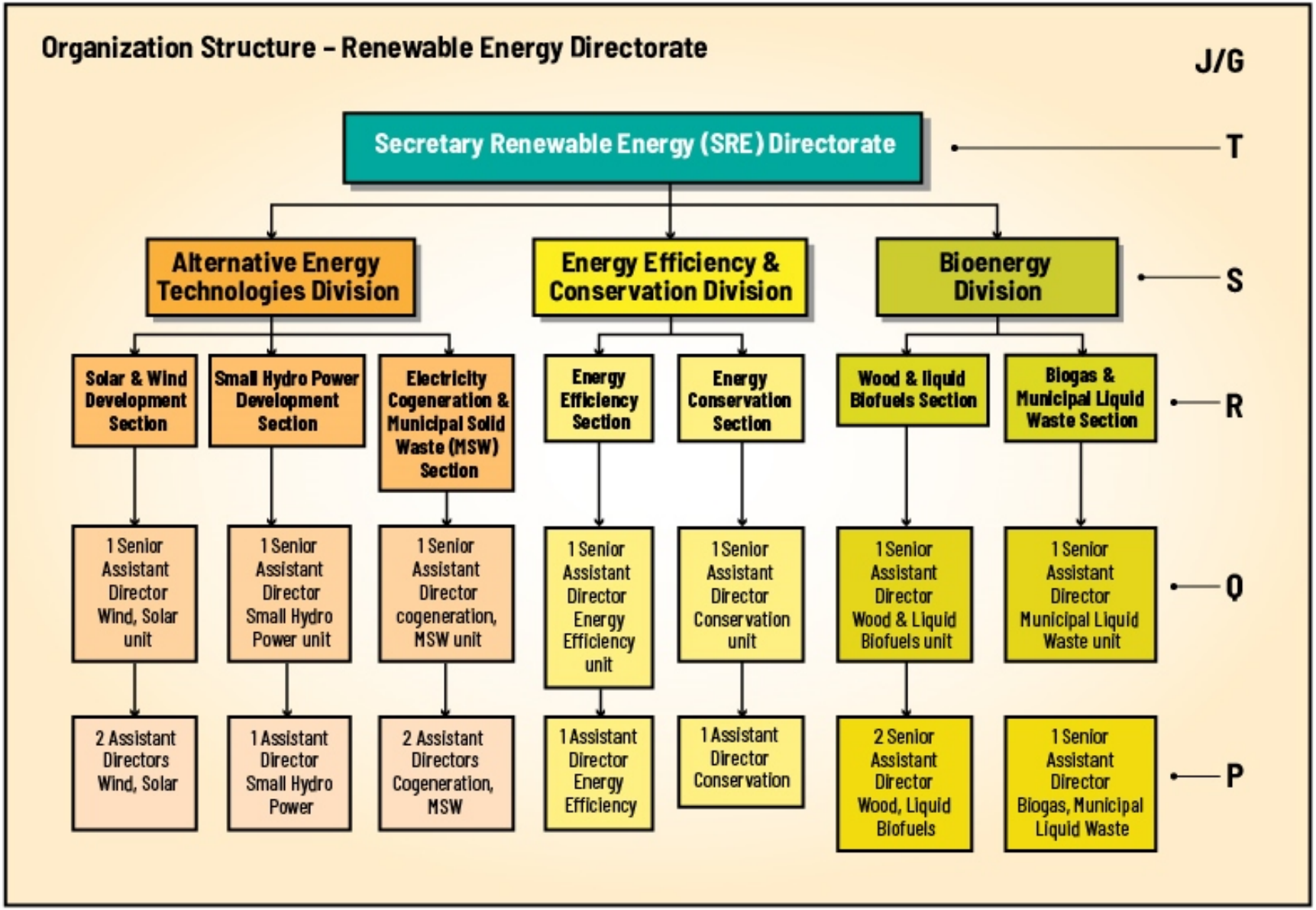
1. Development of standards and regulations for bioenergy technologies
2. Research on development and promotion of biomass resources and technologies including wood fuel, agricultural residues, biogas, municipal waste, biodiesel, and bioethanol;
3. Initiate development and promotion of local manufacturing capacity for plant, equipment and appliances;
4. Facilitate of private sector participation in bioenergy initiatives;
5. Promote international co-operation on programmes focusing on bioenergy;
6. Mainstreaming and integration of gender and climate change in bio energy technologies.

