



REPUBLIC OF KENYA

**SECTOR PLAN
FOR
INFRASTRUCTURE
2013 – 2017**

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STATEMENT BY THE CABINET SECRETARY MINISTRY OF DEVOLUTION AND PLANNING

In keeping with the decision that Kenya Vision 2030 be implemented through five year Medium Terms the Government successfully launched the Second Medium Term Plan (Second MTP 2013-2017) in October 2013. The Ministry of Devolution and Planning then embarked on the process of preparing the second round of Kenya Vision 2030 Sector Plans detailing policies, programmes and projects to be implemented in each sector. A total of twenty one Sector Plans have therefore been produced based on the work of nineteen medium term plan sector working groups and three thematic working groups formed to prepare detailed plans as background documents for the Second MTP.

The Sector Plans outline in greater detail specific plans for implementation in each sector during the 2013-2017 period. The Plans have been prepared through a participatory and inclusive process involving representatives from the government, development partners, private sector, NGOs, civil society, faith based organizations, professional associations, research institutions, and organizations representing women and youths, among others. Apart from the technical inputs, the Sector Plan priorities have been aligned and taken into account the priorities and inputs from nationwide Second MTP county consultation forums which captured views and priorities of Kenyans at the grass root and local level. Additionally, the Sector Plans have taken on board the key issues and priorities outlined in the Manifesto of the Jubilee Government in line with Second MTP.

The Sector Plans implementation matrices outline the broad goals and strategic objectives, the specific objective of each programme and project, the expected output and outcomes, the indicators for monitoring progress, the entity responsible for implementation, the implementation timelines, the source and mode of funding for each planned programme and activity starting financial year 2013/14 to 2017/18.

In accordance with the Constitution of Kenya, it is expected that the programmes and projects outlined in the Sector Plans will be implemented in close consultation and collaboration with county governments, keeping in mind, the distribution of functions between the national and county governments as outlined in the fourth schedule; and the capacity of county governments. Involvement of the private sector, including through Public Private Partnerships (PPPs), in implementing the Sector Plans will also be crucial to deliver the expected outputs and outcomes of various prioritized programmes and projects.

To ensure successful implementation of the Sector Plans, and the activities outlined in the implementation matrices, my Ministry will put in place the necessary monitoring and evaluation framework and systems including the reporting formats and templates for production of quarterly progress reports by implementing entities.

In conclusion, let me take this opportunity to thank the respective Cabinet and Principal Secretaries involved in various sectors and all those involved in preparation of the Sector Plans.



Anne Waiguru, O.G.W.
Cabinet Secretary, Ministry of Devolution and Planning

FOREWORD

The Kenya Vision 2030 aims to transform Kenya into a newly industrializing “middle-income country providing a high quality life to all its citizens by the year 2030”. Infrastructure sector is one of the foundations of the three pillars namely economic pillar, social pillar and political pillar which is expected to provide cost effective world-class infrastructure facilities and services in support of Vision 2030.

The Second Infrastructure Medium Term Plan (2013-2017) is the result of concerted efforts by the Infrastructure Sector Working Group with input from the stakeholders. The plan has been prepared through a participatory process where stakeholders were consulted to provide their views on the performance of the sector and suggest strategies that the sector needs to implement in order to improve on the implementation of programmes and projects to meet the needs and aspirations of Kenyans. The Plan seeks to build on the successes made in the infrastructure sector during the First Medium Plan (2008-2012). During the plan period, an estimated Kshs. 2 trillion will be required to finance the projects and programmes identified in the implementation matrix.

Although there has been a significant improvement of physical infrastructure facilities in the country in the last five (5) years, there is still a huge deficit in infrastructure. The Government will implement policy measures to address the gap with input from all stakeholders. The Sector will continuously evaluate its performance, identify areas where set targets were not met and come up with strategies which will enable it to meet the expectations of Kenyans during the plan period.

The implementation of this Plan will be the responsibility of specific Ministries/Departments/Agencies. The Sector will constantly monitor the implementation of targeted programmes and projects in order to ensure that mitigation measures are put in place in areas where the desired results are not achieved. The merging of various ministries within Infrastructure Sector during the current MTP period will enhance service delivery in the physical infrastructure in the country.

I pledge my Ministry's support to the implementation of the Second Infrastructure Plan and hope that it forms a foundation to enable all of us to work towards modernizing and transforming the physical infrastructure facilities and services in support of the Kenya Vision 2030 aspirations.



ENG M.S. KAMAU, CBS
Cabinet Secretary, Ministry of Transport and Infrastructure

PREFACE

The Second Infrastructure Medium Term Sector Plan will serve as a road map for Kenya's economic, social and political development over the next five years. It is the result of considerable effort and honest introspection to identify the factors that have been impeding performance, and more importantly, to chart out a path for providing the physical infrastructure required to improve Kenya's socio-economic prospects. In this regard, the Second MTP recognizes the aspirations of Vision 2030, achievements, emerging issues and challenges of the First Medium Term Plan (MTP 2008-2012).

Above all, in preparing the Plan, the Infrastructure Sector Working Group also recognized the ongoing policy, legal and institutional reforms to devolve functions which are supposed to be handled by the County governments.

The Sector will require continued support from all stakeholders including other Government Ministries, Departments and Agencies; the private sector, development partners, civil society and the wider public to realize the aspirations of this Plan. With the contribution of all stakeholders, the Sector will be able to improve infrastructure facilities within the country hence reducing cost of doing business both locally and regionally which will ultimately improve the well being of all Kenyans.

Lastly, we wish to state that this Sector Plan will go a long way in enabling the Infrastructure Sector achieve its objectives by the year 2017 for the benefit of all Kenyans.



Eng. John K. Mosonik, EBS Principal
Secretary, Infrastructure Ministry of
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ABBREVIATIONS

AFDB	-	African Development Bank
AKI	-	Association of Kenya Insurers
AMR	-	Automatic Metre Reading
ATC	-	Air Traffic Control
AWIMS	-	Axle Weight Information Management System
BASAs	-	Bilateral Air Agreement Services
BOOT	-	Build, Own, Operate and Transfer
CASSOA	-	Civil Aviation Safety and Security Oversight Agency
CAT	-	Category
CCTV	-	Closed Circuit Television
CFSS	-	Container Freight Services
DME	-	Distance Measuring Equipment
DVOR	-	Doppler Very High Frequency Omni Directional Range
EARNP	-	East Africa Road Network Project
EAC	-	East African Community
EASA	-	East African School of Aviation
EBK	-	Engineers Board of Kenya
EHS	-	Environment, Health and Safety
EMS	-	Energy Management System
EPC	-	Engineering Procurement and Construction
ERC	-	Energy Regulatory Commission
ESP	-	Economic Stimulus Programme
FAA	-	Federal Aviation Administration
FITs	-	Feed in tariffs
FY	-	Financial Year
GDC	-	Geothermal Development Company
GIS	-	Geographical Information System
GoK	-	Government of Kenya
HVDC	-	High Voltage Direct Current
IAEA	-	International Atomic Energy Agency
ICAO	-	International Civil Aviation Organization
ILS	-	Instrument Landing System
IMO	-	International Maritime Organization
JICA	-	Japanese International Cooperation Agency
JKIA	-	Jomo Kenyatta International Airport
JOGMEC	-	Japanese Oil Gas and Metals Company
KEBS	-	Kenya Bureau of Standards
KeNHA	-	Kenya National Highways Authority

KENTRADE-	Kenya Trade Network Agency
KEPHIS -	Kenya Plant Health Inspectorate Service
KeRRA -	Kenya Rural Roads Authority
KESWS -	Kenya Electronic Single Window System
KETRACO-	Kenya Electricity Transmission Company Ltd.
KCAA -	Kenya Civil Aviation Authority
KIHBT -	Kenya Institute of Highways and Building Technology
KNSL -	Kenya National Shipping Line
KPC -	Kenya Pipeline Corporation
KPLC -	Kenya Power and Lighting Company
KPRL -	Kenya Petroleum Refineries Limited
KRC -	Kenya Railways Corporation
KTSSP	Kenya Transport Sector Support Programme
KURA -	Kenya Urban Roads Authority
LAPSET-	Lamu Port-South Sudan-Ethiopia Transport
LNG -	Liquefied Natural Gas
LPG -	Liquefied Petroleum Gas
MFA&IT -	Ministry of Foreign Affairs and International Trade
MIS -	Management Information System
MOU -	Memorandum of Understanding
MT -	Metric Tonnes
MTD -	Mechanical and Transport Department
MTP -	Medium Term Plan
MTRD -	Materials Testing and Research Department
MOTI -	Ministry of Transport and Infrastructure
MOLHUD -	Ministry of Lands Housing and Urban Development
NCA -	National Construction Authority
NCTIP -	Northern Corridor Transport Improvement Project
NMT -	Non Motorized Transport
NMR -	Nairobi Metropolitan Region
NTSA -	National Transport and Safety Authority
NUTRANS-	Nairobi Urban Transport Study
NUTRIP -	National Urban Transport Improvement Project
OMCs -	Oil Marketing Companies
PIT -	Project Implementation Teams
PLC -	Power Line Communication
PPP -	Public Private Partnerships
PSV -	Public Service Vehicle
REA -	Rural Electrification Authority
RMMS -	Road Maintenance Management System

RSIP	-	Roads Sector Investment Programme
RMV	-	Registrar of Motor Vehicles
SAGAs	-	Semi Autonomous Government Agencies
SCADA	-	Supervisory Control and Data Acquisition
STCW	-	Standards of Training Certification and Watch keeping for seafarers
TEUs	-	Twenty-Foot Equivalent Units
TGM	-	Technical Guidance Materials
TIMS	-	Transport Integrated Management System
TLB	-	Transport Licensing Board
TMP	-	Transport Master Plan
UNES	-	University of Nairobi Enterprise Services
UNEP	-	United Nations Environmental Programme
VLCC	-	Very Large Crude Carriers Executive Summary

EXECUTIVE SUMMARY

The Infrastructure Sector Plan 2013-2017 for the Second MTP identifies key programmes/projects, policy, legal and institutional reforms that the government will implement towards realization of the Constitution of Kenya 2010, sector priorities, and the long-term objective of Kenya Vision 2030. Efficient, accessible and reliable infrastructure is an enabler for sustained economic growth, development and poverty reduction. Accordingly, the vision of the infrastructure sector is “Deploying World Class Infrastructure Facilities and Services”. The targets for the infrastructure under the Second MTP will be to gradually close Kenya’s infrastructure deficit while building on the achievement of the First MTP 2008-2012.

The plan has been developed through a stakeholder process towards the development of the Second MTP and provides a strategic and focused pathway towards the development and modernization of infrastructure in support of the Vision 2030 objectives. The Plan is part of Government’s commitment towards ensuring that the country’s stock of infrastructure facilitates anchors sustainable growth and development. The plan covers the transport, roads, energy, buildings, and other public works sub-sectors.

The Infrastructure Sector Plan recognizes the progress recorded in the development and expansion of airports, ports, roads, rail, pipelines, hydropower, geothermal plants, ferries, housing, buildings and other public works facilities during the implementation of the projects/programmes, policy/legal and institutional reforms during the First MTP. The Infrastructure Sector Plan for the Second MTP seeks to consolidate these gains, sustain and expand our physical infrastructure to ensure that it can support a rapidly-growing economy, meets the increasing demands of urbanization as well as those of generated by new economic activities.

Aviation: The key priorities during the plan period will include expansion and modernisation of air transport facilities with capacity to handle 45 million passengers and to position Kenya as the aviation hub of the African region. Key projects will include reconstruction of terminal two at JKIA, construction of Green Field Terminal, second runway and associated facilities at JKIA.

Maritime: Priority will also be given to improving the efficiency of our maritime facilities by expanding our port capacity to handle 50 million tonnes and transform Kenya into a maritime hub by facilitating trans-shipment of cargo at the port of Mombasa. Key projects will include construction of a second container terminal at Kenya Ports Authority (KPA), develop Dongo Kundu Free Trade Port, modernization of ferry facilities and the implementation of the single window clearance system.

Roads Expansion: The expansion of our roads targets to construct/rehabilitate 5,500km of roads aims at achieving a 75-80% of our classified roads in good condition.

Rail: The construction of the standard gauge railway line from Mombasa to Malaba aims to expand the rail transport to handle 50 per cent of the freight cargo throughput, thus easing pressure on the roads and further enhancing trade and regional integration in East Africa.

Energy: The Plan recognizes the increasing demand for energy to meet our industrial and domestic needs. The plan recognizes that there is an energy deficit in Kenya and aims at increasing installed capacity for electricity generation by 5,538 MW in 2017 to bridge the energy gap. During the plan period, several generation and transmission projects are earmarked to build the energy capacity.

Buildings and Other Public Works: The objective is to improve functionality and visual appeal of public buildings, construction of sea walls, improve accessibility, facilitate accommodation of foreign missions, regulate standards in the construction industry, and conduct research in appropriate/alternate building technology. Priority will be given to completion of stalled public projects, construction and maintenance

of 8 jetties, construction of 7,500 meters sea wall and operationalize the National Construction Authority to effectively oversee the construction industry through development of standards and capacity building.

LAPSSET: Construction of the LAPSSET corridor in collaboration with other countries in East Africa will further boost regional connectivity and expand trade and investment potential. To address congestion especially in our urban areas, planned rapid transit systems and bypasses will be constructed

The implementation of infrastructure sector projects and programmes is aimed at contributing to a sustainable growth in agriculture, manufacturing, and service sectors in order to achieve an overall GDP growth rate of 10 per cent by 2017. During the plan period, 5% of the GDP is targeted to be generated from investments in the transport and infrastructure sector. The plan therefore assesses the existing capacity of infrastructure sector and identifies emerging issues and challenges which must be addressed to support enhanced growth. The Plan also outlines the policies/legal reforms to be pursued by the Government in the plan period towards the Kenya Vision 2030 aspirations.

1 OVERVIEW

1.1 Review of the First Medium Term Plan (MTP) 2008-2012

Kenya Vision 2030 recognizes the enabling role infrastructure sector plays in realization of the overarching vision of a globally competitive and prosperous nation by 2030. The continued improvement in development of physical infrastructure including: aviation, shipping and maritime, railway and roads network; energy and public works is critical in accelerating economic growth and development.

The vision of the infrastructure sector is “Deploying World Class Infrastructure Facilities and Services for a Globally Competitive Kenya”.

The target for the Second MTP will be to gradually close Kenya’s “infrastructure deficit” while building on the achievements of the First MTP. Efficient, accessible and reliable infrastructure is an enabler for sustained economic growth, development and poverty reduction. It lowers the cost of doing business; improves security; improves livelihoods and the country’s global competitiveness. Implementation of programmes and projects will focus on accessibility, quality, their functionality, job creation, disaster preparedness and protection of the environment.

The strategies and measures that were to be pursued during the First MTP include: strengthening institutional framework for infrastructure development; raising efficiency and quality of infrastructure and accelerating implementation of infrastructure projects so that they are completed within the specified time frames.

The First MTP identified and prioritized a number of infrastructure programmes for implementation. These include the development of a National Spatial Plan to optimise the development and utilization of infrastructure facilities and services; the expansion and modernization of airports and airstrips; the construction of a new transport corridor linking Lamu, Southern Sudan and Ethiopia including a second port at Lamu and implemented through Public Private Partnership (PPP) arrangements; implementation of National Road Safety Action Plan; development of a roads maintenance and management system; road network expansion; upgrading and dredging port of Mombasa; modernization of the port of Mombasa; and development of free port at Dongo- Kundu in Mombasa.

During five-year period the government targeted 64,500 km of well maintained and motorable roads with a total of Kshs.186 billion spent on road construction and upgrade. Over the same period, the GoK targeted to concession roads through PPP. The other major transport infrastructure projects planned was development of a rapid bus and light rail system in the Nairobi Metropolitan area, which is expected to serve as a prototype for the other main urban areas in the country. Under public works, the target was to improve public buildings and coastline infrastructure. In the energy sub-sector, key targets during the First MTP period included:

- (a) Increasing electricity generation at least cost while protecting the environment.
- (b) Expansion and strengthening the electricity transmission and distribution network to scale-up access improve the quality and reliability of supply and reduce system losses.
- (c) Connecting at least one million households to electricity in five years.
- (d) Connecting electricity to trading centers and public institutions in the rural areas.
- (e) Constructing of 6,000 and 2,000 tones common use LPG facilities in Mombasa and Nairobi, respectively, to increase supply and make LPG cheaper to Kenyans.
- (f) Extension of 352 km oil pipe line from Eldoret to Kampala.

- (g) Ascertaining the commercial quantity and viability of coal deposits in Mui Basin of Kitui and Mwingi districts.

1.2 Achievements During The First Medium Term Plan (MTP) 2008-2012

1.2.1 Aviation

Expansion and Modernization of Aviation Facilities

The objective of this programme is to position Kenya as an aviation hub in the region. The following projects were implemented:

- (i) **Air Navigation Services Programme:** The first phase of the modernization of Communication, Navigation, Surveillance and Air Traffic Management systems was implemented. This entailed installation of Voice Communication systems, Voice Logging Systems, Global Positioning Systems and High Frequency Communication systems in major airports (Jomo Kenyatta International Airport, Moi International Airport and Kisumu International Airport). Doppler Very High Frequency Omni Directional Range and Distance Measuring Equipment (DVOR/DME) were also installed in six airports and sites. Six radars were replaced with modern ones for the purposes of surveillance of the airspace. This enabled the restructuring of the airspace and created two approach sectors at JKIA which improved safety and flow of traffic. Also improved are the routes to coastal and western Kenya where two tracts were created to separate aircraft moving in either direction.
- (ii) **Civil Aviation Regulations and Technical Guidance Materials:** During the First MTP, the Government adopted the harmonized civil aviation regulations in the EAC region and developed Technical Guidance Materials (TGM). These regulations and technical guidance materials will help ensure compliance of Kenya's aviation industry with International Civil Aviation Organization (ICAO) standards.
- (iii) **Capacity Building in Aviation Industry:** During the First MTP, new training simulators for air traffic control and equipment at the engineering laboratories and workshops were installed at East African School of Aviation (EASA). As a result of these improvements, EASA has attracted students from all over Africa.
- (iv) **Rehabilitation and Maintenance of Airports and Airstrips:**
- a) **Jomo Kenyatta International Airport (JKIA):** Phase 1 encompassing extension of aircraft parking stands from 12 to 37, construction of 2 additional taxiways and fuel hydrants system were completed. The development of Unit 4 and the Multi-storey car park at JKIA (Phase 2) is at 55% completion. Detailed designs for the construction of Arrivals Hall in Unit 4 have been completed. Under Phase 3: tender documentations for renovation and re-organization of terminal unit 1, 2, 3 and arrivals building are ongoing; tendering process for the construction of rapid exit taxiways and upgrading of Instrument Landing System (ILS) from Category I (CAT I) to CAT II; and construction of 16 category C remote stands with fuel hydrant system are ongoing. The following projects were implemented:
- **Green Field Terminal and Associated Facilities-**The objective of the project is to decongest the airport and meet forecasted traffic demand growth. The scope of work includes: construction of 178,000 m² terminal facilities on 4 levels; international check in positions; contact and remote gates stand apron; roadwork and associated utilities. Implementation of this project is at tendering stage.