The following is the proposed staffing levels for Renewable Energy Directorate.

	DESIGNATION	JG	Proposed Staffing Levels
1	Secretary, Renewable Energy	T	1
	Alternative Energy Division		
1	Director, Renewable Energy	S	1
2	Deputy Director, Renewable Energy	R	3
3	Senior Assistant Director, Renewable Energy	Q	3

4	Assistant Director, Renewable Energy	P	3
5	Principal Renewable Energy Officer	N	5
6	Chief Renewable Energy Officer	M	6
7	Renewable Energy Officer/Senior	K/L	10
9	Principal Renewable Energy Assistant	N	1
	SUB TOTAL		**32**
	Energy Efficiency & Conservation Division		
1	Director, Renewable Energy	S	1
2	Deputy Director, Renewable Energy	R	2
3	Senior Assistant Director, Renewable Energy	Q	2
4	Assistant Director, Renewable Energy	P	2
5	Principal Renewable Energy Officer	N	2
6	Chief Renewable Energy Officer	M	2
7	Renewable Energy Officer/ Senior	K/L	4
	SUB TOTAL		**15**
	Bioenergy Division		
1	Director, Renewable Energy	S	1
2	Deputy Director, Renewable Energy	R	2
3	Senior Assistant Director, Renewable Energy	Q	2
4	Assistant Director, Renewable Energy	P	2
5	Principal Renewable Energy Officer	N	3
6	Chief Renewable Energy Officer	M	4
7	Renewable Energy Officer /Senior	K/L	6
	SUB TOTAL		**20**
	TOTAL		**77**
	Energy Centers		
1	Assistant Renewable Energy Officer	P	1
2	Principal Renewable Energy Assistant	N	6
3	Chief Renewable Energy Assistant	M	1
4	Senior Renewable Energy Assistant	L	0
5	Renewable Energy Assistant I	K	8
6	Renewable Energy Assistant II	J	4
7	Renewable Energy Assistant III	H	0
	SUB TOTAL		**19**
8	Superintendent (Building)	K	1
9	Senior Chargehand	J	4
10	Chargehand	H	2
11	Artisan I	G	25
12	Artisan II/III	E/F	9
	SUB TOTAL		**41**
13	Senior Security Warden	G	17
14	Civilian Security Warden I/II	E/F	3
	SUB TOTAL		**20**
15	Chief Superintending (Gardens)	M/N	0
16	Senior Superintending I (Gardens)	L	0
17	Superintending I (Gardens)	K	0
18	Superintending II (Gardens)	J	0
19	Assistant Superintendent (Gardens)	H	0
20	Groundsman/Gardens Assistant I	G	7
21	Groundsman/Gardens Assistant II/III	E/F	9
	SUB TOTAL		**16**
	Total		**96**