- **Second Runway and Associated Facilities**-This involves construction of a second runway, Code F, of 5.6 km with parallel taxiway and rapid exit taxiways. The objective of the project is to increase the runway capacity to serve forecasted traffic demand and facilitate hub developments. The project is at tendering stage.
- b) **Moi International Airport:** The scope of work includes reconstruction of pavement in order to improve safety and support operations. Remedial works is in progress.
- c) **Kisumu International Airport:** The objective of the project was to improve terminal and airside capacity to support operations. The scope of work under phase I involved construction of terminal building and aircraft apron and extension of the runway from 3.0km to 3.3 km and widening to 45 m. Work completed on September 2011 and facility currently in use.
- d) **Modernization and Rehabilitation of Airstrips:** Malindi and Wajir airstrips were upgraded to airports. Other airstrips that were rehabilitated included; Manda- Lamu terminal building completed and in use; and Isiolo - pavement rehabilitated and in use. Since 2008, 10 airstrips per year have been rehabilitated to support state operations and humanitarian activities. Some of these airstrips include Lodwar, Kakamega and Kitale.
- (v) **Expansion of the Route Network:** The objective is to expand the route network of our national and other designated national carriers including Kenya Airways. The GoK negotiated and concluded 14 Bilateral Air Agreement Services (BASAs), reviewed 38 BASAs and ratified 7 international conventions and protocols.

1.2.2 Shipping and Maritime

Improvement of Shipping and Maritime Facilities

The objective of this programme is to make Kenya a maritime nation by facilitating transshipment of cargo at the port of Mombasa. The following projects were implemented:

- (i) **Dredging and Widening of Mombasa Port:** The objective is to allow docking of post panamax vessels and creates two-way traffic. Phase 1 of the works that covered the approach channel and the turning basin was dredged to 15.5m. The container Terminal was dredged to 12.5m, all completed in April 2012.
- (ii) **Second Container Terminal at KPA:** The objective of the project is to enhance container handling capacity by constructing a new container terminal and provide new handling facilities at the Mombasa Port. The project entails the construction of a new container terminal covering an area of 100 Hectares. Once completed, the port will have the capacity to handle 1.2million TEUs per annum. The tender for the construction of the terminal was signed on 28th June 2011 and construction is ongoing.

Development of Berth No.19: The objective of the project is to increase cargo throughput. The project involves extension of the existing Mombasa Container Terminal by developing a new berth of 160 metres in length giving a combined quay length of 760 metres from berths 16-19. It will also involve reclamation of the sea to create about 5 hectares of stacking yard space and dredging of the quay to 12.2 metres deep. Once completed, the terminal will be able to accommodate three post panamax vessels at the same time. The project is 80% complete and full completion expected in 2013.

- (iii) **Integrated Port Security System:** The project involves the development of civil and communications infrastructure and installation of a comprehensive security solution including 10 kms of smart fence with barricade II locating sensor, gates with access control, a full CCTV solution with surveillance cameras, communication system and other security elements. The objective of the project is to enhance port security. The project is undergoing trials and will be fully operational by the end of 2013.
- (iv) **Ferry Services:** The objective of the project is to effectively utilize the maritime waters as an alternative mode of transport to the existing ones. Two new ferries MV Kwale and MV Likoni were delivered in June, 2010 while MV Nyayo and MV Kilindini ferries were upgraded. Rehabilitation and expansion of mainland ferry landing facilities is ongoing.
- (v) **Supporting the Kenya Maritime Authority with IT:** This entailed procurement and installation of a Local Area Network and computers for the Kenya Maritime Authority Headquarters. The equipment was delivered and installed in 2008.
- (vi) **Equipment to Enhance Maritime Training Capacity:** The component entailed procurement of navigation bridge simulator software and ICT equipment and cabling of the training room for Bandari College. The equipment was delivered and installed in 2008.

1.2.3 Railway Transport

Improvement of Railway Transport Systems

The objective is to provide an integrated and seamless railway transport. The following projects were implemented:

- (i) **The Kenya-Uganda Railway Line:** It was concessioned to Rift Valley Railways (RVR) from South Africa. RVR took over operation of the Line on 1st November 2006 for a period of 25 years. RVR run passenger trains within Kenya only, primarily from Nairobi to Mombasa but also to local towns such as Kisumu. Passenger services on these lines are offered on peak periods only. Freight services are the bulk of RVR's operations. The RVR shareholders consisting Africa Railways of Egypt (51%); Trans-Century Limited of Kenya (34%) and Bomi Holdings Limited of Uganda (15%) plans to invest in the railway system, upgrade it, reduce inefficiencies, utilize a smaller work force, and generate an annual concession fee of 11.1% in each country. In addition it will pay 1 million United States dollars each year for the passenger service concession in Kenya and 500,000 US dollars annually to Uganda for the same reason
- (ii) **Nairobi Commuter Railway Services system:** This involves upgrading of the Commuter Core System (existing commuter rail line). The JKIA Commuter Rail Phase I of the project was completed in August 2012. This phase involved the construction of a railway station at Syokimau and a 2km connector line to the main line at Embakasi. The construction of Imara Daima and Makadara railway stations are ongoing. Phase II of the project involves Engineering Procurement and Construction (EPC) of a railway line from JKIA to the Syokimau Railway Station and is under procurement.
- (iii) **Kisumu and Mombasa commuter rail system:** The designs for Kisumu and Mombasa commuter rail system are complete.
- (iv) **Mombasa –Malaba Standard Gauge Railway:** Mombasa-Nairobi section preliminary designs are complete and funding of the construction of the line secured to the tune of US\$.3.7 billion. The financing agreement was signed in October 2012. Preliminary designs are in progress for the section between Nairobi and Malaba.

1.2.4 Roads

During the First MTP period the proportion of the classified roads network in maintainable condition increased to approximately 75%. During the period, 1,798km of new roads were constructed; 1,969km rehabilitated/reconstructed; 2,844km periodic maintenance; and 266,440km routine maintenance. Some of the major programmes and projects implemented included:

Roads Expansion Programme

This programme is aimed at upgrading the national trunk roads to boost domestic and regional trade. The following projects were implemented:

- (i) **Upgrading of Nairobi-Thika Road:** The rehabilitation and upgrading of 50km of the road section between Nairobi and Thika commenced in 2009 and completed in 2012. It involved the upgrading of the 50 km road section from a 4-lane dual carriage way to 8-lane dual carriageway with six interchanges and overpasses to ease traffic congestion, improvement of major arterial connectors i.e. Outer- Ring road, Ngara, Muranga and Forest roads linking Pangani to Uhuru Highway, and construction of approximately 60 lane-km of service roads, 18 footbridges across main carriageways and Service roads.
- (ii) **Northern Corridor Transport Improvement Project (NCTIP):** Most road sections were rehabilitated and completed including: Miritini to Maji ya Chumvi (35 km), Sultan Hamud to Machakos turnoff (55 km), Machakos turnoff - Athi River-JKIA (59.5 km), Maai Mahiu- Naivasha – Lanet (94 km), Lanet –Nakuru – Njoro turnoff (15 km), Njoro turnoff – Mau Summit – Timboroa (83 km).
- (iii) **East African Road Network Project (EARNP):** The East African Road Network Project (EARNP) comprises of five (5) regional corridors. The three priority corridors linking Kenya are:
 1. Mombasa –Malaba – Kampala–Katuna (Kenya/Uganda/Rwanda)
 2. Biharamulo–Mwanza–Sirare–Kisumu–Lodwar–Nadapal (Tanzania/Kenya/South Sudan)
 3. Tunduma – Iringa – Dodoma – Arusha – Namanga – Isiolo- Moyale (Tanzania/Kenya/Ethiopia).

During the First MTP, projects planned under corridor 1 were implemented under the NCTIP and corridor 3 under the LAPSET Corridor. Other completed projects include; upgrading of Athi River – Namanga road (136km) and Emali – Oloitokitok (100km). Other ongoing construction projects includes construction of Voi –Mwatate (26km) and detailed design of Malindi- Mombasa – Lungalunga (238km) and Kitale – Endebess – Suam (50 km) sections.

- (iv) **East Africa Trade and Transport Facilitation Project:** The Project was conceptualized to address the high transport and inventory costs in East Africa corridors which adversely affect regional trade integration and trade competitiveness such as long cargo dwell time, non tariff trade barriers, slow and costly bureaucratic procedures at points of entry and border crossing points and long turnaround time. The achievement under this project includes the development of detailed designs for the One Stop Border Posts at Malaba, Busia, Lunga Lunga, Taveta, Namanga and Isebania.

Other Roads Expansion

The projects implemented include:

- (i) **Completed Road Projects:** Ena-Ishiara-Meru (60km), Dondori-Olkalou-Njabini (100.3km), Stand

Khisa-Khumusalaba (25km), Owimbi-Luanda- Kotieno (25km), Bumala-Ruambwa (48km), Maai Mahiu-Narok (89.4km), Bomet-Litein (42km), Rongo-Homabay (39.5km), Kisii-Kilgoris (74km) and Machakos Turnoff- Masii (48km).

- (ii) **Ongoing Road Projects:** Rehabilitation of Kisumu – Kakamega – Kitale (160km), Homa Bay-Mbita (43km); Ndori-Ng’iya (20km); Londiani-Fort Ternan (63km); Sotik- Ndanai– Gorgor (28km) and Lanet-Dundori (15km), Thika – Magumu(30km). Feasibility, environmental and design studies for the construction of the Kibwezi – Isiolo road (520km) has also been completed.

Decongestion of Cities, Towns and Urban Centres

The objective of this programme is to ease congestion, reduce travel time and costs. During the First MTP, the following projects were implemented:

- (i) **Nairobi Bypasses:** The construction of the Northern bypass (Ruaka – Runda – Ruiru, 31 km) and Eastern bypass (City Cabanas – Ruai – Ruiru, 40 km) are complete and open to traffic. The construction of the Southern bypass (from Junction with Mombasa Road/Likoni Link road to Rironi) is ongoing. The 29 km Bypass is being constructed as a 4-lane dual carriage expressway, with full grade separation and interchanges at Mombasa Road, Langata Road, Ngong Road, and Rironi, and includes 16 km of service roads and street lighting. The designs for the Greater Eastern Bypass (77km) are ongoing.
- (ii) **Mombasa Southern Bypass (Dongo-Kundu Bypass):** The design, feasibility and environmental studies (including Relocation Action Plan) on Mombasa Southern Bypass (Dongo-Kundu bypass, 26 km) were completed. The project involves construction of 18 km of a new bypass alternative to the Likoni Ferry. The bypass runs from Miritini across the sea to Likoni on Mombasa- Lungalunga Road (A14) and construction of 6 km access road to the expanded Kipevu Container Terminal.
- (iii) **Construction of Nairobi Missing Links:** The missing links, when completed, will improve the pedestrian and vehicular traffic within the city, decrease congestion, improve road safety and spur socio-economic development. Eighteen missing links were identified through the Nairobi Urban Transport Study (NUTRANS) undertaken by the Government in 2006. Of these: link No.4 and No.9 (Mpaka Road (0.7km) and Milimani–Ralph Bunche–State House Road (0.7km) respectively) are complete; ongoing projects include the improvement of Waiyaki Way – Red Hill Road (5km) and construction of Nairobi Western link roads (9km). Already, 17 km of missing link roads have been opened while construction of other links is ongoing. Within Nairobi Metropolitan Region, 31.5 kms of bitumen roads have been completed.
- (iv) **Improvement of Nairobi Roads:** During the First MTP, the following Nairobi road projects were improved.
- (a) Expansion of Limuru road from Museum Hill Junction up to Gigiri (UNEP headquarter) – 10 km
 - (b) Addition of extra lanes between JKIA and Nyayo stadium (12 km) and erecting street lighting and traffic lights
 - (c) Capacity improvements on Enterprise road
 - (d) The designs for Dualling of Ngong Road from All Saints Cathedral to Adams Arcade and Ngong Town and upgrading of Karen – Bomas are ongoing.
- (v) **Mass Rapid Transit Transport System for Nairobi Metropolitan Region:** A feasibility study carried was completed in 2011 and prioritized nine corridors.

Roads 2000 Programme

The programme aims at improving road network through use of local resources based approach with the objective of creating labour intensive employment opportunities especially for the youths. During the First MTP, the programme coverage increased from 37 districts in 2007/08 to 150 districts which are above the target of 109 districts. A total of 4,392km (224%) of roads were improved against a target of 1,960km during which 86,100 employment opportunities were created. The Roads 2000 Strategic Plan (2013-2017) was also completed to guide the implementation over the next 5 years.

National Road Safety Programme

The objective of this programme is to enhance safety of both motorized and non-motorized traffic. Under this programme, the following were achieved:

- (i) Development of driver training and testing curriculum in March 2012.
- (ii) Formation of PSV Saccos to promote self regulation in 2010.
- (iii) The National Transport and Safety Authority Act, 2012 in place and the Authority was operationalized and is responsible for transport and safety regulation.
- (iv) A total of 39.5 km of Non Motorized Transport (NMT) facilities were completed. This included creating and securing 24.5km of pedestrian walkways such as the UN Avenue in Gigiri, Jogoo Road and Argwings Kodhek, 15 km along the Nairobi – Thika Superhighway. In addition, eighteen (18) footbridges, seven (7) interchanges and overpasses were constructed (at Museum Hill, Limuru Road, Globe Cinema roundabout, Pangani Junction, Muthaiga/Kiambu Road, Roysambu and at the Eastern Bypass Junction).

Development of Computerized Information Systems

The objective of the Computerized Information System is to enhance efficiency and effectiveness in the transport sector management through adoption of appropriate ICT based tools and systems. The following projects were undertaken:

- (i) **Transport Integrated Management System (TIMS) Project:** The TIMS aims at integrating all road Transport subsector data/information into one common central repository as well as use of modern technologies for effective management of the road transport sub-sector. It seeks to automate and link functions of all stakeholders into one data base. This includes both the private and government departments including: traffic department, registrar of motor vehicles, transport licensing board, motor vehicles inspection unit, Association of Kenya Insurers, courts and the Ministry of Transport. An Inter-ministerial Committee was established during the Plan period to spearhead the project implementation. The project has been partially implemented and using the system, it is possible to confirm the validity of genuine driving license, details of a vehicle registration, confirm whether a PSV vehicle is duly inspected and licensed among other services.
- (ii) **Establishment of Transport Data Centre:** Transport Data Centre seeks to capture key trade and transport indicators and establish a mechanism for timely updates of the same. Consultancy was awarded to University of Nairobi Enterprises (UNES) in 4th July 2012 to undertake the design and setting up of the Data Centre.
- (iii) **Integrated Port Security System (IPSS):** A total of 425 security personnel including police officers have been trained on IPSS code and maritime security while security guidelines and procedures manual was also prepared for use by KPA security staff. Excavation works at the Dockyard area

for the stand alone fence is 80% complete from gates 9-18; and building a wall of 53 meters long (from gate 1-21) is 90% complete.

- (iv) **Kenya Electronic Single Window System (KESWS) Project:** The objective is to establish a Single Window electronic platform for submission, receipt and processing of trade related cargo clearance documentation and is being implemented by the Kenya Trade Network Agency (KENTRADE), a State Corporation established in January 2011 under the State Corporations Act.
- (v) **Development of Computerized Pavement and Bridges Management Systems:** The Road Management System (RMS) has been established. There is now a computerized maintenance Management Information System (MIS) for road, bridge and pavements to support short term and long term maintenance planning, and improvement for new roads. The RMS has been fully installed at KeNHA, KeRRA and KURA and is operational.
- (vi) **Axle load control:** The Mariakani, Athi River and Gilgil weighbridges were put under management contract to improve their performance. Five (5) static weighbridges have been installed at Mtwapa, Juja, Maai-Mahiu, Eldoret and Busia. A multi-deck weighbridge was installed at Athi River in October 2011. Construction of laybys for Juja and Isinya weighbridges were completed. The process of networking of all weighbridges through the Axle Weight Information Management Systems (AWIMS) with KeNHA, MOR Headquarters and KRB commenced in FY 2011/2012 and is 90% complete. Harmonization of axle load regulations in the EAC region is at advanced stages under coordination of the EAC Secretariat.

Programme

During the plan period, road concessions were targeted under the Nairobi Urban Toll Road Project. Pre-qualification of bidders and tenders were invited. However, the winning bidder did not pass the due diligence test and the GoK decided to implement the project under new financing arrangements through the development budget.

1.2.5 Buildings and Other Public Works

Improvement of Living and Working Conditions in Government Buildings

The objective of this program is to improve functionality and visual appeal of public buildings as well as securing them from manmade and other calamities. The scope of program includes completion of stalled government building projects; supervision of construction of new government buildings and rehabilitation and maintenance of existing government building infrastructure. Achievements during the plan period is as follows:

- i. Completion of stalled projects – A total of 34 stalled projects were completed out of 69 stalled projects as at 2008/09 FY.
- ii. New Government Building projects – The construction of 749 government building projects were designed and supervised to completion.
- iii. Rehabilitation and maintenance of Government buildings – A total of 222 rehabilitation and maintenance projects were supervised.

Economic Stimulus Programme (ESP)

This Programme was initiated in FY 2009/2010 by the Government of Kenya to stimulate the economic growth. The programme involves the supervision of the construction of various facilities which cut across

the Education (Schools of Excellence), Health (Model Health Centres), Industrial (Constituency Industrial Development Centres), Administration (District Headquarters) and Agricultural (Fresh Produce Markets) sectors in the entire country. A total of 1,325 projects were designed, documented and supervised in all constituencies in the period under review.