ORGANIZATION STRUCTURE – RENEWABLE ENERGY DIRECTORATE



1.6 Directorate of Geo-Exploration

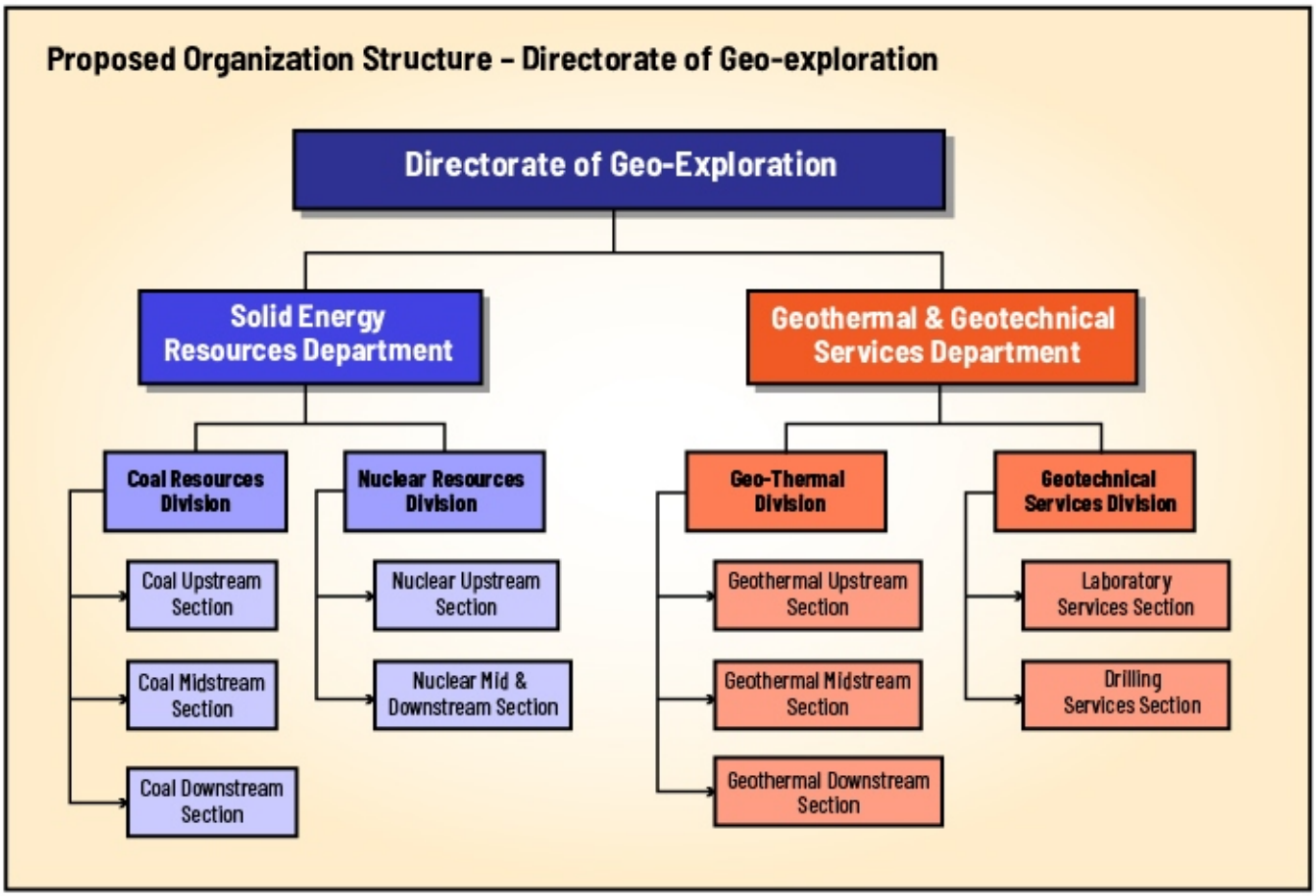
The Directorate will be headed by a Secretary, Geo-exploration, Job Group 'T' who will beresponsible to the Principal Secretary inthe management and coordination of the Geo-exploration function.The functions of the Directorate include:-

1. Formulation of Policy, legal and regulatory framework for exploration and production of geo-energy resources
2. Coordinating the establishment of the African Geothermal Centre of Excellence and overseeing its operations
3. Donor coordination partnerships and sourcing of funds for geo-energy resources development
4. Development of proposals for geo-energy resources development
5. Coordinating the implementation of the National Geothermal Strategy
6. Undertaking geological, geophysical and geo-chemical resource assessment of geo-energy resources
7. Acquisition, analysis, collation and interpretation of geological geophysical and geochemical data on geo-energy resources
8. Coordination and supervision of exploratory drilling operations in prospective areas
9. Licensing of acreage for geo-energy resources
10. Negotiation and licensing of geo-energy exploration and production
11. Exercise oversight overgeo-energy resources licensees and SAGAs under the Ministry for statutory compliance.
12. Stakeholder engagement for geo-energy resource development.
13. Custodian to licenses and Benefit Sharing Agreements

The Directorate will comprise two (2) Divisions:-

Geothermal and Geotechnical Division
Solid Energy Resources Division

The proposed Directorate of Geo-Exploration organogram



Geothermal and Geotechnical Division

The Division will be headed by a Chief Geologist, JG "S" who will be responsible to the Secretary, Geo-Exploration, Job Group 'T' in the management and coordination of Geothermal and Geotechnical function.

The functions of the Division include:-

1. Exploration and development for geothermal energy resources;
2. Promotion and licensing of geothermal prospect areas;
3. Preliminary exploration and ranking of prospects;
4. Delineation of geothermal blocks;
5. Analysis and classification of geothermal resources
6. Reviewing progress reports from geothermal resource licensees
7. Ensure compliance with the Energy Act 2019.
8. Review and approval of payments for donor funded geothermal projects implemented by KenGen and GDC
9. Stakeholder engagement for geothermal development projects.

Solid Energy Resources Division

The Division will be headed by a Chief Geologist, JG "S" who will be responsible to the Secretary, Geo-Exploration, Job Group 'T' in the management and coordination of Solid Energy Resource function.

The functions of the Division include:-

1. Exploration and development for coal deposits;
2. Supervision of contractual exploratory drilling for Coal and Coal Bed Methane;
3. Undertake Prefeasibility studies of coal deposits;
4. Promotion of coal prospects;
5. Negotiation and licensing of coal concessions;
6. Reviewing progress reports from coal concessions;
7. Supervisory compliance of concessionaires;
8. Stakeholder engagement for coal development.

The following is the proposed staffing levels for Geo-Exploration Directorate.

S/No	Designation	JG	Proposed Staffing Levels
1	Secretary, Geo-Exploration	T	1
	Geothermal and Geotechnical Division		
1	Chief Geologist	S	1
2	Senior Principal Superintending Geologist	R	2
3	Principal Superintending Geologist	Q	2
4	Chief Superintending Geologist	P	3
5	Senior Superintending Geologist	N	3
6	Superintending Geologist	M	**3**
7	Geologist II/ Geologist I	K/L	4
	Sub-Total		**19**
	Geophysicists		
1	Chief Principal Geo Physicist	R	1

S/No	Designation	JG	Proposed Staffing Levels
2	Senior Principal Geo Physicist	Q	2
3	Principal Geo -Physicist	P	2
4	Chief Geo Physicist	N	2
5	Senior Geo Physicist	M	3
6	Geo-Physicist II/ I	K/L	4
	Sub-Total		**14**
	Cartographers		
1	Chief Cartographer	M	1
2	Senior Cartographer	L	1
3	Cartographer I	K	1
4	Cartographer III/ Cartographer II	H/J	2
	Sub-Total		**5**
	Total		**38**
	Solid Energy Resources Division		
1	Chief Geologist	S	1
2	Senior Principal Superintending Geologist	R	2
3	Principal Superintending Geologist	Q	2
4	Chief Superintending Geologist	P	3
5	Senior Superintending Geologist	N	2
6	Superintending Geologist	M	3
7	Geologist II/ Geologist I	K/L	4
	Sub-Total		**17**
	Geochemists		
1	Chief Principal Geo Chemist	R	1
2	Senior Principal Geo Chemist	Q	2
3	Principal Geo Chemist	P	2
4	Chief Geo Chemist	N	2
5	Senior Geo Chemist	M	3
6	Geo Chemist II/ I	K/L	4
	Sub-Total		**14**
	DRILLING PERSONNEL		
1	Senior Drilling Assistant	J	1
2	Senior Drilling Inspector	H	1
3	Drilling Assistant I	G	3
4	Drilling Assistant II/II	E/F	4
	Sub-Total		**9**
	Total		**40**
	Grand Total Geo-exploration Directorate		**79**

Administration and Support Services

1.7.1 Administration

The Administrative Support Services function will be headed by a Director of Administration, Job Group 'S' who will be responsible to the Principal Secretary for overall coordination of the administrative support services function.

The functions of the Department include:

1. Coordination and stewardship of government business;
2. Policy formulation analysis and general administration;
3. Inter-Ministerial liaisons;
4. Coordination and ensuring provision of administrative support services;
5. Management of contracted support services;
6. Development of standards and procedures for implementation of quality management systems;
7. Coordination of Office accommodation, allocating office equipment, furniture and other office supplies;
8. Overseeing management of assets and registry services;
9. Management of transport services in the Ministry including inspection and insurance of motor vehicle;
10. Providing effective communication services and systems;
11. Mainstreaming disability, gender, youth issues and HIV/AIDS in the work place;
12. Coordination of official functions;
13. Management of drug and substance abuse mitigation programmes in the work place;
14. Promotion of National Cohesion, Values and Principles of Governance in the Ministry; and
15. Management of public complaints and reporting.