Coastline Infrastructure

This involves the construction and maintenance of sea walls, breakwaters and jetties. The sea walls are meant to protect land and property in low lying areas from erosion, flooding and sea wave action whereas jetties are meant to improve movement into and out of waters through development and maintenance of landing infrastructure. During the First MTP, 4,143 meters of sea wall were constructed and maintained in various areas i.e. at Faza, Ndau, Lamu town, Vanga and Mokowe. The Kizingitini and Ndau breakwater facilities were also completed and 3 jetties constructed/rehabilitated at Lamu (Terminal Jetty), Manda and Mokowe.

Improvement of Communication in Human Settlements

The objective of this programme is to improve accessibility in human settlements especially in areas of difficult terrain. This is achieved through the construction and maintenance of footbridges. During the First MTP, 120 foot bridges were constructed and maintained.

Research in Appropriate Building Technology

The objective of the programme is to conduct research and disseminate findings on new building technologies. Eight (8) researches were conducted on various research areas relevant to the construction industry. For example, alternative building technologies and building materials.

Development of Missions Abroad

The objective of this programme is to facilitate accommodation of foreign missions and ensure sustainable and reasonable rental bills. The following projects were undertaken;

- (i) Construction of chanceries and ambassador's residence in Abuja, Islamabad and Dar-es-salaam
- (ii) Renovation and upgrading of Kenya house phase II in Windhoek-Namibia

1.2.6 Energy

Energy, particularly electricity is recognized in Kenya Vision 2030 and the First MTP as one of the enablers to economic, social and political transformation of Kenya to "a newly- industrialized , middle income country providing a high quality of life to all its citizens in a clean and secure environment".

During the First MTP, the achievements in the energy subsector included the following:

Increasing Energy Availability

The capacity of electricity generation increased from 1,268 MW at 30th June 2008 to 1,765 MW at 30th June 2013 comprised of hydropower (788 MW), thermal 541.8 MW), geothermal (209 MW), cogeneration (26 MW), wind (5.4 MW) and solar (0.6 MW). The installed capacity increased by 434.5 MW between June 2008 and June 2013. This is comprised of:

- (i) Kiambere hydropower upgrade -24 MW;
- (ii) Kindaruma hydropower upgrade - 20 MW;
- (iii) Sangoro hydropower development - 21.2 MW;

- (iv) Kipevu MSD thermal upgrade - 85 MW;
- (v) Embasakas Gas Turbine development -60 MW;
- (vi) Olkaria II Unit 3 geothermal - 35 MW;
- (vii) Tana Hydropower upgrade -5.6 MW;
- (viii) Garrissa and Lamu thermal power upgrade- 3.5 MW
- (ix) Olkaria Wellhead development – 5 MW;
- (x) Eburu geothermal development 2.5 MW;
- (xi) Iberafrica thermal power upgrade – 52.5 MW;
- (xii) Mumias Cogeneration upgrade - 24 MW;
- (xiii) Orpower 4 geothermal development - 39 MW;
- (xiv) Ngong Wind - 4.9 MW; and,
- (xv) Rabai thermal power development - 90 MW.
- (xvi) Solar by Ministry of Energy – 0.6 MW

Increasing Access to Electricity

- i. New customer connectivity to electricity increased from 1,060,383 as at 30th June 2008 to 2,330,962 customers as at 30th June 2013 against the MTP target of 1,000,000 customers.
- ii. A total of new 3,213 public facilities including trading centres, secondary schools and health facilities were connected to electricity in the rural areas in the four-year period to June 2012. This was against the MTP target of 570 public facilities.
- iii. Completed refurbishment and upgrading of Kipevu Substation at the Coast; and Donholm, Airport, Kikuyu, Nairobi North, Gigiri, Muthurwa, Syokimau and Kabete Substations in Nairobi region. Further, completed Sondu, Butere and Cherangani Substations in West Kenya; and the installation of the Nairobi - Lessos - Tororo, Lessos - Eldoret, Lessos - Kisumu, Lessos - Chemosit and Nairobi - Kiganjo - Nanyuki fibre optic links, as part of the System Control and Energy Management System (SCADA) project.
- iv. Completed construction of 465 km of 132 kV transmission lines and associated substations. This comprised Sondu Miriu - Kisumu (60 km), Chemosit - Kisii (62 km), Kamburu - Meru (122 km), Rabai - Galu (48 km), Mumias - Musaga (30 km),
- v. Sangolo - Sondu (5 km) Mumias - Rangala (34 km) , Kilimambogo - Githambo and Thika - Gatundu West (104 km)

Development of new and Renewable Sources of Energy

The objective of the programme is to diversify new and renewable energy sources. During the First MTP, the installed capacity from the new and renewable sources increased from 100mw to 241mw. In addition, the following off-grid projects were implemented:

- (i) Installed 769 solar electricity generators to public institutions far off the national electricity grid.
- (ii) Installed three biogas digesters at Jomo Kenyatta University of Agriculture, Mang'u Boys High School and Isinya Moi Girls High School. The Ministry of Energy also partnered with two flower farms (PJ DAVES Ltd and Eureka Holdings Ltd. Thika) to carry out feasibility study on

production of biogas from flower wastes.

- (iii) Installed two hybrid solar/wind each at North Horr Boys High School and St. Patterson Mixed High School.
- (iv) Installed 62 wind data loggers for collecting wind data to be used in establishing wind regimes in identified high potential areas.
- (v) Installed 30 solar/wind / diesel hybrids systems.
- (vi) Installed 6,000 domestic biogas digesters under the Netherlands supported “Biogas initiative for Africa” through the partnership of ministry of energy and KENFAP.
- (vii) Established 5 Energy Centers at Mitunguu, Garissa, Wajir, Marsabit and Lodwar.
- (viii) Conducted 40 energy efficient audits.
- (ix) Installed energy efficient lighting system at the Ministries of Energy, Finance and Office of the president.
- (x) Distributed through KPLC 1.25 million energy saving bulbs resulting in an estimated savings of 60 MW.
- (xi) Installed 48 improved institutional stoves in 24 schools (2 per school).

Enhancing Security Of Fossil Fuel Resources

The objective of the programme is to secure and expand the existing energy capacity for appropriate energy mix. During the First MTP, the following was achieved:

- (i) Enhancement of Mombasa - Nairobi Oil Pipeline (Line-I) pumping capacity from 440,000 liters per hour to 830,000 litres per hour.
- (ii) Completion of construction of a parallel 14-inch diameter oil pipeline from Nairobi to Eldoret with pumping capacity of 375,000 litres per hour.
- (iii) Constructions of 6,000 tonnes common user LPG import handling, storage and distribution facilities in Mombasa to increase supply and make LPG cheaper.
- (iv) Oil and gas exploration blocks have been sub-divided and increased from 21 in 2008 to 46 in 2012, out of which 44 have been licensed and are operated by 23 international oil exploration companies.
- (v) A total of 5 exploration wells have been drilled and two wells have shown deposits of oil and gas. These are Ngamia-1 drilled in Block 10BB and Mbawa-I drilled in Block L8. As a result of these discoveries, there has been increased interest in upstream fossil fuel activities in the country.
- (vi) Commercial deposits of coal were discovered in Mui Basin and two out of four blocks were concessioned to a private investor to undertake further explorations and exploit the coal for commercial use

On-Going Projects Under Various Stages of Implementation

The following projects which started during the First MTP period are at various stages of implementation:

- (i) Construction of 328 km Rabai - Malindi - Garsen - Lamu 220 kV transmission line to be completed in 2013.

- (ii) Construction of 475 km Mombasa - Nairobi double circuit 400 transmission kV line to be completed in 2013.
- (iii) Construction of Nairobi Ring consisting of 100 km of 400 kV Suswa - Isinya - Ngong transmission line and associated substations at Suswa, Isinya, Athi River, Ngong, and Koma Rock and extension of Dandora substation. This project will increase power transfer capacity, improve stability and reliability in Nairobi and adjacent areas.
- (iv) Construction of 300 km of 400 kV Olkaria - Lessos - Kisumu double circuit transmission line to enhance power transfer between Olkaria, Eldoret and Kisumu.
- (v) Construction of 127 km of 400 kV Lessos - Tororo transmission line that will interconnect Kenya and Uganda for power trade in the Great Lakes region.
- (vi) 612 km of 400 kV of direct current Ethiopia - Kenya interconnector scheduled for commissioning by 2017 to access cheaper hydro power from Ethiopia.
- (vii) 430 km of 400 kV Loyangalani - Suswa transmission line that will evacuate power from Lake Turkana Wind Power Plant.
- (viii) Construction of 224 km of 132 kV Kindaruma - Mwingi - Garissa transmission line to connect Garissa to the national grid.
- (ix) Construction of 60 km Eldoret - Kitale and 44 km Kisii - Awendo 132 kV transmission line.
- (x) Construction of a total of 431 km of 132 kV transmission lines that comprise Lessos - Kabarnet, Nanyuki - Nyahururu, Olkaria - Narok, Mwingi - Kitui - Sultan Hamud - Wote, Bomet - Sotik and Ishiara - Kieni transmission lines.
- (xi) Construction of 96 km Meru - Isiolo - Nanyuki 132 kV transmission line.
- (xii) Construction of 100 km Sondu- Homa Bay - Ndiwa - Awendo 132 kV transmission line.
- (xiii) Construction of 100 km 400kV Kenya - Tanzania double circuit interconnector.

1.2.7 Nairobi Metropolitan Development

Nairobi Metropolitan Development Strategy

The objective is to develop a 20-year development strategy for the Nairobi Metropolitan area. During the First MTP, the following was achieved:

- (i) Preparation of Metropolitan Spatial Plan was completed
- (ii) Physical development plan for Nairobi Metropolitan Region (NMR) was formulated
- (iii) Identification of potential strategic investment projects within NMR is ongoing.
- (iv) On Geographical Information System (GIS): appointment of Project Implementation Teams (PIT) was done and digital maps for Thika, Kiambu and Mavoko have been assembled.

1.2.8 Development Of Lamu Port Southern Sudan And Ethiopia Transport (LAPSSET)

The objective of the project is to open up Northern Kenya and integrate it into the national economy. This is one of the flagship infrastructure projects identified under the Kenya Vision 2030. It involves the development of a new transport corridor linking a new and modern port of Lamu with Garissa, Isiolo, Maralal, Lodwar and Lokichogio and branching at Isiolo to Moyale at the border with Ethiopia and proceeding to the border with South Sudan.

The feasibility study for the project was completed in 2011. The project involves construction of a standard gauge railway line, a road network, an oil pipeline, an oil refinery, a new airport and a free port at Lamu (Manda Bay). In addition, three resort cities will be established in Lamu (at Manda Bay), Isiolo and on the shores of Lake Turkana.

The Government launched the LAPSSET project on Second March 2012 and the following has been achieved:

Roads: The trunk roads that are part of LAPSSET project are at various stages of implementation. Isiolo to Merile (136km) is complete; construction of Marsabit to Turbi (122km) is ongoing while construction of Merile River to Marsabit (173 km) and Turbi to Moyale (128km) are at procurement stage. Feasibility Studies and detailed designs for Lamu Port–Garissa–Isiolo are ongoing. The design of Loruk-Tot-Marich Pass (149km) is complete, construction of Loruk – Barpelo (62km) is ongoing, while Feasibility Studies and detailed designs for Nginyang – Lokichar–Lokichoggio (527 km) are ongoing.

Ports: The 1st phase of the port development involves construction of three berths to handle container, convectional and bulk cargo vessels. The detailed designs for the 3 Berths have been completed and tenders for both civil works and supervision are at procurement stage. Lamu Port Master Plan has been prepared while Environmental and Social Impact Assessment Study is underway. Expression of interest for port construction supervision works and prequalification for civil works are under procurement.

Railways: An MOU on joint development of the railway line between Government of Kenya, Government of Southern Sudan and Government of the Federal Republic of Ethiopia was signed in July, 2012. The standard gauge railway construction plan has been designed for the Lamu-Garissa-Isiolo then towards South Sudan (Isiolo-Nginyang-Nakodok Section) and Ethiopia (Isiolo-Moyale Section).

Airports: The preliminary designs for the Lamu, Isiolo and Lokichoggio airports have been finalized.

Crude Oil Pipeline: A memorandum of understanding between the government of the Republic of South Sudan and the government of the Republic of Kenya was signed in January, 2012, to develop a pipe line between the oil fields of South Sudan and Lamu town in Kenya. Consequently, a number of bilateral meetings at both ministerial and technical levels have been held to prepare an Inter Governmental Agreement (IGA) for the proposed South Sudan-Kenya crude oil pipe line. The final draft of IGA was submitted to the Republic of South Sudan in December 2012 for approval to facilitate its execution.

Buildings and Other Public Works: The scope of works includes the construction of Lamu Port Headquarters Building, Lamu port police station, management housing units, a dispensary, a club house and the associated civil works. The project will be implemented in three phases. Phase 1 entails the construction of the Lamu Port Headquarters Building and other preliminary works e.g access roads, sinking of bore holes and installation of power lines and stand by generators. Phase 2 entails the construction to completion of port police station and management housing units while Phase 3 entails the construction of dispensary and club house. Phase1 is 48% complete and it is expected to be handed over in 2013. Phase 2 is ongoing. Site handover to the contractor was done in September 2012.

1.3 ACHIEVEMENTS IN POLICY, LEGAL AND INSTITUTIONAL REFORMS

The following policy, legal and institutional reforms were undertaken during the First Medium Term Plan period:

1.3.1 Shipping and Maritime

- (i) The Merchant Shipping Act was gazetted in 2009 with the objective of providing an effective regulatory framework for Shipping and Maritime subsector. Several pieces of regulations have

been drafted to operationalize the Act.

- (ii) Admission of Kenya on the International Maritime Organization (IMO) white list in 2010: This achievement will enable Kenya to be in full compliance with the International Convention on Standards of Training Certification and Watchkeeping of Seafarers (STCW) 78 as amended.
- (iii) The Kenya Trade Network Agency (KenTrade) was established to implement National Single Window Clearance Process to enhance cargo clearance and facilitate trade through the Port of Mombasa. In addition, Port Automation Programme to transform Mombasa port into an e-port is ongoing.
- (iv) The management of inland water ports was transferred from Kenya Railways to Kenya Ports Authority with effect from June, 2012.
- (v) The ownership of the Kenya National Shipping Line (KNSL) reverted back to the government in 2011.
- (vi) Kenya Ferries Corporation Bill, 2011 was developed.
- (vii) Implementation of Maritime Laws – This component entailed procurement of consultancy services to Draft Rules and Regulations for seven Maritime Laws. The draft rules and regulations were prepared.

1.3.2 Roads

- (i) Sessional Paper No.2 of 2012 on Integrated National Transport Policy was developed and adopted by Parliament on 6th December 2012.
- (ii) The National Transport and Safety Authority Act, 2012 was enacted and the NTSA established in December, 2012.
- (iii) The National Road Safety Action Plan (2009/2014) was developed. It contains strategies aimed at addressing road safety in the country.
- (iv) The Engineers Act, 2011 was enacted by Parliament and the Engineers Board of Kenya established in 2012 to regulate the training, registration and licensing of engineers.
- (v) The Kenya Roads Act, 2007 established three Road Authorities which were operationalized in 2008; Kenya National Highways Authority (KeNHA) - responsible for all highways (national roads), Kenya Rural Roads Authority (KeRRA) - responsible for all rural roads and Kenya Urban Roads Authority (KURA) - responsible for all roads in municipalities and cities.
- (vi) The Roads 2000 Strategy (2013-2017) was finalized.
- (vii) The Constitution of Kenya 2010 was promulgated and provides the National Trunk Roads and County Roads.
- (viii) The Kenya Roads Board Act, 1999 and the Kenya Roads Act, 2007 were reviewed to comply with the Finance Act, 2009 and established the formation of the Constituency Roads Committee (CRC).
- (ix) Roads Sector Investment Plan (RSIP) (2010-2024) and the first five year plan (2010-2014) were completed in 2011. The RSIP provides a roadmap for the development and maintenance of the road network over the next 15 years.

1.3.3 Buildings and Other Public Works

- (i) The National Construction Authority Act, 2011 was enacted by Parliament in December 2011 and the management board inaugurated in June, 2012. The mandate of the Authority is to oversee and regulate the construction industry in Kenya. Further, it will stimulate development of the industry

through capacity building and training for contractors and construction workers, register contractors and regulate their conduct for improved performance.

- (ii) The Architects, Quantity Surveyors, Landscape Architects, Project Construction Managers' and Building Oversight Council's Bills have been developed and subjected to stakeholders' validation. Once enacted, they will guide the development of these professions and repeal the Architects and Quantity Surveyors Act, CAP 525.

1.3.4 Energy

The energy policy, legal and institutional framework is guided by the Sessional Paper No. 4 of 2004 and the Energy Act of 2006 that lay the foundation of ongoing energy reforms. During the First MTP 2008 – 2012 the following was achieved:

- (i) Formation of a Geothermal Development Company in January 2009 as a special purpose vehicle to undertake geothermal resource assessment including exploration, drilling and appraisals of geothermal production wells.
- (ii) Kenya Power and Lighting Company (KPLC) was unbundled in December 2008 to create a fully-state owned Kenya Electricity Transmission Company (KETRACO) to undertake high voltage power transmission, expansion and upgrade while KPLC was left with electricity distribution, consumers connection, billing and revenue collection as its core functions.
- (iii) Nuclear Electricity Project (NEP) Committee was established in November 2010 to spear head and fast track the development of nuclear electricity generation with a view to enhancing the production of affordable and reliable electricity.
- (iv) A centre of excellence for energy efficiency and conservation was established at the Headquarters of the Kenya Association of Manufacturers (KAM) in collaboration with the government.
- (v) As an affirmative action, the government has been installing solar electricity generators (PVs) in public institutions including market centers, secondary schools, boarding primary schools, health centers and dispensaries which are in off-grid areas in ASAL districts.
- (vi) Amendment of building by-laws under the Local Government Act Cap 265, in collaboration with the Local Government in order to make it mandatory to incorporate solar hot water systems in urban building designs. Towards this, the Energy (Solar Water Heating) Regulations 2010 were gazetted. The regulations require among others, any establishment in cities, urban towns and municipalities utilizing a minimum of 100 litres of hot water per day to install solar water heating systems within five years with effect from the gazettment of the regulations.
- (vii) The Energy (Liquefied Petroleum Gas) Regulations, 2009 were gazetted to enhance consumption of LPG by improving accessibility.
- (viii) Gazettment of the Energy (Minimum Operational Stock) Regulations, 2008 which requires that oil marketing companies maintain 21 days operational stocks.
- (ix) The Energy (Import of Petroleum)(Quota Allocation) Regulations 2010 which allocates thirty percent of petroleum products (crude, diesel and kerosene) to the National Oil Corporation.
- (x) The Energy (Petroleum Strategic Stock) Regulations, 2008 to facilitate the government to maintain

petroleum strategic stocks equivalent to ninety days of consumption to ensure continuity of supply in case of sustained supply disruptions.