1.7.1.1 Youth Development Unit

The Youth Development Unit is currently headed by Principal Youth Officer, Job Group "N". The functions of Youth Development Unit are as follows: -

1. Coordination and implementing of the National Youth Policy and Youth Strategy in the Ministry
2. Carry out continuous situational youth analysis and summarize evaluation on all activities/programmes/projects implemented by ministries;
3. Coordinate collection of sex and age disaggregated data for all departments to inform planning; and
4. Monitor and report on the not more than two thirds' gender rule in participation of women and men in appointive positions in ministries and their respective sate corporations.
5. To coordinate youth mainstreaming in the Ministry's policies, projects and progammes.
6. Collect, collate and analysis data/statistics on youth in the Ministries,
7. youth disaggregated data
8. Coordinate and report youth internship/attachment and apprenticeship in Ministry
9. Monitoring, evaluation and report on youth projects and programme in the Ministry
10. Working with Development Partners/civil society organizations in implementation of gender related initiatives.
    a. Writing proposals to seek support for youth related initiatives in the organization
11. Prepare and submit quarterly reports to relevant agencies.

1.7.1.2 Gender Unit

The Gender Unit is headed by Assistant Director Gender, Job Group "P". The functions of the Gender Unit are as follows:

1. Promoting the integration of the National Policy on Gender and Development in the Ministry policies and programs;
2. Building the capacity of officers in the Ministry on gender mainstreaming;
3. Monitoring the implementation of programs to ensure gender sensitivity and conformity with National Gender policy and implementation plan;
4. Monitoring and reporting on the Ministry compliance with 30% Access to Government Procurement Opportunities (AGPO);
5. Monitoring and reporting on Ministry Compliance with 2/3 gender principle in employment and promotions;
6. Framework development for Promoting the generation, collection, collation and management of gender disaggregated data in the Ministry;
7. Promoting the review and development of Programs on Gender Based Violence; and
8. Reporting to the National Gender and Equality Commission (NGEC) on the Ministry gender mainstreaming

To effectively carry out the functions of Administration Division, the following staffing levels are proposed:-

	ADMINISTRATION		
	Designation	**Job Group**	**Proposed Staffing Levels**
	ADMINISTRATION DIVISION		
	Director /Secretary of Administration	S/T	1
	Senior Deputy Secretary	R	1
	Deputy Secretary	Q	1
	Under Secretary	P	1
	Senior Assistant Secretary	M/N	1
	Assistant Secretary III/II/I	J/K/L	2
	Sub-Total		**7**
	LIBRARY PERSONNEL		
1.	Principal Librarian/Assistant Director Library Services	N/P	1
2.	Librarian II/I	J/K	1
3.	Senior/Chief Librarian/Senior Library Assistant	L/M	1
	Sub-Total		**3**
	OFFICE ADMINISTRATIVE SERVICES PERSONNEL		
	Office Administrators		
	Assistant Director, Office Administrative Services	P	1
	Principal Office Administrator	N	1
	Chief Principal Office Administrator	M	2
	Senior Office Administrator	L	2
	Office Administrator II/I	J/K	1
	Assistant Office Administrator		
	Principal Assistant Office Administrator	N	1
	Chief Assistant Office Administrator	M	1
	Senior Assistant Office Administrator	L	5
	Assistant Office Administrator I	K	6
	Assistant Office Administrator III/II	H/J	5
	Office Administrative Assistant		
	Senior Office Administrative Assistant	K	1
	Office Administrative Assistant I	J	4

	ADMINISTRATION		
	Designation	**Job Group**	**Proposed Staffing Levels**
	Office Administrative Assistant III/II	G/H	2
	Sub-Total		**32**
	RECORDS MANAGEMENT OFFICERS		
	Principal/Assistant Director Records Management	N/P	1
	Senior/Chief Records Management Officer	L/M	2
	Records Management Officer III/II/I	H/J/K	5
	Sub-Total		**8**
	CLERICAL OFFICERS		
	Principal Clerical Officer	K	2
	Chief Clerical Officer	J	3
	Senior Clerical Officer	H	4
	Clerical Officer II/I	F/G	8
	Sub-Total		**17**
	DRIVERS		
	Principal Driver	J	6
	Driver III/II/I/Senior/ Chief	D/E/F/G /H	26
	Sub-Total		**32**
	TELEPHONE PERSONNEL		
	Principal Telephone Supervisor	M	1
	Senior Telephone Supervisor	L	1
	Telephone Supervisor II/I	J/K	1
	Telephone Operator II/I/Senior	F/G/H	1
	Sub-Total		**4**
	MECHANICS		
	Senior Charge Hand(Mechanic)	J	1
	Charge Hand (Mechanic)	H	1
	Sub-Total		**2**
	SUPPORT STAFF		
	Support Staff II/I/Senior/Cleaning Supervisor IIB/IIA/I	A/B/C/D/E/F/G	21
	Sub-Total		**21**
	Youth Development Unit		
	Assistant/Senior Assistant Director Youth Development	P/Q	1
	Principal Youth Development Officer	N	1
	Sub Total		**2**
	Gender Unit		
	Assistant/Senior Assistant Director Gender	P/Q	1
	Principal Gender Officer	N	1
	Sub Total		**2**
	Total		**133**

1.7.2 Human Resource Management and Development Division

The Division will be headed by a Director, HRM & D, JG "S" who will be responsible to the Principal Secretary in the management and coordination of Human Resource Management and Development function.

The functions of the Division include:-

1. Provide strategic leadership to the Ministry's Human Resource Management and Development;
2. Implementation of Human Resource Management and Development policies, rules and regulations;
3. Undertaking HR Planning, Succession Management, and advising on career guidelines and staffing levels;
4. Processing of Recruitment, Selection, Appointment and Promotions;
5. Exit planning and processing of Pensions claims;
6. Promotion of Staff welfare and management of staff discipline;
7. Coordination of training and staff development;
8. Management of Staff Performance Appraisal Systems;
9. Preparation of Financial Estimates on Personnel Emoluments and payroll administration;
10. Managing Human Resource Information systems and ensuring safe custody of HR records;
11. Promotion of Values and Principles of Governance in the Ministry;
12. Managing Transfers, Deployments and Secondments;
13. Coordinating Internship and Field Attachments;
14. Provide Secretariat for Ministerial Human Resource Management and Advisory Committee(MHRMAC);
15. Preparation and submission of HR quarterly reports to PSC.

To effectively carry out the functions of HRM & D Division, the following staffing levels are proposed:-

	Designation	**Job Group**	**Proposed Staffing Levels**
Human Resource Management & Development Officers			
	Director, HRM&D	S	1
	Deputy Director, HRM&D	R	1
	Senior Assistant Director HRM&D	Q	1
	Assistant Director HRM&D	P	2
	Chief/Principal Human Resource Management & Development Officer	M/N	2
	Senior Human Resource Management Officer	L	2
	Human Resource Management Officer II/I	J/K	3
Human Resource Management Assistants			
	Senior/Chief Human Resource Management Assistant	L/M	1
	Human Resource Management Assistant III/II/I	H/J/K	3
	Total		**16**

Supply Chain Management Services Division

The Division will be headed by a Deputy Director, SCMS, JG "R" who will be responsible to the Principal Secretary in the management and coordination of Supply Chain Management Services function.

The functions of the Division include:-

1. Provide advice on interpretation and implementation of the Public Procurement and Disposal Acts and Regulations and ensure compliance to professional standards and practices;
2. develop, review and implement supply chain management policies, programmes and strategies;
3. determine reorder levels for various items;
4. coordinate procurement and issuance of goods and services for user departments;
5. monitor stock levels for purposes of requisition;
6. Coordinate the preparation, consolidation and execution of the Ministry Annual procurement plan;
7. undertake market surveys and research;
8. investigate cases of appeals and petitions in the tendering process and recommending necessary action; and
9. Coordinate disposal of unserviceable/obsolete and surplus stores.

To effectively carry out the functions of Supply Chain Management Officers Division the following staffing levels are proposed:-

	Designation	Job Group	Proposed Staffing Levels
Supply Chain Management Officers			
	Deputy Director Supply Chain Management Services	R	1
	Senior Assistant Director Supply Chain Management Services	Q	1
	Assistant Director Supply Chain Management Services	P	1
	Principal Supply Chain Management Officer	N	1
	Chief Supply Chain Management Officer	M	1
	Supply Chain Management Officer/ Senior	J/K/L	3
	Supply Chain Management Assistants		
	Chief /Principal Supply Chain Management Assistant	M/N	1
	Supply Chain Management Assistant II/I/Senior	J/K/L	4
	Supply Chain Management Assistant IV/III	G/H	4
	Total		**17**

1.7.4 Finance Division

The Division will be headed by a Senior Chief Finance Officer, JG "S" who will be responsible to the Principal Secretary in the management and coordination of Finance and Budgeting function.