- (xi) The Energy (Petroleum Pricing) Regulations, 2010 to set maximum allowed prices for petrol, diesel and kerosene, with effect from 15th December 2010.
- (xii) Development of the Feed-in Tariffs policy whose main objective is to promote power generation from renewable energy sources.
- (xiii) The gazette ment Legal Notice No. 24 of April 10, 2012 which required KPRL to change from a tolling to merchant arrangement thereby easing the burden of crude processing at KPRL. However, OMCs will be required to lift petroleum products from KPRL.

2 EMERGING ISSUES AND CHALLENGES

The infrastructure sector emerging issues and challenges revolve around the impact of the aggressive agitation of environmental concerns; vandalism of infrastructural facilities; high turnover of trained and skilled technical personnel; disjointed monitoring and evaluation; encroachment of infrastructure way-leaves; terrorism; inadequate financial resources to cater for operation and maintenance; lengthy procurement procedures; inadequate consulting and contracting capacity; realignment of the sub-sector's functions to the Constitution of Kenya, 2010; slow disbursement of development partners' funds in addition to changing donor conditionalities; contractual/tendering disputes; land litigation; lengthy stakeholder consultations; lack of harmonized spatial national plan; lengthy bureaucratic procedures and delayed legislation on public private partnerships. In addition to the above, the sub-sector specific challenges include:

Aviation: Lack of adequate and skilled flight safety inspectors; rapid technological changes in equipment for the provision of Air Navigation Services.

Shipping and Maritime: lengthy customs and documentation procedures; lack of electronic cargo tracking system and non-tariff barriers; multiple weighbridges; lack of training vessel to offer sea time to trainees which is mandatory in accordance with the STCW 78, Convention for seafarers training; inadequate equipment and machinery thereby limiting handling capacity of the port.

Railway: huge investments required to construct standard gauge railway line and commuter rail services; inadequate trained engineers; dumping of garbage along the railway line; and aging wagons.

Roads: Congestion in Cities and Urban areas; increased use of 'Boda Boda' on roads raising safety concerns; lack of harmonization of cross border transport regulation and operational procedures; rapid urbanization and increased traffic volume; conflicting legislations e.g. the Roads Act, 2007 and the Local Government Act, CAP 265; lack of specific standards for county roads; huge maintenance backlog of the road network; weak enforcement of axle load rules and regulations; high cost/delays in relocation of utilities and services along and across road reserves; high cost of road construction; and disproportionate/mode of transport imbalance.

Buildings and Other Public Works: Increasing number of new stalled projects under the Economic Stimulus Programme; high rental accommodation charges in foreign missions abroad.

Energy: Vulnerability of hydropower to variations in hydrology and climate; relatively long lead time of between 5-10 years from conception to production of electricity and most energy projects; scattered population settlements in the rural areas leading to long distribution lines coupled with harsh terrains and inaccessibility due to under developed infrastructure leading to high cost of rural electrification projects; outdated refinery and pipeline system results to inefficiencies leading to high costs of petroleum products; inadequate storage infrastructure and strategic reserves for the petroleum products; volatility of international crude oil prices and weak legal and regulatory framework for energy resources exploration, exploitation and development.

3 PROGRAMMES AND PROJECTS

The infrastructure sector is expected to play a pivotal role in steering Kenya's economy towards a middle income level as envisaged by the Vision 2030. The following are the key programmes and projects to be implemented in the Second Medium Term Plan 2013-2017.

3.1 Flagship Programmes and Projects

3.1.1 Aviation

Expansion and Modernization of Aviation Facilities

The objective is to make JKIA the regional aviation hub and expand, modernize and maintain existing international airports and airstrips to promote trade. During the Second MTP the following projects will be implemented:

- (i) **Green Field Terminal and Associated Facilities:** The objective of the project is to decongest the JKIA and meet forecasted traffic demand growth. The scope of work includes construction of 178,000m² terminal facilities on 4 levels, international check in positions, contact and remote gates stand apron, road work and associated utilities.
- (ii) **Second Runway and Associated Facilities:** The objective of the project is to increase the runway capacity to serve forecasted traffic demand and facilitate hub development at JKIA. This involves construction of a second runway, Code F, of 5.6 km with parallel taxiway and rapid exit taxiways.
- (iii) **Kisumu International Airport:** Kisumu International Airport phase II will be implemented. The objective of the project is to improve terminal and airside capacity to support operations. The scope of work involves cargo apron, taxiways, strengthening and extension of the runway to 3.3 km and widening to 45 m.
- (iv) **Moi International Airport:** The scope of work includes reconstruction of pavement in order to improve safety and support operations.
- (v) **Eldoret International Airport:** The scope of works will include expanding and modernizing the airport.
- (vi) **Modernization of Air Navigation Services Phase II & III:** The objective of this project is to improve aviation safety by modernizing communication and navigation equipment.
- (vii) **Maintenance and Rehabilitation of Airstrips and Airports:** This will involve rehabilitation and expansion of airstrips and airports aimed at making Kenya an aviation hub in the region as well as expand network of airstrips serving tourist and commercial sites in the country.

Expansion of the Route Network

The objective is to expand the route network of designated national carriers. The GoK will negotiate additional Bilateral Air Agreement Services (BASAs) and ratify new international conventions and protocols.

3.1.2 Shipping and Maritime

Improvement of Shipping and Maritime Facilities

The objective of this programme is to make Kenya a maritime nation by facilitating transshipment of cargo at the port of Mombasa. The port of Mombasa is strategically located to serve Kenya and the land-locked countries of Uganda, Rwanda, Burundi, Eastern Part of the Democratic Republic of Congo

and the Southern Sudan. To enhance cargo throughput, the GoK will implement the following:

Port Efficiency Improvement: Automation of port and customs operations to transform the port into an e-port; and fast track the implementation of the National Single Window Clearance System to facilitate the cargo clearance system through the Port, thereby reducing delays in cargo clearance due to numerous agencies.

(i) **Second Container Terminal at KPA:** The objective of the project is to enhance container-handling capacity by constructing a new container terminal at Kipevu and provide new handling facilities at the Mombasa Port. The project entails the construction of a new container terminal covering an area of 100 Hectares and will have the capacity to handle 1.2million TEUs per annum.

(ii) **Development of Dongo Kundu Free Trade Port:** This involves development of free port facilities on 3,000 acres of land owned by the KPA in Dongo Kundu area through public private partnership arrangements. The GoK will spearhead the development of the master plans, detailed engineering designs and implementation of the project.

(iii) **Ferry Services:** The following projects will be undertaken:

- (a) Rehabilitation and expansion of mainland ferry landing facilities
- (b) Demolition and construction of Mtongwe pontoons
- (c) Acquisition of two new ferries
- (d) Provide ferry services in Lamu and Lake Victoria
- (e) Integrated Security Solutions and infrastructure – to mitigate against terrorism threats and enhance safety and security of ferry users and equipment.
- (f) Feasibility Studies and detailed designs for the development of a viable bridge crossing linking Mombasa Island and the South Coast at Likoni.

(v) **Integrated Port Security System:** The objective of the project is to enhance port security. The project involves the development of civil and communications infrastructure and installation of a comprehensive security solution including 10 kms of smart fence with Barricade II locating sensor, gates with access control, a full CCTV solution with surveillance cameras, communication system and other security elements.

3.1.3 Railway Transport

During the plan period, the Government will increase the railway capacity to handle 50 per cent of freight cargo (25 Million Tonnes) from the Mombasa Port. To achieve this objective, the government will undertake the following programmes:

Development of a Standard Gauge Railway Line between Mombasa through Nairobi to Malaba with connectivity to Kisumu, Uganda and Rwanda to facilitate enhanced trade within the East African Region.

Nairobi Commuter Railway Services system: This involves upgrading of the Commuter Core System (existing commuter rail line). This will be undertaken through the PPP arrangement. Phase II of the project will be undertaken and involves construction of a railway line from JKIA to the Syokimau Railway Station.

Kisumu and Mombasa commuter rail systems: Phase II which involves the construction of the rail system will be implemented in the plan period.

3.1.4 Roads

It is estimated that the road network in Kenya is 160,886 kilometers of which 61,945km are classified. During the Second MTP the classified road network in good condition is expected to rise from 75% to 80%. Approximately 5,500 km of roads will be constructed/rehabilitated among them 3,825km will comprise national trunk roads while 1,675km will comprise the county roads based on the current estimate cost of Ksh. 90 million per kilometre. However, measures will be undertaken to reduce the cost per kilometre through reduction of duplication and other incidental costs. In addition, 1,700km for non-motorized transport (NMT) including paths and walkways will be constructed. About 800km of roads will be designed and 4,257km and 1,735km of national trunk roads and county roads will be periodically maintained respectively. In addition approximately 200,000km will be routinely maintained.

The government will introduce the PPP arrangements for roads (e.g concessioning, Build Operate Transfer, Design Build Operate, Design and Build) on Nairobi bypasses and major roads including sections of Mombasa-Nairobi-Malaba, Mau-Summit-Kisumu-Busia and Nairobi-Thika highway.

Expansion of Roads Programme

The programme is aimed at enhancing domestic and regional trade. To achieve this, the following projects will be implemented:

- (i) **Northern Corridor Transport Improvement Project (NCTIP):** Mau Summit – Kericho (57km), Kericho – Nyamasaria (87km), Nyamasaria – Kisian and Kisumu Bypass (24km), Timboroa – Eldoret (73 km); Eldoret –Webuye (60 km); and Webuye– Malaba (62 km), interchanges at Nyahururu, and Njoro junctions in Nakuru, and the junction of the Nakuru-Eldoret road (A104) with the Mau Summit – Kericho road (B1) at Mau Summit will be constructed.
- (ii) **East Africa Road Network Project (EARNP):** Upgrading of Voi-Mwatate-Taveta (114km) Malindi -Garsen-Lamu (127 km, Rehabilitation/Expansion of Malindi – Mombasa – Lungalunga (238km), Upgrading of Isebania–Kisii-Kisumu (198km), Upgrading of Garissa – Liboi – Nuno – Modogashe-Mandera road (B9)- (903km), Upgrading of Kitale–Endebess – Suam road (C45)-50km.
- (iii) **Kenya Transport Sector Support Project:** The project will involve Rehabilitation of Kisumu – Kakamega – Webuye – Kitale A1 (145 km), Rehabilitation of Bachuma Gate – MajiwaChumvi A109 (53 km), Dualling of Athi River – Machakos Turnoff A109 (24 km), Construction of Fly-overs/ Interchanges at Nakuru/Nyahururu turnoff, Njoro turnoff, Mau Summit and Ahero.
- (iv) **Rehabilitate and Upgrade Eldoret-Kitale-Lodwar-Nadapal (600km):** This is a transnational project to promote and facilitate regional economic integration between Kenya and South Sudan. It will promote cross border trade and reduce transportation costs of cargo from Mombasa Port to the South Sudan which is a landlocked country. The two governments are carrying out designs of a single carriage road along the corridor.

County Roads

This will aim at constructing/rehabilitating 1,675km of County roads within the plan period. In addition, it will involve maintenance of 1,735kms of County roads through periodic maintenance and routine maintenance of 130,000km of roads.

Decongestion of Cities, Urban Areas and Municipalities

This will aim at easing congestion, reduce travel time and costs and enhance connectivity in cities,

urban areas and municipalities. The following projects will be implemented:

(i) Construction of Bypasses:

- (a) Nairobi Southern Bypass- from Likoni Link road/Mombasa Road junction through Langata, Karen, Dagoretti to Kikuyu(30km)
- (b) Development of Greater Eastern Bypass (79km)
- (c) Greater Nairobi Southern Bypass (60km)
- (d) Mombasa Western/Northern Bypass-Likoni-Mtwapa
- (e) Dongo Kundu Bypass (26km)
- (f) Nakuru Bypass (20km)
- (g) Eldoret Bypass (15km)
- (h) Bypasses in Meru (20km), Embu (20km), and Murang'a (20km).

(ii) Construction of Missing Links: Nairobi Missing Links (No.3, 6&7, M-1, M-5, M-10, M-15a&b, M-16) -26km.

(iii) Improvement of roads in Nairobi and other Cities and Municipalities

- (a) Capacity enhancement of JKIA-Rironi road junction (60km): The feasibility study and detailed designs are ongoing.
- (b) Ngong Road Dualling Project – All Saints Cathedral – Adams Arcade - Ngong Town–Karen–Bomas of Kenya (49.7km)
 - (i) Dualling of Langata Road-KWS Gate-Bomas of Kenya (2.9km)
 - (j) Improvement of Upper Hill Roads (5.5km Dual Carriageway)
 - (k) Dualling of Outer Ring Road (12.0km)- with grid separators
 - (l) Improvement of Eastleigh Estate Roads (7.0km Dual Carriageway)
 - (m) Improvement of Industrial Area Roads 50km in Nairobi, Kisumu, Ruiru/Thika, Mavoko.

Roads 2000 Programme

The implementation of the Roads 2000 strategy will lead to development of 4,700km of roads during the Second MTP period. The strategy was designed to facilitate rural accessibility. It involves use of locally available resources to promote employment and income earnings. The implementation of the programme will be upscaled from 150 sub-counties to 170 sub-counties in order to expand the benefits realized so far and to contribute towards the national goal of poverty reduction and social economic growth of Kenya. The programme will involve the use of the cobblestone paving and do-nou technologies in maintenance of roads and other infrastructure. The technologies are labour intensive and have the potential to create millions of jobs for the youths which will in turn directly contribute towards improving the livelihoods of people and maintaining peace and security in the country.

National Road Safety Programme

The program is meant to address the road safety issues in the country. To achieve this, the GoK has established:

- (i) The National Transport Safety Authority :** The Authority will implement the National Road

Safety Action Plan 2009-2014 and the recommendations of the UN-Decade of Action on road safety that seeks to target reduction of road fatalities' by half by 2020.

- (ii) **Transport Integrated Management System (TIMS) Project** - The system will automate and integrate data from traffic department, registrar of motor vehicles, transport licensing board, motor vehicles inspection unit, Association of Kenya Insurers, Courts and the Ministry of Transport and Infrastructure for effective management of the road transport sub-sector.

Development of Mass Transport Transit Systems in Major Cities

During the Second MTP, the Government will implement:

- (i) Bus Rapid Transport Network
- (ii) Light Rail Technology

Under the Kenya Transport Support Sector Project (KTSSP) the following projects will be implemented:

- (i) Strengthening of the KMA to improve its oversight function and facilitate development of an urban transport strategy.

Under the National Urban Transport Improvement Projects (NUTRIP) the following projects will be implemented:

- (i) Institutional support to the NTSA and the proposed NMTA including capacity building
- (ii) Strengthen the capacity of the East African Civil Aviation Authority (EASA) and promote PPPs participation in the aviation sub-sector.

Development of a 50 Year National Integrated Transport Master Plan (TMP)

The aim of the project is to ensure that investment and location of the transport infrastructure and services are consistent with other economic/public policies. The GoK will finalize the TMP and implement the recommendations contained therein.

3.1.5 Buildings and Other Public Works

Improvement of Living and Working Conditions in Government Buildings

The objective of this program is to improve functionality and visual appeal of public buildings as well as securing them from manmade and other calamities. Projects to be undertaken during the plan period are as follows:

- (i) Completion of 35 stalled public building projects.
- (ii) Design, document and supervise to completion 300 new government building projects as requested by government ministries, agencies, departments and county governments
- (iii) Rehabilitation and maintenance of 250 public buildings in both national and county governments.

Development and Maintenance of Coastline Infrastructure

This involves the construction and maintenance of sea walls, breakwaters and jetties. The sea walls are meant to protect land and property in low lying areas from erosion, flooding and sea wave action whereas jetties are meant to improve movement into and out of waters through development and maintenance of landing infrastructure. The projects to be undertaken under the program include:

- (i) Construction and maintenance of 8 Jetties.

- (ii) Construction of 7,500 meters of Sea wall.

Improvement of Communication in Human Settlements

The objective of this programme is to improve accessibility in human settlements especially in areas of difficult terrain through the construction and maintenance of footbridges. During the plan period 250 footbridges will be constructed in various parts of the country.

Regulation and Development of the Construction Industry in Kenya

The National Construction Authority (NCA) will be operationalized to: Regulate standards in the construction industry; Oversee and coordinate construction industry; Register contractors and regulate their conduct for improved performance in the construction industry.

Development of Foreign Missions Abroad

This programme aims to facilitate accommodation of foreign missions and ensure sustainable and reasonable rental bills. The projects to be undertaken during the plan period include;

- (i) Construction of Chancery and ambassador's residence in Kampala-Uganda and High Commissioner's residence and staff houses in Pretoria-South Africa
- (ii) Construction of commercial buildings with chanceries in Juba, Bujumbura and Kigali
- (iii) Construction of convection centre, office blocks and hotel in Gigiri.
- (iv) Construction of ultra modern building to house Ministry of Foreign Affairs and International Trade

Research in Appropriate Building Technology

The aim of the programme is to conduct research and disseminate findings on new building technologies. During the Second MTP, 7 (seven) research on alternative building technologies will be undertaken namely;

- (i) Brick/soil based materials
- (ii) Natural stones
- (iii) Cement based materials
- (iv) Wood based materials
- (v) Indigenous roofing materials
- (vi) Interlocking bricks
- (vii) Prefabricated buildings

3.1.6 Energy

Increasing Electricity Availability

The Government will improve the energy infrastructure networks and provide alternative and renewable energy sources to create a reliable, adequate and cost effective energy supply regime to support industrial take off and economic growth. The key programmes and projects prioritized for implementation to increase the installed electricity generation capacity from 1,765MW in 2013 to over 6,000 MW in 2017 are the following:

(i) Medium Speed Diesel Plants - 250 MW

From construction of plants at Thika Power Plant (87 MW), Athi River - Gulf Power Plant (83 MW) and Kitengela Triumph Power plant (80 MW) all to be completed by 2014.

(ii) Hydroelectricity – 424 MW

- (a) Upgrade of 24 MW Kindaruma power plant upgrade to be completed by 2014.
- (b) Imports of 400 MW from Ethiopia by 2017.