The functions of the Division include:-

1. Coordinate budget planning, analysis, forecasting and reporting;
2. Processing of both Recurrent and Development Estimates for the Program Budgets;
3. Prioritization of programs and activities for results based allocation of resources;
4. Issuance of Authority to Incur Expenditure (AIEs);
5. Expenditure and Revenue forecast;
6. Monitoring and reporting on budget performance and expenditure;
7. Oversight of commitment of funds and expenditure trends in line with Treasury Circulars;

8. Undertaking reallocations within budgeted heads and programmes and the overall financial management and control of voted funds; and
9. Oversight of absorption of funds and expenditure trends.
10. Coordination of the preparation of MTEF and Programme based budget

For effective service delivery, the Team recommends that the Finance Division be staffed as follows:

	Designation	Job Group	Proposed Staffing Levels
	Senior Chief Finance Officer	S	1
	Chief Finance Officer	R	1
	Senior Principal/Deputy Chief Finance Officer	P/Q	1
	Senior/Principal Finance Officer	M/N	1
	Finance Officer II/I	J/K/L	2
	Total		**6**

1.7.5 Accounts Unit

The Unit will be headed by a Deputy Accountant General, JG "R" who will be responsible to the Principal Secretary in the management and coordination of accounting function.The functions of the Unit include:-

1. Facilitate timely payments processing;
2. Preparation of periodical financial reports;
3. Timely return of expenditure reports;
4. Ensure strong internal control system for financial management;
5. Ensure optimum level of liquidity through requisition of Exchequer;
6. Cash Management;
7. Preparation and implementation of Cash-flow Projections;
8. Responding to audit queries; and
9. Custodian of accountable documents.

For effective service delivery, the Team recommends that the Accounts Division be staffed as follows:

	Designation	JG	Proposed Staffing Levels
	Deputy Accountant General	R	1
	Senior Assistant Accountant General	Q	1
	Assistant Accountant General	P	1
	Chief/Principal Accountant	M/N	4
	Senior Accountant	L	4
	Accountant I/II	J/K	14
			25

1.7.6 Central Planning and Project Monitoring Unit (CPPMU)

The Unit will be headed by a Chief Economist, JG "R" who will be responsible to the Principal Secretary in the management and coordination of Central Planning and Project Monitoring function.
The functions of the Unit include:-

1. Coordinate the development of Ministry's Strategic Plan and annual work plan;
2. Coordinate project prioritization process for MTEF in accordance to Budget calendar;
3. Coordinate economic analysis and strategies;

4. Coordinate the preparation of Ministerial Public Expenditure Review (MPER) and Mid-term Expenditure Framework (MTEF) Budget;
5. Provide input in the preparation of development plans;
6. Collect, collate, process and interpret statistical data;
7. Coordinate policy formulation and review for Ministry;
8. Monitor, evaluate and reporting on progress in the implementation of projects and programmes;
9. Prepare and track implementation of Performance Contracts for the Ministry; and
10. Research and study key issues related to the Ministry's mandate.

To effectively carry out the functions of Central Planning and Projects Monitoring Unit, the following staffing levels are proposed

	Designation	**Job Group**	**Proposed Staffing Levels**
	Chief Economist	R	1
	Deputy Chief Economist	Q	1
	Principal Economist	P	1
	Senior Economist/Statistician I	N	2
	Senior Economist/Statistician II	M	2
	Economist II/I	K/L	3
	Total		**10**

1.7.7 The Public Communication Unit

The Unit will be headed by a Deputy Director, Public Communications, JG "R" who will be responsible to the Principal Secretary in the management and coordination of public communications function. The functions of the Unit include:-

1. Develop and advise on appropriate public communication, public participation, community relations and stakeholder engagement strategies for the Ministry
2. Plan, execute and monitor Corporate Social Responsibility (CSR) and other public relations programmes
3. Prepare media supplements, documentaries, periodicals, newsletters, public information, education and communication materials
4. Create, cultivate and maintain the positive image of the Ministry
5. Media liaison and engagement
6. Manage linkages with stakeholders and protocol matters
7. Provide interface between the Ministry and other stakeholders
8. Monitor and update the media relations policy strategies and plans
9. Coordinate information gathering, packaging and dissemination of Ministry messages
10. Managing website content and social media engagement
11. Handling public complaints, enquiries and customer feedback
12. Undertaking public opinion surveys on the performance of the Ministry

To effectively carry out the functions of Public Communications Unit, the following staffing levels are proposed:-