(iii) Geothermal Resources – 3,027MW

- (a) 52MW of new geothermal capacity by Orpower 4 expected to be completed by 2014.
- (b) Combined 255 MW at Olkaria I: Units 4 and 5 for 140 MW to be commissioned in 2014; and Unit 6 for 70 MW in 2015; while refurbishment of the existing Units will give additional 45 MW on completion by 2016.
- (c) 350 MW at Olkaria IV: 140 MW Units 1 and 2 to be commissioned by 2014; 70 MW Unit 3 by 2015; and, 140 MW Units 4 and 5 by 2016.
- (d) 140 MW at Olkaria V: Units 1 and 2 to be commissioned in 2017.
- (e) 140 MW at Olkaria II: Units 4 and 5 to be commissioned by 2018.
- (f) 25 MW at Eburu geothermal project to be commissioned by 2017.
- (g) 70 MW from new wellheads by 2014.
- (h) 70MW by AGIL to be completed in 2016
- (i) 70MW by Marine Power to be completed in 2016
- (j) 1,200 MW at Menengai Phase I – (400 MW) and Phase II – (800 MW) power plants to be completed by 2017.
- (k) 800 MW Silali-Bogoria Phase I power plants to be completed by 2017 through PPP arrangements.

(iv) Wind power – 630 MW

- (a) 13.6 MW and 6.8 MW of new wind generation plants at Ngong to be completed in 2014 respectively.
- (b) 300 MW wind farm at Lake Turkana to be completed by 2017.
- (c) 60 MW Kinangop Aeolus Wind Plant to be commissioned by 2016.
- (d) 100 MW Kipeto Wind Plant to be commissioned by 2016.
- (e) 50 MW Prunus Wind Plant to be commissioned by 2016.
- (f) 50 MW and 100 MW Isiolo Wind project1 (phase I) and Isiolo wind projects 2 (phase I) respectively by 2017

(v) Coal Power Plants -1920MW

- a) 960MW Lamu Coal plant to be completed by 2017
- b) 960MW Kitui Coal plant to be completed by 2018

(vi) Liquefied Natural Gas (LPG) Power plant.-1050MW

- a) 875MW LNG/IPP power plant to be completed by 2017
- b) 175 Fuel Switch of MSD to LNG power plants to be completed by 2018

(vii) 18MW Cogeneration (Kwale International Company) to be completed in 2014

(viii) 1250 MW LNG Import handling facility plant to be completed by 2017.

(ix) Nuclear Power Programme: During the Plan period, Kenya will continue collaborating with IAEA

to develop capacity and the necessary infrastructure for introduction of nuclear power programme based on the Agency's Milestones Approach with a view to developing a 1,000 MW nuclear power plant by the year 2022.

(x) Drilling and steam field development of Wells: A total of 620 wells to be drilled and developed: Olkaria (80), Menengai Phase 1(120), Menengai Phase 2 (210) and Silali-Bogoria Phase 1 (210) to be completed by 2017.

(xi) Development of Multi-Purpose Dams :

- (a) Development of the High Grand Falls Multipurpose dam with an installed capacity of 700 MW.
- (b) Development of the Magwagwa Multipurpose dam with an installed capacity of 120 MW.
- (c) Development of the Aror Multipurpose dam with an installed capacity of 60 MW.
- (d) Development of the Nandi Forest Multipurpose dam with an installed capacity of 50 MW.

Increasing Electricity Access

The government will increase access to electricity through upgrading and expansion of the national power transmission and distribution network to improve supply and reliability, reduce losses and connect one million new customers in five years ending 2017. The following projects will be implemented:

(i) Transmission Lines

The on-going and new transmission lines and associated sub-stations to be completed in the second MTP are:

- (a) 482 km 400/220kV Mombasa-Nairobi double circuit line and expansion of substations at Rabai and Embakasi.
- (b) Nairobi Ring: Construction of 100 km 400 kV Suswa- Isinya double circuit transmission line and 40 km 220kV Suswa-Ngong line and substations at Sub-stations at Isinya, Athi River, Ngong and Koma Rock and extension of Dandora sub-station with an underground cable connecting Koma Rock to Dandora sub-station.
- (c) 328 km 220kV Rabai-Malindi-Garsen-Lamu single circuit transmission line with substations at Malindi, Garsen and Lamu.
- (d) 25 km 220kV Olkaria I – Suswa and 25 km 220kV Olkaria IV – Suswa double circuit lines that will evacuate power from Olkaria I & IV geothermal power plants.
- (e) 200km 400 kV Olkaria - Lessos& 100km 220kV Lessos - Kisumu double circuit Transmission Line that will enhance power transfer capacity from Olkaria to North Rift and Western Kenya.
- (f) 430 Km 400 kV Loyangalani - Suswa transmission line that will evacuate power from Lake Turkana Wind Power Plant.
- (g) Regional interconnectors:
 - 127 km 400kV Lessos-Tororo double circuit line that will interconnect Kenya with Uganda for power trade in the Great Lakes region
 - 612 km 500kV HVDC Ethiopia- Kenya line with convertor station and 400kV substation that will interconnect Kenya with Ethiopia and enhance power trade in the region;
 - 93 km 400kV Kenya-Tanzania double circuit line that will interconnect Kenya with Tanzania and link with the South African Power Pool. This will enhance power trade in the region;

- 200Km 220kV Kisumu-Isabania double circuit line (that will connect to Mwanza) as part of Lake Victoria Ring.
- (h) Construction of a total of 2,047 km of 132 kV lines comprised of:-
- 354 km Kenya Electricity Expansion Programme (KEEP):61Km Eldoret-Kitale, 44Km Kisii- Awendo and 226Km Kindaruma- Mwingi- Garissa transmission lines and associated new sub-stations at Kitale, Awendo, Mwingi, Garissa and extensions at Eldoret, Kisii and Kindaruma .
 - 431Km Power Transmission Improvement Projects: 79Km Nanyuki-Nyahururu; 65Km Lessos-Kabarnet; 68Km Olkaria-Narok; 153Km Mwingi-Kitui-SultanHamud-Wote; 33Km Bomet-Sotik; 35Km Ishiara-Kieni transmission lines and associated new sub-stations Narok, Bomet, Sotik (switching station), Nyahururu (Rumuruti), Sultan Hamud, Wote, Kitui, Kieni, Ishiara (switching station) and extensions at Olkaria I, Nanyuki, Mwingi and Kabarnet.
 - 96Km Meru-Isiolo-Nanyuki transmission line
 - 100km Sondu -Homa Bay -Ndhiwa –Awendo single circuit Line with new substations at Homa Bay and extensions at Awendo and Sondu substations 2016
 - 338km Transmission Lines: 50km Meru –Maua; 30 km Chogoria-Ishiara; 60km Galu-LungaLunga, 148km Nyahururu- Maralal and 50km Awendo – Migori – Isabania
 - 275km Transmission Lines: 120Km Sultan Hamud–Loitokitok; 20Km Konza-Machakos; 135Km Kajiado-Namanga transmission line
 - 286km Transmission Lines: 88km Narok-Bomet line; 45km Sondu-Kisii line; 63km Kisumu-Rang’ala line and 90km Nyahururu-Kabarnet line
- (i) Construction of 56km 400kV Transmission Lines: 20km Menengai – Rongai and 36 km Isinya – Konza
- (j) Construction of 668km 220kV Transmission Lines: 98 km Turkwell – Ortum–Kitale; 240 km Garsen - Hola – Garissa and 330km Garissa- Wajir
- (k) Construction of 86 km 66kV line Ngong-Matasia (20 km) and Nairobi region (66 km).
- (l) 170km/400 kV double circuit Silali–Menengai–Rongai line 2016 Evacuation of power from Silali geothermal field
- (m) 110km 400kV double circuit Isinya–Nairobi East line that will evacuate power from 960MW Kitui coal plant
- (n) 520km/400kV double circuit Lamu–Kitui–Nairobi East line with new substation at Lamu, Kitui and Nairobi East that will evacuate power from 960MW Kitui coal plant
- (o) 50km/400kV double circuit Dongo Kundu–Mariakani line and new substation Dongo Kundu and extensions at Mariakani that will evacuate power from 700MW LNG plant
- (p) 15km/132kV line Menengai T-off–Soilo line and switching station at Menengai and extension of Soilo that will evacuate power from 90MW Menengai geothermal plant

- (q) Undergrounding of overhead lines in Nairobi and other towns and establishment of Smart Grids to improve quality and availability of power supplies

(ii) Power Sub-stations and Distribution Lines

During the Plan period, a total of 42 new sub-stations and distribution lines will be constructed. These include:

- A total of ten (10) new sub-stations at Githunguri, Ndenderu Road, New Athi, Kiambu Town, Rironi, Lower Kabete, Githunguri, Athi River EPZ reinforcement, Villa Franca, and Uplands will be constructed in Nairobi region.
- One new substation at Mishomoroni and distribution lines at Kwale, Shimoni and other areas in Coast region.
- A total of 9 new sub-stations at Ahero, Chepseon, Elgon View, Kaplamai, Kibos, Majengo, Maseno, Kericho, Kabarak University and distribution lines at Kapswar, Maseno, Kaplamai, Kapsarman and other areas in West Kenya region.
- Five (5) sub-stations and distribution lines at Gatundu, Juja, Kianjai, Mwea, Kangema and Tala in Mount Kenya region.

(iii) Rural Electrification

To realize the objectives of Kenya Vision 2030 every Kenyan household must have access to electricity by 2020. The focus during the Plan period will be as follows:

- Rural electrification funds will be distributed to counties based on agreed formula with affirmative action to cater for those areas which are far from the national grid network. This will include installation of isolated diesel power stations and solar electricity generators.
- Inter-county projects to be financed through funds allocated to Rural Electrification Authority (REA).
- Involvement of county governments in planning and implementation of rural electrification projects in order to build capacity within the respective counties.
- Procurement of materials to be done in bulk by REA so as to enjoy economies of scale.
- Connecting 6,304 public facilities to electricity under the Rural Electrification Programme. These will include electrifying the remaining 2,600 main public facilities (trading centres, secondary schools, health centres and dispensaries) and other public facilities including primary schools, tea buying centres, water supply systems, worship places etc.
- Supplying electricity to domestic households within the vicinity of electrified public facilities.

Security of Fossil Fuel Resources

- **Development of the Mombasa Petroleum Trading Hub:** This project will entail development of a tank farm to ease the current shortage of storage facilities. In addition this tank farm will serve to provide storage for strategic petroleum stocks. Undertaken as a Public Private Partnership, the facility will be developed and expanded in a modular manner to provide berthing for VLCC size tankers and a tank farm of at least 800,000MT .

- **Construction a new oil pipeline from Mombasa to Nairobi (Line-5):** the current 14-inch diameter Mombasa- Nairobi oil pipe line is over 35 years old and an in-line inspection done in 2012 found that the line had extensive damage and metal loss hence no longer sustainable to continue with repairs. A new line will therefore be constructed during the MTP period to be completed in FY 2015/2016.
- **Construction of a parallel Oil Pipeline from Sinendet to Kisumu:** this 120 km long pipe line will cater for the increased demand in Kisumu and beyond.
- **Kenya – Uganda Oil Pipeline Project:** The two Governments of Kenya and Uganda are still keen on the project and intend to repackage and facilitate its implementation.
- **Construction of additional storage tanks:** additional petroleum tanks will be constructed by KPC at Nairobi Terminal (4 tanks) and at JKIA Depot(2 tanks) to provide sufficient capacity for receipt of higher volume given the increasing consumption of refined petroleum products in Kenya and neighboring countries
- **Installation of a third pump in the Mombasa –Nairobi oil pipeline:** this project involves completion of installation of an additional third pumpset and all associated facilities at Samburu, Maungu, Manyani, Mito Andei, Makindu, Sultan Hamud and Konza Pump stations. The objective is to achieve a mode of operation where 2 pumps are running parallel and 1 pump is on standby at each station so as to sustain high flow rates and avail more windows for equipment maintenance
- **Expansion of truck loading facilities at Eldoret Depot:** five (5) additional loading arms are to be constructed at Eldoret Pump Station with provision of civil and mechanical works for additional five arms in the future to cater for the expected increase of export throughput of about 40% with effect from FY 2013/2014
- **Installation of integrated security system:** Closed Circuit Television Systems (CCTVs) including integrated access control systems will be installed in all KPC's depots
- **Upgrading of the Refinery:** Modalities of upgrading the refinery at Changamwe, Mombasa will be explored during the MTP period

Development of New and Renewable Sources of Energy

During the Second Medium Plan 2013 – 2017, several measures will be taken to enhance promotion and development of renewable energy as an alternative source of energy. These include;

- Preparation of National Renewable Energy Master Plan to provide data and information and the potential renewable energy in the country to facilitate development of the resources.
- Promoting the use of solar energy by installing solar electricity to institutions and households that are far from the main grid.
- Installation of solar/wind hybrid systems in isolated diesel power stations to reduce operating costs of the stations.
- Promoting wind energy development and utilization and development of a Country Wind Atlas.
- Facilitating development of small, mini, micro- and pico-hydropower capacities totaling 25 MW from various sites.

- Facilitating co-generation of at least 100 MW of electricity under PPP arrangements.
- Facilitating construction of bio-digesters in Kenya under the “Biogas for Better Life” initiative for institutions and households in the country.
- Construction of 5 new energy centers and rehabilitation of the existing ones.
- Promote re-afforestation of water towers.
- Promoting the use of improved cooking stoves and charcoal kilns.
- Undertaking energy audits to enhance efficiency and conservation.
- Development of an updated renewable energy database.
- Development of bio-energy including bio-ethanol and diesel value chains.

3.1.7 Development of the Lamu Port-Southern Sudan-Ethiopia Transport Corridor (LAPSSET)

The objective of the LAPSSET project is to open up northern Kenya and provide a reliable transport corridor for Ethiopia and Southern Sudan.

The following corridor components will be implemented:

- (i) a standard gauge railway line,
- (ii) a new road network comprising of the following sections;
 - (a) Merile River – Marsabit (173km)
 - (b) Marsabit-Turbi (121km)
 - (c) Turbi-Moyale (128km)
 - (d) Garsen-Lamu road (175km)
 - (e) Lamu Port – Garissa (250km)
 - (f) Garissa – Kulamawe- Isiolo (280km)
 - (g) Isiolo – SugutaMugie – Nginyang (200km)
 - (h) Nginyang – Lokori– Lokichar (189km)
 - (i) Lokichar-Nadapal (332km)
 - (j) Loruk-Tot_Marich pass (149 km)
 - (k) Loruk-Barpelo (62 km)
- (iii) an oil pipeline, 1400 kms crude oil pipeline and 980 kms of refined oil pipeline.
- (iv) an oil refinery at Lamu with capacity of 120,000 barrels per day
- (v) 3 international airports at Lamu, Isiolo and Lokichoggio
- (vi) a free port at Lamu (Manda Bay) including construction of the following:
 - (a) Three berths to handle container, convectional and bulk cargo vessels.
 - (b) Lamu Port Management Building
 - (c) Lamu Port Police Station and staff housing.
 - (d) dispensary and a club house

- (vii) Three resort cities will be established in Lamu (at Manda Bay), Isiolo and on the shores of Lake Turkana.

3.2 OTHER PROGRAMMES AND PROJECTS

3.2.1 Aviation

Capacity Building Programme for East African School of Aviation (EASA)

The objective of this project is to provide modern teaching- training equipment for air traffic crew. To meet the growing demand of training needs in the aviation sub-sector, 3D ATC simulators will be acquired.

Improvement of Aviation Facilities at the Wilson Airport

The project entails the construction of a new control tower at Wilson Airport to replace the current old and short tower. The tower will contain positions for use by air traffic controllers in the provision of control services for air traffic at Wilson Airport.

3.2.2 Shipping and Maritime

Construction of Berth 19 and Adjacent Container Stacking Yard

The expansion comprises construction of 160m of quay structure (Berth 19) to increase container quay length from 680m to 840m and yard capacity. The project also will include reclamation of 5 hectares to create an extra stacking yard, procurement of requisite equipment and installation.

Equipment Replacement Programme at KPA: The objective of this programme is to re-equip the convectional cargo berths.

Capacity building of the Kenya National Shipping line: KNSL is a national carrier formed and owned by the Kenya Government to provide shipping services to Kenyan exporters and importers thereby making exports more competitive, support the country's balance of payments, and generate employment to Kenyan through the provision of seafaring employment opportunities.

Purchase of New Containers

The objective is for KNSL to be able to build capacity that would enable the line lift Government cargo. The purchase is spread evenly over the first three years.

To purchase 300 new containers per year at a cost of Kshs 260,000 for 20ft container and Kshs 430,000 for 40ft container.

- Help in generation of revenue
- Reduce loss of bookings due to shortage of leased containers.
- Branded and registered containers will market the Company globally.

Container Depot with Forklift

The main objective is to rid the National carrier of the burden of empty container storage costs and at the same time generate revenue from storing and handling other lines' containers. The purchase of land, leveling and first batch of forklifts will be done in the first year while the subsequent years will enhance capacity by adding more forklifts necessary for the job.

Purchase 5 acres of land at a cost of Kshs 20 million per acre and four forklifts at a cost of Kshs 44.2 million.

- The depot will be used to store KNSL containers. This will save the Company from incurring container storage costs.
- The depot will generate revenue through storage of other lines containers.
- Forklifts will help in the operations of the depot thus generating revenue through handling charges.

Vessel Chartering and Purchases

The objective is to revive transshipment at the port of Mombasa between Mombasa port and other short-distance ports of the region, train seafarers (sea-time) and at the same time negotiate to join a pool of shipping lines under a consortium. Vessel chartering of multipurpose vessels is envisaged in the first year while vessel purchase of new and used is widely expected to be negotiated and purchased in the second and subsequent years.

Vessel ownership / chartering will:

- Enhance commercial shipping
- Create employment
- Provide sea time training opportunities for seafarers
- Improve business opportunities for KNSL as it will be able to call new ports e.g. in Asia, America and parts of Africa etc
- Help KNSL venture into other areas like rolling-stock cargo (Roll-on/Roll-off), conventional cargo and crude oil rather than being reliant in containerized cargo only.
- Vessel chartering will help the Company to call several transshipment ports like South Africa, Middle East and Mediterranean ports. The resultant diversification will generate increased revenues.

Chartering of a multipurpose vessel will cost approximately Kshs 465 million per year while purchase of a new vessel will cost approximately Kshs 4.25 billion.

3.2.3 Railway Transport

Implementation of the Resettlement Action Plan

The objective is the resettlement of 10,006 displaced persons along the railway reserve in Nairobi. It will cover:

- (i) Creation of safety corridor of 40 meters wide for Kibera and 50 metres wide for Mukuru and construction of a wall on both sides of the railway line to secure it;
- (ii) Creation of a 10m wide resettlement zone for residential housing and business premises of Displaced Persons;
- (iii) Construction of three storey structures resettlement zone for shops, stalls and residential housing of Displaced Persons;
- (iv) Provision of open market spaces (bandas) resettlement zone for displaced mobile traders;
- (v) Construction of footpaths and drainage facilities; and

- (vi) Construction of footbridges to connect the safety walls on the two sides of the railway line.

3.2.4 Transport

Traffic Decongestion Programme

This will entail design and development of urban traffic control monitoring systems, development of metropolitan commuter rail lines, stations and signalization, dedicated bus lanes, widening/narrowing of junctions and roundabouts, conversions of roundabouts to junctions or vice versa and truck waiting areas among others.

Transport Data Centre

This will involve the establishment of a transport data centre to capture key trade and transport indicators. It will also establish a mechanism for timely updates of the same.

Establishment of One-Stop Border Post

During the Second MTP, construction of six (6) “*One Stop Border Posts*” at Malaba, Busia, Isebania, Taveta, Lungalunga, and Namanga will be undertaken and a harmonized system for processing of transit cargo will be implemented to facilitate cross border trade.

Transport Integrated Management System

A Transport Integrated Management (TIM) System will be developed. The project will aim at integrating all road transport institutions including Transport Licensing Board (TLB), Registrar of Motor Vehicles (RMV), Association of Kenya Insurers (AKI), Traffic Department, Courts, and Ministry responsible for Transport among other institutions into one common central repository as well as use modern technologies to efficiently and effectively manage the sector. This will include law enforcement, public empowerment and use of predictor tools to efficiently and effectively manage the subsector.

Second Generation Smart Card Based Driving License

The project is designed to replace the existing paper based driving licenses with a secure smart card system. It will introduce an IT- enabled system for better management and safety on our roads. The IT- based system will address issuance, regulation management and administration of the smart card based driving license.

3.2.5 Roads

Acquisition of Plant and Machinery

The objective of the project is to build capacity in the roads construction. The GoK will acquire new plants and machineries for the development and maintenance of roads and other infrastructure.

Materials Research and Testing

The GoK will undertake research and test road construction materials, road pavement designs and construction specifications and conduct post construction evaluation of roads, bridges and other civil works projects.

County Roads programme

The programme will involve constructing 600 km, rehabilitating 1,075 km, periodic maintenance of 1,735 kms and routine maintenance of 130,000 km of roads.

3.2.6 Energy

Nairobi LPG Storage, Bottling and Distribution Facilities

The overall objective of developing LPG facilities is to ensure availability and accessibility of LPG at cost effective prices, promote use of LPG as a household fuel among the urban poor and the rural population and enhance socio-economic development.

Construction of a Storage Terminal at Konza

The overall objective of the project is to provide adequate stocks for Nairobi and its environs and reduction of demurrage costs. The new terminal will reduce road maintenance costs as well as enhance road safety along the Nairobi-Mombasa Highway.

Retail Network Expansion

The density and distribution of retail petrol stations in Kenya is skewed to major towns and major highways. As a measure to increase security of supply and cushion the public against escalating oil prices, National Oil plans to achieve 20% retail market share by the year 2017.

Supervisory Control and Data Acquisition/Energy Management System (SCADA/EMS);

Upgrading of Supervisory Control and Data Acquisition/Energy Management System (SCADA/EMS);

Geographical Information System (GIS)

Improvement of Geographical Information System (GIS) utility database by completing the digitizing and mapping of the grid network;

Automatic Meter Reading (AMR)

Implementing customer service improvement programs including roll out of Automatic Meter Reading (AMR) for large customers and pre-paid meters for small to medium customers; and Expansion of Fuel Retail Network

3.2.7 Capacity Building Programme

The programme aims at developing technical capacity for the implementation of infrastructure projects. During the plan period, the target is to train 1,500 technical personnel.

3.2.8 Monitoring and Evaluation

This aims at tracking progress in implementation of infrastructure projects in the Medium Term Plan. This will contribute in mitigating the factors that may affect the implementation of the projects and also assessment of the social economic impacts.

3.2.9 Cross Cutting Issues

This aims at mainstreaming HIV/AIDs, youth and gender issues, disability, environment and climate change, vulnerable/marginalized groups concerns and employment generation in the infrastructure programmes and projects during design and construction.

4 POLICY, LEGAL AND INSTITUTIONAL REFORMS

The following policy, legal and institutional reforms will be undertaken:

4.1 Aviation

During the plan period, the Government will establish an Autonomous National Aircraft Accident Investigation agency.

4.2 Shipping and Maritime

Review of Kenya Ports Authority (KPA) and Kenya Railway Corporation (KRC) Acts: The objective of this is to facilitate transfer of management of inland water transport from Kenya Railways Corporation to Kenya Ports Authority. The review will also provide for private sector participation in the provision of services in the industry.

4.3 Road Transport

- i. Adoption by Parliament of the Sessional Paper No.2 on Integrated National Transport policy. The policy will guide development of a sustainable transport sector to be responsive to the needs of the economy, society and environment.
- ii. Finalization of the Roads Subsector Policy and Kenya Roads Bill: The objective is to realign roads sub-sector with the Constitution of Kenya, 2010. It will include:
 - a. Review of mandate and functions of MoR, KRB, KeNHA, KURA, KeRRA, EBK, MTD, MTRD and KIHBT.
 - b. Devolving mandate and functions of the ministry responsible for roads to county governments referred to as other roads in County as per the 4th schedule of the constitution (the functions of National and County Governments).
 - c. Vesting of assets and human capital between the National and County governments.
 - d. Setting of standards for construction, development and maintenance of national trunk road, county roads and policy formulation.
 - e. Ensure enforcement of the construction standards.
 - f. Reclassification and redefining of national trunk roads and county roads.
 - g. Protection of the road furniture and reserves.
- iii. Transformation of Mechanical and Transport Department (MTD), Materials Testing and Research Department (MTRD) and Kenya Institute of Highways and Building Technology into Semi-Autonomous Government Agencies (SAGAs).
- iv. Establishment of Nairobi Metropolitan Transport Authority to manage and provide an efficient public transport system in the city and its environs.
- v. Development of Integrated Maritime Policy
- vi. Setting up of the LAPSET corridor implementation fund

4.4 Buildings and Other Public Works

Review of the Architects and Quantity Surveyors Act, CAP 525 to establish separate legislations for each profession i.e. the Architects Act, Quantity Surveyors Act, Landscape Architects Act, Project Construction Managers Act and Building Oversight Council Act.

4.5 Energy

- i. Review of the Feed in Tariffs policy to encourage private investment in the energy sector.
- ii. Review and approve competitive Profit Sharing Contracts.
- iii. Enact legislation to govern proposed petroleum special economic zones and petroleum trading hub which are intended to encourage investment and private sector participation
- iv. Environmental laws for the upstream sector
- v. Legislation of regulatory framework for enhancement of an independent system operator, determining supply and dispatch of power and development of system operation regulations.
- vi. Finalization and enactment of Energy Bill
- vii. Development of a policy on management of commercial discoveries of oil and gas resources
- viii. Review and update the Petroleum (Exploration and Production) Act(Cap. 308)
- ix. Review of the existing legislations on Licensing of Petroleum Businesses; Licensing of Petroleum Retail Businesses; Licensing of Refining Businesses; Licensing of Petroleum Logistic facilities and Businesses and Licensing of Petroleum Road Transportation Businesses;
- x. Review of The Energy (Petroleum Pricing) regulation, 2010 to accommodate emerging issues in the sector.
- xi. Review of the National Oil Corporation Act to enable the company be an effective agent for the government in the development of the country's petroleum reserves
- xii. Develop legislation to promote and enforce efficiency in energy supply and adoption of energy efficiency technologies and practices.

5.0 THE IMPLEMENTATION MATRIX

Goal: Deploying world class infrastructure facilities and services											
Strategic Objectives											
<ul style="list-style-type: none"> Strengthen the institutional framework for infrastructure development and accelerating the speed of completion Raise efficiency and quality of infrastructure projects, and increasing timely implementation of infrastructure projects Develop and maintain an integrated safe and efficient transport network Benchmark infrastructure facilities and services provision with globally acceptable performance standards targeting to enhance customer satisfaction Enhance private sector participation in the provision of infrastructure facilities and services strategically complemented by government sector interventions 											
Project/ Programme	Objective	Expected output(s)	Impl. Agency	Time frame (yrs)	Source of funds	Total cost					2017/18
						2013/14	2014/15	2015/16	2016/17	2017/18	
Expansion and Modernization of Aviation Facilities											
Modernization of Air Navigation Services Phase II	Improve aviation safety	Communication Equipment	KCAA	2	IDA	350.0	176.5	-	-	-	
Modernization of Air Navigation Services Phase III	Improve aviation safety	Navigation Equipment -ATS Inter data communication -Solar Power systems at Wajir -Implementation of Automatic Dependency Surveillance Broadcast (ADS-B) -Ground Based Augmentation Systems for Airports -Instrument Landing Systems and Distance Measuring Equipment at Kisumu International Airport	KCAA	2	KCAA	250.0	65.0	-	-	-	
Study on Delinking	Separate service provision from regulatory services	Separated Institutions	KCAA	2	IDA	22.5	22.5	-	-	-	
Green Field Terminal	Decongest JKIA Meet forecasted traffic demand	Terminal facility with associated facilities	KAA	5	PPP	6,000	15,000	15,000	10,000	10,000	
Second Runway	-Increase runway capacity to meet forecasted traffic demand -Facilitate hub developments	Second runway Code F of 5.6km	KAA	5	PPP	2,000	2,500	2,500	2,500	2,500	
Kisumu International	Improve terminal and	Cargo apron & taxiways,	KAA	3	KAA	100	400	500	-	-	

Goal: Deploying world class infrastructure facilities and services											
Strategic Objectives											
<ul style="list-style-type: none"> Strengthen the institutional framework for infrastructure development and accelerating the speed of completion Raise efficiency and quality of infrastructure projects, and increasing timely implementation of infrastructure projects Develop and maintain an integrated safe and efficient transport network Benchmark infrastructure facilities and services provision with globally acceptable performance standards targeting to enhance customer satisfaction Enhance private sector participation in the provision of infrastructure facilities and services strategically complemented by government sector interventions 											
Project/ Programme	Objective	Expected output(s)	Impl. Agency	Time frame (yrs)	Source of funds	Indicative budget ('Kshs. Millions')					
						2013/14	2014/15	2015/16	2016/17	2017/18	
Airport	airside capacity to support operations	Extended runway to 3.3 km and widening to 45 m.									
Maintenance and Rehabilitation of Airstrips	Making Kenya an aviation hub in the region	Expanded network of airstrips serving tourist and commercial sites in the country.	CAA & MOTI	5	GoK	380	380	380	380	380	
MOIED International Airport	improve safety and support operations	Reconstructed pavement	CAA	3	CAA	100	200	200	-	-	

Project/ Programme	Objective	Expected output	Impl. Agency	Time frame (yrs)	Source of funds	Indicative budget ('Kshs. Millions')					
						2013/14	2014/15	2015/16	2016/17	2017/18	
Eldoret International Airport	improve terminal and airside capacity to support operations and meet expected traffic growth	Expanded and modernized airport	CAA	3	CAA	100	200	200	-	-	
Construction of KCAA Head Office	Adequate Office space in own Head Office	Head Office Building	KCAA	3	IDA	195	195	195	-	-	
Construction of EASA library	Provide conducive study environment	Completed Library for students	KCAA	2	IDA	135	135	-	-	-	
Procurement of 3D ATC Simulators	Provide modern teaching training equipment	Installed 2 simulators	KCAA	3	IDA	90	90	90	-	-	
Construction of Control Towers	Safety of Air Services	Tower at Wilson and Isiolo	KCAA	4	KCAA	60	60	60	60		
Improvement of Shipping and Maritime Facilities - Mombasa port											
Second Container Terminal	Increase Container Handling Capacity	Increase Port Capacity By 1.2 Million TEU	KPA	5	KPA	23,000	2,000	6,000	6,000	6,000	3,000

Project/ Programme	Objective	Expected output	Impl. Agency	Time frame(y rs)	Source of funds	Total cost	Indicative budget ('Kshs. Millions')				
							2013/14	2014/15	2015/16	2016/17	2017/18
Berth No. 19	Increase cargo throughput by improving Ship Handling Capacity	-Increase Capacity of accommodating three post panama vessels at a time -Increased terminal capacity to 800,000 TEU p.a.	KPA	2	KPA	6,600	4,400	2,200	-	-	-
Integrated Security Systems	Acquisition of Servers to Provide Extra Storage ISS	electronic port surveillance system in place	KPA	4	KPA	800	200	200	200	-	-
Equipment Modernization	Machines For Berth 19 Equipments	-Increase Equipment Capacity and availability -Enhance Container Handling Capacity At Conventional berth	KPA	1	KPA	1,780	1,780	-	-	-	-
Construction of New Oil Terminal	To Relocate The Oil Jetty To A New Site	New jetty in place	KPA	5	KPA	4,500	500	1,000	1,000	1,000	1,000
Procurement of 1No. Berthing Tug	Increase Shipping Business and to allow proper maintenance regime.	1 tug boat	KPA	1	KPA	900	900	-	-	-	-
Renovation of Kisumu Piers	This is in Compliance With The Directive To Take Over Inland Water Ways From Kenya Railways	Create Handling Capacity	KPA	1	KPA	50	50	-	-	-	-
Integrated Security Solutions and infrastructure	Mitigate against Terrorism threats and enhance Safety and security of Ferry users and equipment	System in place	KFS	2	GOK	2,000	1,000	1,000	-	-	-
Procurement of new Ferries.	Increased capacity to handle the increased number of passengers.	2No. Ferries	KFS	2	GOK	2,600	1,300	1,300	-	-	-
Expansion of Ramps	Improvement of the ferry landing facilities	Ramps	KFS	3	GOK	400	200	100	100	-	-
Upgrading of Peleleza Jetty	Replace the old condemned and unsafe jetty with modern equipment	Jetty in place	KFS	3	GOK/ KFS	800	400	340	60	-	-

Project/ Programme	Objective	Expected output	Impl. Agency	Time frame (years)	Source of funds	Total cost	Indicative budget ('Kshs. Millions)				
							2013/14	2014/15	2015/16	2016/17	2017/18
Wider Mombasa Ferry Service	increase coverage of ferry services along the Coast	New ferries Increased revenue	KFS	4	PPP/GO K	3,320	1,710	270	800	540	
Repair and Upgrading of Mitongwe Pontoon and Gangways	-Replace collapsed and unusable infrastructure.	-Restored operation in Mitongwe	KFS	4	GOK	320	160	30	50	80	-
Lake Victoria Ferry Services	increased coverage of ferry services in Lake Victoria	Commencement of Ferry services -Increased revenue base	KFS	5	PPP/GO K	2,700	1350	180	800	200	170
Development of Multi-Level Terminus at Likoni	- Improve Safety and Security	Terminus in place -Streamlined both human and vehicular traffic	KFS	3	PPP/GO K	2,700	1350	225	-	1125	-
Computerized weighing and billing solution ERP	Improved efficiency in revenue collection	-Increased revenue base	KFS	3	GOK	80	40	18	22	-	-
Expansion of waiting bays and holding areas.	Safety of Pedestrians	Expanded waiting bay and holding areas	KFS	2	GOK	200	100	-	100	-	-
Container Depot with forklift	Provide storage for KNSL and other lines' Containers	Generate revenue through storage of containers for other lines	KNSL	4	GoK	88.4	22.1	22.1	22.1	22.1	-
New Containers	Reduce loss of bookings due to shortage of leased containers	-Maximum revenue generated -Branded and registered containers	KNSL	3	GOK	208.5	69.5	69.5	69.5	-	-
Vessel chartering and purchases of second hand vessels	Revive transshipment at Mombasa port and other small within the coastal region and train seafarers	-Trained seafarers -Increase trade between Misa port and other ports in the region	KNSL	2	GOK & KNSL	465	200	265	-	-	-
Purchase of new vessel	-Enhance commercial shipping -create employment -provide training opportunities for seafarers	-increased trade along the coastal region -trained seafarers -increased well paying jobs in the maritime industry	KNSL	5	GOK & PPPs	4,500	800	1000	1000	1000	700

Project/ Programme	Objective	Expected output	Impl. Agency	Time frame (yrs)	Source of funds	Indicative budget (Kshs. Millions)					
						Total cost	2013/14	2014/15	2015/16	2016/17	2017/18
Hydrographic Survey of the coastline and development of navigation charts	To ensure safety of shipping at the coastal waters	Navigational Charts for Kenyan coastline	KMA	2	World Bank	160	80	80	-	-	-
Development of institutional capacity for Search and Rescue and Pollution Control	Enhance Authority's preparedness for response to oil/chemical spills	Clean marine and inland waters environment	KMA	4	World Bank	190	80	80	10	20	-
Development of Maritime industry standards for service providers	To develop tools for intervention on efficiency of delivery of maritime transport services	Framework for monitoring efficiency of maritime services	KMA	2	World Bank, KMA	150	70	80			-
Development and maintenance of Search and Rescue Unit	Expand capacity to undertake search and rescue in a wider region	MOTIE search and rescue centers	KMA	4	World Bank, KMA	59	32	5	12	10	-
Institutional Capacity	To develop institutional capacity of the Authority	-Physical infrastructure at the head office -Established branch offices -Skilled staff and improved corporate image	KMA	4	World Bank, KMA	1,160	100	305	400	355	
Capacity for maritime training	To acquire a dedicated training vessel and establish a modern simulation resource center	Training Vessel Simulation centre	KMA	4	GOK	4,500	1,000	2,000	1,000	500	-
Maritime Safety and Security	To enhance maritime safety and security	Safe and secure marine environment for life and property	KMA	4	KMA	292	33	100.8	49.2	109	-
Railway Transport											
Mombasa -Malaba/ Kisumu Standard Gauge Railway	Decongest Mombasa port; establish Kenya as transport and	Nrb -Msa Nrb- Msa Supervision	KRC KRC	5 4	GoK GoK	150,000 2400	5,000 0	32,500 600	37,500 600	37,500 600	37,500 600