	Designation	**Job Group**	**Proposed Staffing**

			Levels
	Deputy Director Public Communications	R	1
	Assistant / Senior Assistant Director of Public Communication	P/Q	1
	Chief/Principal Public Communications Officer	M/N	1
	Public Communications Officer II/I	J/K	2
	Total		**5**

1.7.8 Legal Services Unit

The Unit will be headed by a Senior Principal State Counsel, JG "Q" who will be responsible to the Principal Secretary in the management and coordination of Legal Servicesfunction.
The functions of the Unit include:-

1. Provide Legal Counsel to the Ministry;
2. Advice on corporate governance, legal and regulatory matters;
3. Manage litigations;
4. Advice staff disciplinary committee on prosecution procedures and legal requirements;
5. Participate in design and implementation of local and International agreements and contracts;
6. Ensure safe custody of collateral and chattels and other organization properties;
7. Advising on negotiations and taking part in corporate deals;
8. Liaise with State law office and other legal bodies;
9. Carry out research and preparing detailed legal opinions on matters relating to legal notice and interpret and advice accordingly;
10. Participate in the development and review of Acts, policies and concept papers; and
11. Monitor and ensure compliance with the regulatory framework.

For effective service delivery, the Team recommends that the Legal Services Unit be staffed as follows:

	Designation	**JG**	**Proposed Staffing Levels**
	Principal/Senior Principal State Counsel	P/Q	1
	State Counsel/Senior	M/N	2
	Total		**3**

1.7.9 Information Communication Technology Unit

The Unit will be headed by a Deputy Director ICT, JG "R" who will be responsible to the Principal Secretary in the management and coordination of ICTfunction.
The functions of the Unit include:-

1. Interpret and advise on the ICT Policy;
2. Plan, develop, coordinate and implement ICT policies, strategies and standards;
3. Safeguard integrity of information and ensure disaster recovery;
4. Record and verify data on Information Communication Technology facilities for purposes of accountability, inventory control and maintenance as per procedure manuals;
5. Prepare routine operations/maintenance and reports on performance of computer hardware and software;

6. Study and develop operational procedures and sequences software development;
7. Manage vendors and network security;
8. Advise on procurement of ICT equipment;
9. Provide infrastructure to support E-government services on LAN, WAN and internet and websites;
10. Advise on technological options and challenges relating to Information Communication Technology;
11. Manage Information Communication Technology training programmes; and
12. Design, administer and maintain Information Communication Technology and telecommunication projects.

To effectively carry out the functions of ICT Unit, the following staffing levels are proposed:

	Designation	Job Group	Proposed Staffing Levels
	Deputy Director ICT	R	1
	Assistant Director ICT/Senior	P/Q	1
	Chief/Principal ICT Officer	M/N	2
	ICT Officer II/I/ Senior	J/K/L	3
	Total		**7**

1.7.10 Internal Audit Unit

The Internal Audit Unit will be headed by aSenior Assistant Director, Internal Audit, Job Group 'Q' who will be reporting administratively to the Principal Secretary for day-to-day operations and directly to the Audit Committee of the Ministry.

The Internal Audit will perform the following functions:

1. develop and implement internal audit programmes, plans, strategies and schedules;
2. Ensure adequacy of internal controls and adherence to set standards;
3. undertake risk based audits;
4. implement fraud investigation and corruption prevention strategy;
5. Undertake procedural audit to ensure effectiveness of existing internal control systems;
6. Audit all payments made to ensure compliance with budgetary provisions, policies and procedures;
7. review and assess accounting, financial management, budgetary systems and audit procedures;
8. conduct internal audit, special audits and investigations;
9. support various departments in risk profiling;
10. Prepare audit reports for review by the external auditors;
11. Carry out technical audits of projects and programmes to ensure compliance with set standards; and

Verify statutory reports.

To effectively carry out the functions of Internal Audit Unit, the following staffing levels are proposed:-

	Designation	Job Group	Proposed Staffing

			Levels
	Senior/Assistant Director, Internal Audit	P/Q	1
	Principal Internal Auditor	N	1
	Internal Auditor II/I/ Senior	J/K/L	2
	Total		**4**

Ministry of Energy,
Nyayo House, Kenyatta Avenue.
P. O. Box 30582 – 00100 Nairobi Kenya
info@energy.go.ke | www.energy.go.ke
Tel: +254 (0) 20 3310112
Fax: +254 (0)20 2228314
Fax: +254 (0)20 2240910