Project/ Programme	Objective	Expected output	Impl. Agency	Time frame (rs)	Source of funds	Indicative budget ('Kshs. Millions')					
						Total cost	2013/14	2014/15	2015/16	2016/17	2017/18
	logistics hub in the region. Reduce cost of doing business in the Region	Nrb- Mlb & Ksm	KRC	5	GoK	164,500	5,000	36,125	41,125	41,125	41,125
						400	0	100	100	100	100
Development of new Transport Corridor from Lamu to Ethiopia and S. Sudan (LAPSSET Project)	Efficient New Transport Corridor linking new port of Lamu to Land locked South Sudan and Ethiopia	Lamu- Isiolo (530 Km)	KRC	5	GoK	183,345	36,669	36,669	36,669	36,669	36,669
		Isiolo- MODPle (470 Km)	KRC	5	GoK	162,115	32,423	32,423	32,423	32,423	32,423
		Isiolo- Nakodok (720 Km)	KRC	5	GoK	248,350	49,670	49,670	49,670	49,670	49,670
		Misa Stn- MIA Line (5Km)	KRC	5	GoK/ PPP	1,725	345	345	345	345	345
		Misa – Mtwapa (20Km)	KRC	2	GoK/PP P	52	26	26	0	0	0
Mombasa Commuter Rail	To provide modern mobility solution within the area with neighboring counties	Misa –Diani (35 Km)	KRC	2	GoK/ PPP	90	45	45	0	0	0
		Misa- Mariakani (40Km)	KRC	2	GoK/ PPP	102	51	51	0	0	0
		Ksm Stn- Ksm Airport (6Km)	KRC	2	GoK/ PPP	16	8	8	0	0	0
Kisumu Commuter Rail	To provide modern mobility solution within the area with neighboring counties	Ksm Commuter Rail Core Network (40Km)	KRC	2	GoK/ PPP	108	54	54	0	0	0
		Nrb- Dagoretti	KRC	5	GoK/ PPP	6900	1500	1500	900	1500	1500
Nairobi Commuter Rail Programme	Improve the mobility in Nrb metropolitan region by reducing congestion on road, carbon footprint, cost of travel and provide capacity for mass transit	Nrb- Embakasi	KRC	4	GoK/ PPP	3016	8	1500	0	8	1500
		Embakasi- JKIA Line & Station	KRC	4	GoK, PPP	13600	2500	4300	0	2500	4300
		Nrb Airport Express	KRC	4	GoK/ PPP	1200	200	400	0	200	400
		Terminal & Access Line	KRC	4	GoK/ PPP	148	4	70	0	4	70
		Makadara- Embakasi Village	KRC	4	GoK/ PPP	5000	1500	1000	0	1500	1000
		Makadara- Ruiru	KRC	4	GoK/ PPP	13516	4516	4500	0	4500	0
		Embakasi Dagoretti Bypass (35 Km)	KRC	4	GoK/ PPP	13516	4516	4500	0	4500	0

Project/ Programme	Objective	Expected output	Impl. Agency	Time frame (rs)	Source of funds	Indicative budget ('Kshs. Millions)					
						Total cost	2013/14	2014/15	2015/16	2016/17	2017/18
		New Stations (20 No)	KRC	4	GoK/ PPP	2556	852	852	0	852	0
		New Signalling System	KRC	3	GoK/ PPP	440	100	170	0	170	0
Extended Nairobi Commuter Rail	Improve the mobility in Nrb metropolitan region and ease transport within Nairobi	Embakasi- Lukenya Line	KRC	5	GoK/ PPP	7033	7	14	3499	14	3499
		Ruiru- Thika Line	KRC	5	GoK/ PPP	5456	6	13	2712	13	2712
		Dagoretti- Limuru Line	KRC	5	GoK/ PPP	6051	7	14	3008	14	3008
		New Signalling System	KRC	4	GoK/ PPP	342	0	1	170	1	170
System Wide Relocation Action Plan	Clearance of encroachment of railway reserve	System Wide RAP	KRC	1	GoK/ World Bank	1748	1748	0	0	0	0
Nairobi Metro & Light Rail Transport	Improve the mobility in Nrb metropolitan region by reducing congestion on road, carbon footprint, cost of travel and provide capacity for mass transit	Nairobi Central Str- Pangan (3Krn)	KRC	5	GoK/ PPP	7000	1000	1000	2000	1000	2000
		Nrb Central Str- Hilton- Ngong Rd (4Krn)	KRC	5	GoK/ PPP	8500	1500	1500	2000	1500	2000
Rolling Stock Programme & Modern maintenance Depot	Establish To establish the rolling stock programme and modern maintenance depot	Sets of DMUs	KRC	2	GoK	3060	1530	0	0	0	1530
Road Safety Programme		Makadara Depot	KRC	3	GoK	1707	852	0	0	3	852
Operationalization of the National Transport and Safety Authority	To improve road safety in the country	-effective road transport regulatory regime/ framework -reduced road fatalities	MOTI and the National Transport and Safety Authority	2	WB and GoK	567	300	267	-	-	-
Transport Integrated Management System (TIMS)	To integrate all road transport stakeholders (public and private) on a	Functional ICT system	MOTI, AKI, TLB, TRAFFIC	2	GoK	250	100	150	-	-	-

Project/ Programme	Objective	Expected output	Impl. Agency	Time frames	Source of funds	Total cost	Indicative budget ('Kshs. Millions')						
							2013/14	2014/15	2015/16	2016/17	2017/18		
	common ICT platform for information and data sharing thereby enhancing road safety		Dept. Courts										
Smart Card Driving Licence System	Elimination of proliferation of fake documents vehicle registration documents – enhancing road safety. -will also integrate data from TLB and MVLU	Production of Smart Card driving licence, TLB and Inspection certificate	MOTI, RTD	2	PPP/ GoK	1000	500	-	-	-			
Expansion of Roads Programme													
East Africa Road Network Project (EARNP)	To Promote trade and regional integration	328 km	KeNHA	5	GoK/ Donor	29,520	5,904	5,904	5,904	5,904	5,904	5,904	5,904
Rehabilitation of Northern Corridor Transport Improvement Project (NCTIP)	Promote trade in East African region and enhance economic and social integration	158km	KeNHA	5	GoK/ Donor	14,220	2,844	2,844	2,844	2,844	2,844	2,844	2,844
Kenya Transport Sector Support Project (KTSSP)	To increase the efficiency of road transport	222 km	KeNHA/ KeRRA/ KURA	5	GoK, /Donor	19,980	3,996	3,996	3,996	3,996	3,996	3,996	3,996
Rehabilitate Eldoret-Kitale-Lodwar-Nadapal road Corridor (600km)	To Promote and facilitate regional economic integration	303km	KENHA	5	GoK, onor	27,270	5,454	5,454	5,454	5,454	5,454	5,454	5,454
Lamu Port South Sudan Ethiopia Transport Corridor (LAPSSET)	To Promote trade between regions and enhance socio economic activity along the corridor	640 km	KeNHA/ KURA	5	GoK, onor	57,600	11,500	11,500	11,500	11,500	11,500	11,500	11,500
Rehabilitation /Reconstruction of Roads	Provide access to economic and social services	848 km	KeNHA/ KURA	5	GoK, onor	76,320	15,264	15,264	15,264	15,264	15,264	15,264	15,264
Construct new	To enhance	1,236 km	KeNHA/	5	GoK,	111,240	22,248	22,248	22,248	22,248	22,248	22,248	22,248

Project/ Programme	Objective	Expected output	Impl. Agency	Time frame (y rs)	Source of funds	Total cost	Indicative budget ('Kshs. Millions')					
							2013/14	2014/15	2015/16	2016/17	2017/18	
road sections (others)	economic and social integration		KURA		onor							
Periodic Maintenance of roads	Improve travel time, and reduce vehicle maintenance costs	4,257 km	KeNHA/ KURA/K WS	5	GoK, onor	141,142	24,000	26,000	28,000	31,000	32,142	
Routine maintenance	To increase accessibility and Promote economic and social activities	70,000 km	KeNHA/ KeRRA/ KURA	5	GoK, onor	193,000	30,000	35,000	38,000	41,000	49,000	
Construction of bypasses	Easing congestion, reduce travel time and costs and	77km	KeNHA/ KURA	5	GoK/ Donor	6,930	1,386	1,386	1,386	1,386	1,386	
Construction of missing links	enhance connectivity in cities, urban areas and municipalities	26km	KURA	5	GoK/ Donor	2,340	468	468	468	468	468	
Improvement of roads in Nairobi, other cities and municipalities		13km	KeNHA/ KURA	5	GoK/ Donor	1,170	234	234	234	234	234	
Capacity Building	To build human capacity for the implementation of infrastructure projects	3,600 officers	MOTI/ KeNHAK URAV/ KeRRAK RB	5	GoK/ Donor	4,500	900	900	900	900	900	
Monitoring and Evaluation	To conduct performance appraisals in all the road infrastructural development projects	6 M&E Reports	MOTI/ KeNHAK URAV/ KeRRAK RB	5	GoK	1,250	250	250	250	250	250	
County Roads												
Rehabilitation /Reconstruction of Roads	Provide access to economic and social services	1,075km	KeRRA/ KURA	5	GoK/ Donor	96,750	19,350	19,350	19,350	19,350	19,350	
Periodic Maintenance of roads	Improve travel time, and reduce vehicle maintenance costs	1,735 km	KeRRA/ KURA	5	GoK	25,000	5,000	5,000	5,000	5,000	5,000	
Construct new road sections	To enhance economic and social integration	600 km	KeRRA/ KURA	5	GoK/ Donor	54,000	10,800	10,800	10,800	10,800	10,800	
Routine maintenance	To increase accessibility and Promote economic and social activities	130,000 km	KeRRA/ KURA/ KWS	5	GoK/ Donor	25,000	5,000	5,000	5,000	5,000	5,000	

Project/ Programme	Objective	Expected output	Impl. Agency	Time frame (rs)	Source of funds	Indicative budget ('Kshs. Millions')					
						Total cost	2013/14	2014/15	2015/16	2016/17	2017/18
Roads 2000 Programme	To improve rural /urban accessibility	4,700 km	KeRRA/ KURA	5	GoK/Do nor	25,900	5,900	5,000	5,000	5,000	5,000
Buildings and Other Public Works											
Improvement of living and working conditions in government buildings	To improve functionality and visual appeal of public buildings as well as securing them from manmade and other calamities.	35 stalled building projects completed New building projects designed, documented and supervised to completion Buildings maintained/refurbished	MOLHUD / County MOLHUD / County MOLHUD / County	5 5 5	GoK GoK GoK	26,400 15,630 28,471	5,600 3,281 5,694	6,800 3,281 5,694	4,500 3,052 5,697	4,600 3,052 5,697	4,900 2,953 5,700
Development and maintenance of coastline infrastructure	To protect land and property sea wave action and improvement movement into and out of water.	8 jetties constructed and maintained 7500 meters of seawall constructed	MOLHUD / County MOLHUD / County	5 5	GoK GoK	4,800 1,875	500 300	700 350	1,200 375	1,200 400	1,200 450
Improvement of communication in human settlements	To improve accessibility in human settlements especially in areas of difficult terrain	250 footbridges constructed	MOLHUD / County	5	GoK	7,600	1,000	1,200	1,500	1,800	2,100
Regulate practice in the construction industry in Kenya	To operationalize the National Construction Authority.	National Construction Authority operational	NCA Board	5	GoK	10,110	1,900	1,971	1,939	2,030	2,270
Development of missions abroad	Provision of office/residential accommodation in missions abroad	Construction of chanceries, ambassador's residence and staff quarters	MFA&IT/ MOLHUD	5	GoK, PPP	8,900	2,000	3,800	3,100	-	-
Lamu Port South Sudan Ethiopia Transport Corridor (LAPSSET)	To Avail working space to Lamu port authorities, police station, housing ,dispensary	Lamu port management building, Police station ,management housing, dispensary and club house	MOLHUD	5	Go	1,800	900	515	385	-	-
Conduct researches on new buildings Technologies and materials	To gather and document new information on emerging and alternative building technologies and	8 research reports on new buildings technologies and materials	MOLHUD	5	GoK	1	0.2	0.2	0.2	0.2	0.2

Project/ Programme	Objective	Expected output	Impl. Agency	Time frame(yr s)	Source of funds	Indicative Total cost	Indicative budget (Kshs. Millions)			
							2013/14	2014/15	2015/16	2016/17
ENERGY										
j) Increasing Electricity Generation Capacity and Availability										
Thika MSD	Increase power capacity	87MW	IPP	1	Private sector	13,396	13,396			
Triumph Athi River MSD	Increase power capacity	83MW	IPP	1	Private Sector	13,309	13,309			
Gulf Athi River MSD	Increase power capacity	80MW	IPP	1	Private Sector	9,886	9,886			
Kindaruma Upgrade	Increase power capacity	32MW	KenGen		GoK/ Donor	6,745	1,000			
Orpower 4	Increase capacity	36 MW	IPP	1	Private sector	12,264	12,264			
Orpower 4	Increase capacity	16 MW	IPP	2	Private sector	7,008	1,000	6,008		
Ngong Wind I Phase II Project	Increase capacity	6.8MW	KenGen	2	GoK/Ke nGen/B elgium	759	759			
Ngong Wind II Project	Increase capacity	13.6MW	KenGen	2	GoK/Ke nGen/D onor	1,147	1,147			
Lake Turkana Wind	Increase capacity	300 MW	IPP	3	Private sector	73,361	10,000	40,000	23,361	
Olkaria I Refurbishment	Increase power capacity.	45-55 MW	KenGen	4	GoK/ Donor	10,200**	2,550	2,550	2,550	
Olkaria IV and Olkaria 1 Unit 4&5	Increase power supply reliability	280	KenGen	2yrs	GoK/ KenGen /Donors	86,000	24,142	10,346		
Olkaria IV unit 3 & Olkaria 1 unit 6	Increase power capacity	140MW	KenGen	3yrs	GoK/ Donor	19,125**	6,375	6,375	6,375	
Olkaria IV 4&5	Increase power capacity.	240MW	KenGen	3yrs	GoK, Donor	31,875**	10,625	10,625	10,625	
Kinangop Aeolus Wind	Increase capacity	60 MW	IPP	3	Private sector	14,672	2,000	8,000	4,672	
Kipeto Wind	Increase capacity	100 MW	IPP	3	Private sector	24,453	4,000	15,000	5,453	
Prunus Wind	Increase capacity	60 MW	IPP	3	Private sector	14,672	2,000	8,000	4,672	

Project/ Programme	Objective	Expected output	Impl. Agency	Time frames	Source of funds	Indicative budget ('Kshs. Millions')					
						Total cost	2013/14	2014/15	2015/16	2016/17	2017/18
Isiolo Wind Project 1 (phase 1)	Power from renewable energy sources; Increased power capacity	50MW	KenGen	2	GoK, Donor	11,475	5,737.5	5,737.5			
Isiolo Wind project 2(phase 1)	Increase capacity	100 MW	KenGen	3	Kengen	24,453	4,000	15,000	5,453		
Olkaria V(Unit 1&2)	Increased power capacity.	140 MW	KenGen	5	Funding not Confirm ed	31,875**	6,375	6,375	6,375	6,375	6,375
Olkaria II (Unit 4&5)	Increased power capacity.	140 MW	KenGen	5	GoK, Donor	31,875**	6,375	6,375	6,375	6,375	6,375
Eburru Project	Increased power capacity.	25 MW	KenGen	5	GoK, Donor	7,650**	1,650	1,650	1,650	1,650	1,650
Karuru hydro	Increasing power capacity	90 MW	KenGen	5	GoK, Donor	28,032	5,606	5,606	5,606	5,606	5,606
Raising of Masinga dam	Increase water storage capacity		KenGen	2	Funding not Confirm ed	1,314	657	657			
Coal plant at Kilifi	Increased power capacity.	600MW	KenGen	5	Funding not Confirm ed	102,000	20,400	20,400	20,400	20,400	20,400
Wellhead generation through Geothermal	Increased power capacity.	65 MW	KenGen	1	KenGen	9,726	9,726				
Drilling of 80 wells at Olkaria	Support 560 MW geothermal generation	80 Wells	KenGen	5	China Exim Bank	39,600	8,500	8,500	8,500	8,500	5,600
Drilling and steamfield development for 120 wells at Menengai ,phase 1	Support 400 MW geothermal generation	120 wells	GDC	4	GoK/ Donors	61,320	15,330	15,330	15,330	15,330	
Drilling and steamfield development for 210 wells at Menengai ,Phase II	Support 800 MW geothermal generation	210 wells	GDC	5	Not identifie d	156,366	31,273	31,273	31,273	31,273	31,273
Drilling and	Support 800 MW	210 wells	GDC	5	Not	156,366	31,273	31,273	31,273	31,273	31,273

Project/ Programme	Objective	Expected output	Impl. Agency	Time frame (years)	Source of funds identified	Indicative budget ('Kshs. Millions)						
						Total cost	2013/14	2014/15	2015/16	2016/17	2017/18	
steamfield development for 210 wells at Silali - Bogoria Phase I	geothermal generation				identified							
Menengai Phase 1	Increased power capacity.	400MW	GDC	5	GoK, IPPs	105,120	21,024	21,024	21,024	21,024	21,024	21,024
Menengai Phase II	Increased power capacity.	800 MW	GDC	5	GoK, IPPs	210,240	42,048	42,048	42,048	42,048	42,048	42,048
Silali-Bogoria Phase 1	Increased power capacity.	800 MW	GDC	5	GoK, IPPs	210,240	42,048	42,048	42,048	42,048	42,048	42,048
LNG import handling facility	Increased power capacity.	495MW	KenGen	5	GoK, Donor	51,000	10,200	10,200	10,200	10,200	10,200	10,200
Nuclear Power Programme	Increased power capacity.		KNEB	5	GoK, Donor	300						
High Grand Falls multi-purpose project	Increase power capacity	700 MW	MOTIDA	5	GoK, Donor	149,175	21,590	20,400	32,810	35,955	38,420	38,420
Magwagwa Multi-purpose project	Increase power capacity	120 MW	MOTIDA	5	GoK, Donor	74,800	15,000	20,000	20,000	15,000	4,800	4,800
Arror Multi-purpose project	Increase power capacity	60 MW	MOTIDA	5	GoK, Donor	24,000	4,000	6,000	6,000	4,000	4,000	4,000
Nandi Forest Multi-purpose project	Increase power capacity	50 MW	MOTIDA	5	GoK, Donor	50,000	10,000	10,000	10,000	10,000	10,000	10,000
ij) Increasing Electricity Access												
Rabat-Malindi-Garsen-Lamu transmission line	Power System strengthening	328km of 220kV Line, 3 No. 23 MVA sub-stations 328km 220kV Line, 3 No. 23 MVA sub-stations	KETRACO	1	China Exim Bank &GoK	1,200	1,200					
Mombasa-Nairobi transmission line	Power System strengthening	482km of 400/220kV double circuit line. Substation works at Rabai and Embakasi	KETRACO	1	EIB; AfDB; AFD &GoK	3,500	3,500					
Nairobi Ring transmission line	Power System strengthening in Nairobi Metropolitan region	100km of 400kV Suswa-Isinya double circuit transmission line and 40 km 220kV Suswa-Ngong line and substations at Suswa, Isinya, Athi River, Ngong and Koma Rock and extension of Dandora substation	KETRACO	2	AFD, EIB &GoK	16,900	10,140	6,760				

Project/ Programme	Objective	Expected output	Impl. Agency	Time frame(y rs)	Source of funds	Indicative budget (Kshs. Millions)					
						Total cost	2013/14	2014/15	2015/16	2016/17	2017/18
Olkaria-Lessos- Kisumu transmission line.	Power System strengthening and improve power flow to western Kenya.	200km of 400 kV Olkaria - Lessos& 100km of 220kV Lessos - Kisumu double circuit Transmission Line	KETRAC O	3	JICA &GoK	14,400	5,760	5,760	2,880		
Lessos-Tororo transmission line.	Connect Kenya and Uganda and the great lakes region countries and facilitate regional power trade.	127km of 400 kV double Circuit & upgrading Lessos S/Stn and 2x75MVA transformers at Lessos	KETRAC O	2	AfDB&G oK	4,900	3,430	1,470			
Ethiopia-Kenya transmission line.	Connect Kenya and Ethiopia to facilitate regional trade	612km 500kV HVDC bipolar, 400kV/220kV substation).	KETRAC O	4	AfDB, AFD, World Bank &GoK	65,000	13,000	26,000	19,500	6,500	
Loyangalani – Suswa line.	Evacuate power from Lake Turkana Wind Power plant.	430 km 400kV double circuit line. Loyangalani 400kV and Suswa 400/220Kv substations.	KETRAC O	3	Spanish Govt., GoK	17,600	7,040	7,040	3,520		
Kindaruma- Mwingi- Garissa Line	To reduce system losses, increase grid coverage and improve terminal flow	250km 132kV line and 2 No. 23MVA substations.	KETRAC O	2	GoK & World Bank.	3,400	2,380	1,020			
Eldoret – Kitale Line	To reduce system losses, increase grid coverage and improve terminal flow	60km 132kV line and a 23 MVA substation at Kitale.	KETRAC O	2	GoK & World Bank.	1,400	970	430			
Kisii- Awendo Line	To reduce system losses, increase grid coverage and improve terminal flow	44km 132 kV line and a 23 MVA substation at Kitale.	KETRAC O	2	GoK & World Bank.	1,200	830	370			
Meru-Isiolo- Nanyuki line.	Improve power supply quality, meet demand growth, and increase reliability of power thus increasing access rate.	96 km 132kV single circuit line, 132/33kV and a 23 MVA substation.	KETRAC O	2	GoK/ KCB Bank Belgium	2,500	1,760	740			
Sondu- Homa Bay- Ndhwa-Awendo	Improve access and connectivity	100km 132kV single circuit line, a 23 MVA substation at Homa Bay and a 15 MVA substation	KETRAC O	2	GoK/ Belgium	2,400	1,680	720			

Project/ Programme	Objective	Expected output	Impl. Agency	Time frame (years)	Source of funds	Indicative budget ('Kshs. Millions')					
						Total cost	2013/14	2014/15	2015/16	2016/17	2017/18
Kenya –Tanzania line between Isinya and Namanga.	Connect Kenya to Southern African power pool and integration of regional power market in NELSAP countries.	100km 400kV double circuit line between Isinya and Namanga at Ndhiwa.	KETRAC O	3	GoK and possibly AIDB.	4,600	1,840	1,840	920		
Menengai – Nakuru West (Rongai) line.	Evacuation of Menengai phase 1 generation.	20km 400kV double circuit line and substations at Menengai and Rongai.	KETRAC O	2	GoK and possibly World Bank.	1,500	800	800	700		
Isinya- Konza line.	Provide supply to Konza Techno city	36km 400kV (Feasibility studies to confirm)	KETRAC O	2	GoK and Develop ment partners	4,250	2000	2000	2250		
Olkaria I&IV Suswa line.	Evacuate power, reduce system losses, increase grid coverage and improve terminal flow.	2 No. 25km 220kV Double circuit line and substation at Olkaria.	KETRAC O through KENGEN	2	JICA, EIB, AFD, WorldB ank, GoK.	1,100	750	350			
Turkwell-Ortum- Kitale line.	Improve access and connectivity	90 km 220kV single circuit line and 1 No. 7.5 MVA substation at Ortum and alternative of connecting Ortum from 220kV Turkwell line.	KETRAC O	2	Inclia Exim Bank & GoK	3,100	1,550	1,550			
Garsen- HOLA- Garissa line.	To support Lamu- Ethiopia- South Sudan railway and increase access through reinforcement of distribution network	240km 220kV single circuit line or 132kV single circuit line and 1 No. 7.5 MVA substation at HOLA.	KETRAC O	3	GoK and Develop ment partners	7,000	1,300	1,300	2,800	2,900	
Garissa- Wajir line.	Improve access and connectivity through reinforcement of distribution network	330km 220kV single circuit line and 1 No. 23MVA substation at Wajir.	KETRAC O	3	GoK and Develop ment partners	9,500	1,950	1,950	3,900	3,650	
Nyahuru- Maralal	Improve access and	148km 132kV single	KETRAC	2	GoK	2,600	780	780	1,820		

Project/ Programme	Objective	Expected output	Impl. Agency	Time frame (years)	Source of funds	Indicative budget ('Kshs. Millions)					
						Total cost	2013/14	2014/15	2015/16	2016/17	2017/18
	connectivity through reinforcement of distribution network	circuit line and 1 No. 7.5 MVA substation at Maralal.	O		and Development partners						
Voi-Taveta line.	Increased and reliable power supply thereby contribute towards increasing the number of new connections.	107km, 132kV single circuit line with a substation at Taveta.	KETRAC O	2	GoK and Development partners	1,900	1,000	900			
Rabai –Bamburi – Shanzu –Mtwapu – Kilifi line.	Replacement of existing wooden pole line.	60km 132kV double circuit line with associated substations.	KETRAC O	2	Spain Govt and GoK.	1,700	800	900			
New customers connected.	Enhanced power connectivity.	1million new customers connected.	KPLC/REA	5	GOK/K PLC/Various Donors/consumers.	50,000	10,000	10,000	10,000		10,000
Energy Sector Recovery Project (ESRP) Group scheme And Contract 1,2,3 and 4	To reduce system losses, increase grid coverage	Distribution network upgrade.	KPLC	1	KPLC, IDA, various donors and consumers.	221	221				
Kenya Electricity Expansion Project (KEEP)	Improve power supply quality, meet demand growth, and increase reliability of power and increase access rate.	New distribution and powerline.	KPLC	2	KPLC, IDA and consumers.	4,813	3,369	1,444			
Sagana- Kutus (Embu) Line.	Enhance supply capacity, improve quality, and reduce losses.	22km 132kv double circuit line.	KPLC	1	KPLC	1,048	1,048				
Nanyuki –	Increased and	79km 132kV single	KETRAC	2	GoK,	1,560	760	800			

Project/ Programme	Objective	Expected output	Impl. Agency	Time frame (rs)	Source of funds	Indicative budget ('Kshs. Millions')					
						Total cost	2013/14	2014/15	2015/16	2016/17	2017/18
Nyahururu line.	reliable power supply thereby contributes towards increasing the number of new connections.	circuit Line. 132/33kV 2x15MVA & 7.5MVA substations at Nyahururu	O		AfDB						
Lessos- Kabarnet line.	Increased and reliable power supplies thereby contributing towards increasing the number of new connections.	65km 132kV single circuit Line. 132/33kV 2x15MVA & 7.5MVA substations at Kabarnet respectively	KETRAC O	2	GoK, AfDB	1,360	640	720			
Olkaria –Narok line.	Increased and reliable power supplies thereby contributing towards increasing the number of new connections.	68km 132kv Line and 1no. Substation 23MVA sub-station	KETRAC O	2	GoK, AfDB	1,100	660	440			
Bomet –Sotik line	Increased and reliable power supplies thereby contributing towards increasing the number of new connections.	33km, 132kv Line and 1no.23MVA substation	KETRAC O	2	GoK, AfDB	540	320	220			
Mwingi- Kitui- Sultan Hamud- Wote line.	Increased and reliable power supplies thereby contributing towards increasing the number of new connections.	153km 132kV single circuit Line. 4no. 132/33kV, 5MVA substations at Mwingi, Kitui, Wote, & Sultan Hamud	KETRAC O	2	GoK, AfDB	3,000	1,500	1,500			
Suswa 400 kV Substation	Integration of Turkana Wind and Ethiopia imports.	400 kV Substation	KETRAC O	3	GoK, AfDB, EIB	1,850	680	590	580		
Ishara –Kieni- Embu line.	Increased and reliable power supplies thereby contributing towards increasing the number of new	33 km 132kV single circuit line and 1 No. 23MVA substation.	KETRAC O	2	GoK, AfDB	540	320	220			

Project/ Programme	Objective	Expected output	Impl. Agency	Time frame (rs)	Source of funds	Indicative budget ('Kshs. Millions)					
						Total cost	2013/14	2014/15	2015/16	2016/17	2017/18
Machakos-Konza – Kajiado –Magadi – Namanga transmission line	connections. Increased and reliable power supply thereby contribute towards increasing the number of new connections	155km 132kV single circuit Line and 3 No. 23MVA Sub-stations at Machakos, Kajiado&Namanga	KETRAC O	2	India Exim Bank and GoK	3,200	2,230	970			
Awendo- Migori- Isabania	Improve access and connectivity	50km 132kV single circuit Line and 23MVA Sub-stations at Isabania	KETRAC O	2	GoK and Development Partners	1,800		500	1,300		
Meru- Maua	Improve access and connectivity through reinforcement of distribution network	50km 132kV Line and 1 No. 7.5MVA Sub-station at Maua	KETRAC O	2	GoK and Development Partners	1,300		400	900		
Galuu-LunguLunga line	Improve access and connectivity through reinforcement of distribution network	60km 132kV single circuit Line and 23MVA Sub-stations at LunguLunga	KETRAC O	2	GoK and Development Partners	1,400		400	1000		
Chogoria-Ishara	Improve access and connectivity through reinforcement of distribution network	40km 132kV single circuit Line and 1 No. 15MVA Sub-station at Chogoria	KETRAC O	2	GoK and Development Partners	1,300		600	700		
Kisumu- Isabania line (that will connect Mwanza)	Part of Lake Victoria Ring to stabilize the network in the region	200KM 220kV double circuit line	KETRAC O	3	GoK and Development Partners	10,200			2,100	4,050	4,050
Narok-Bomet line	Increased and reliable power supply thereby contribute towards increasing the number of new connections.	88KM 132kV single circuit line	KETRAC O	2	GoK and Development Partners	1,300			700	600	
Sondu-Kisii line	Increased and reliable power supply thereby contributes	45KM 132kV single circuit line	KETRAC O	2	GoK and Development Partners	1,000			500	500	

Project/ Programme	Objective	Expected output	Impl. Agency	Time frame (years)	Source of funds	Indicative budget ('Kshs. Millions')					
						Total cost	2013/14	2014/15	2015/16	2016/17	2017/18
	towards increasing the number of new connections.				ment Partners						
Kisumu-Rang'aita line	Increased and reliable power supply thereby contributes towards increasing the number of new connections.	63km 132kV single circuit line.	KETRAC O	2	GoK and Development Partners	1,200			600		600
Nyahururu-Kabarnet line	Increased and reliable power supply thereby contributes towards increasing the number of new connections.	90km 132kV single circuit line.	KETRAC O	2	GoK and Development Partners	1,500		800	700		
Suswa –Nairobi North- Thika road line upgrading	Improve supply to Nairobi.	Completed lines	KETRAC O	2	AFD, EIB &GoK.	2,088		1,460	628		
Athi River and Thika road reactive compensation	Improve supply quality to Nairobi.	170MVAR	KETRAC O	2	World Bank	512		307	205		
Mombasa Coal plant –Mariakani line.	Evacuation of Mombasa coal plant	100km 400kV double circuit line.	KETRAC O	3	Funding not yet confirmed	5,040		500	2,520	2,020	
iii) Security of Fossil Fuel Resources											
Development of the Mombasa Petroleum Trading Hub	Increased up stream petroleum services.	Increased oil and gas exploration and exploitation.	MOEP through NOCK.	5	PPP and GoK.	52,500	10,500	10,500	10,500	10,500	10,500
Construction of new Mombasa – Nairobi New Oil Pipeline	Supply reliability and safety.	Modernized pipeline.	KPC	3	KPC	30,000	10,000	10,000	8,686		
Construction of a parallel Oil Pipeline from Sinendet to Kisumu	Supply reliability and Safety	Completed Pipeline	KPC	2	GoK	5,556	1,500	2,028	2,028		
Nairobi LPG Storage, Bottling	Promote usage of LPG.	Enhanced LPG accessibility and	KPC	3	KPC and	1,500	500	500	500		

Project/ Programme	Objective	Expected output	Impl. Agency	Time frame (years)	Source of funds	Indicative budget ('Kshs. Millions')					
						Total cost	2013/14	2014/15	2015/16	2016/17	2017/18
and Distribution Facilities:		reduced cost.			Private Investor						
Kenya – Uganda Oil Pipeline Project	Supply reliability and safety.	Modernized pipeline.	GOK	3	GoK/ Donor	30,000	10,000	10,000	10,000		
Construction of additional storage tanks		Additional Tanks	KPC	5	GoK/ Donor	2,338	240	524	524	524	526
Installation of a third pump in the Mombasa – Nairobi oil pipeline	To improve efficiency of the line	Installation of pumps	KPC	3	GoK	1,700	500	600	600		
Expansion of truck loading facilities at Eldoret Depot	To improve efficiency at Eldoret Depot.	Expanded truck loading facilities	KPC	1	GoK	351	351				
Installation of integrated security system	To improve security within KPC facilities	Improved security	KPC	1	GoK	368	368				
Expansion of NOCK Market share	Expansion of retail network	-20 additional retail stations per year -15% market share by 2018.	NOCK	5	NOCK	5,250	1,050	1,050	1,050	1,050	1,050
Procurement of National Strategic Stocks of petroleum products	Stabilized oil industry	1.5 million barrels of bulk petroleum products	GoK, NOCK, KPC.	5	GoK	14,000	2,800	2,800	2,800	2,800	2,800
Oil Exploration and exploitation.	Discover and exploit oil and gas reserves.	-exploitation of oil from explored wells. -10 exploration wells drilled.	MOEP, IOCs.	5	IOCs, MOEP.	255,000	51,000	51,000	51,000	51,000	51,000
LAPSSET Oil pipelines and Port facilities	To increase capacity	Crude oil and refined Oil pipeline, Oil Refinery, Lamu Oil Terminal and port facilities and Extension of the existing Mombasa-Nairobi pipeline to Lamu.	LAPSSE T Authority / MoTI/MO EP	5	GoK/ PPP	900,000	100,000	200,000	200,000	200,000	200,000
iv) Development of New and Renewable Sources of Energy											
Solar Energy Development	Enhance access to renewable energy by institutions and	500 institutions connected with solar energy	MOEP/R EA	5	GoK, REA	2,500	500	500	500	500	500

Project/ Programme	Objective	Expected output	Impl. Agency	Time frame (years)	Source of funds	Indicative budget ('Kshs. Millions')					
						Total cost	2013/14	2014/15	2015/16	2016/17	2017/18
Wind Energy Development	households far from the main grid Wind energy – Promote its development and utilization	Development of wind atlas country wide and conduct 5 feasibility studies to facilitate private investment	MOEP	5	GoK, Private Investors	490.8	80	88	96.8	104	122
Small hydro Power Plants	Small hydro power- Promote development and utilization. -access modern energy	-Develop national hydropower atlas. -facilitate development of 20 MW from hydro power based projects. -facilitate 10 community projects	MOEP	5	GoK, Private Investors	4,900	980	980	980	980	980
Co-generation projects (wind and solar hybrid generators)	Increase penetration of renewable energy in isolated mini-grids	Facilitating installation of 20 wind, solar hybrid generators in isolated mini-grids	MOEP/REA	5	GoK, Private Investors	3,358	550	605	666	732	805
Biogas resources development	Promote utilization of biogas as a renewable energy resource	Facilitating construction of 10 institutional biogas plants.	MOEP	5	GoK	67.1	11	12.1	13.3	14.6	16.1
Biogas resources development		Facilitate construction of 250 domestic household biogas digesters	MOEP	5	GoK, NGOs, Households	328	60	62	64	72	76
Construction of new energy centers and rehabilitation of the existing ones	Promote development and use of biomass resources	5 new energy centers and rehabilitation of 13 existing ones	MOEP	5	GoK	780	160	125	150	165	180
Re-Afforestation of water towers	To increase the water flow to the hydro power plants across the country.	Re-afforestation of 1,000 ha of water towers	MOEP	5	KFS, MOEP, Forest Association and private sector	500	100	100	100	100	100
Promotion of improved cooking stoves	To reduce wood fuel use	Facilitate provision of 200 institutional improved cooking stoves and 50 sustainable charcoal kilns.	MOEP, Institutions and Households	5	MOEP, Institutions and Households	210	42	42	42	42	42

Project/ Programme	Objective	Expected output	Impl. Agency	Time frame (years)	Source of funds	Indicative budget ('Kshs. Millions')					
						Total cost	2013/14	2014/15	2015/16	2016/17	2017/18
Sustainable wood fuel production at county level	Attain sustainable supply of wood fuel in counties	1 community woodlot per county in 5 counties.	MOEP, County government, KFS, Community Forestry Association	5	GoK	50	10	10	10	10	10
Energy Audits	Investment Grade Audits to Promote rational use of energy.	Undertake 40 investment Grade Audits, 16 General Audits to reduce Energy consumption by 10-30%	MOEP, KAM	5	GoK, Manufacturers/Industries, Households	150	30	30	30	30	30
An updated renewable energy database	Documentation of all renewable energy activities and database development.	An updated renewable energy database	GOK	5	GoK/Donors	110.5	77	8	8.5	9	9
Biofuel Value Chain Development	Alternative energy sources	Value chain for biethanol production and feedstock for biodiesel developed.	GOK	5	GoK/Donors	215	5	5	100	100	100

