



KENYA NATIONAL ENERGY EFFICIENCY AND CONSERVATION STRATEGY (KNEECS)

VIRTUAL LAUNCH OF THE STRATEGY

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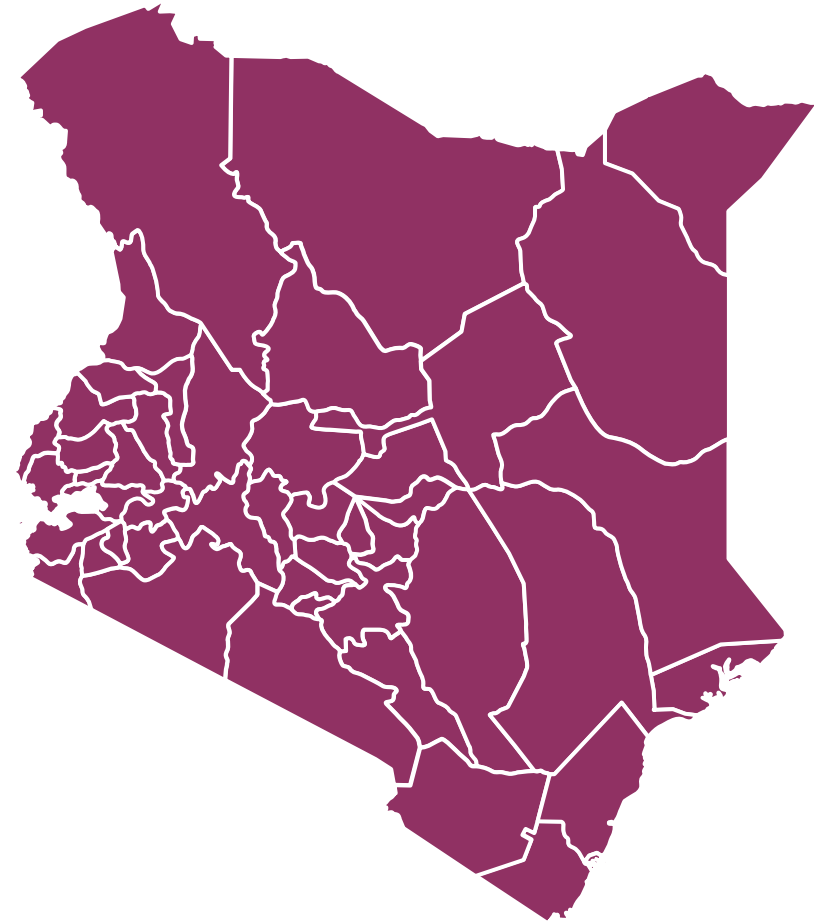


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1. ABOUT KENYA

- ❑ Population of 46.7 million (2019).
- ❑ GDP of US\$70 billion.
- ❑ GDP per capita of US\$1,750.
- ❑ 6% annual economic growth rate.
- ❑ Economic activities: agriculture, energy and extractives, forestry, tourism.
- ❑ 47 counties.

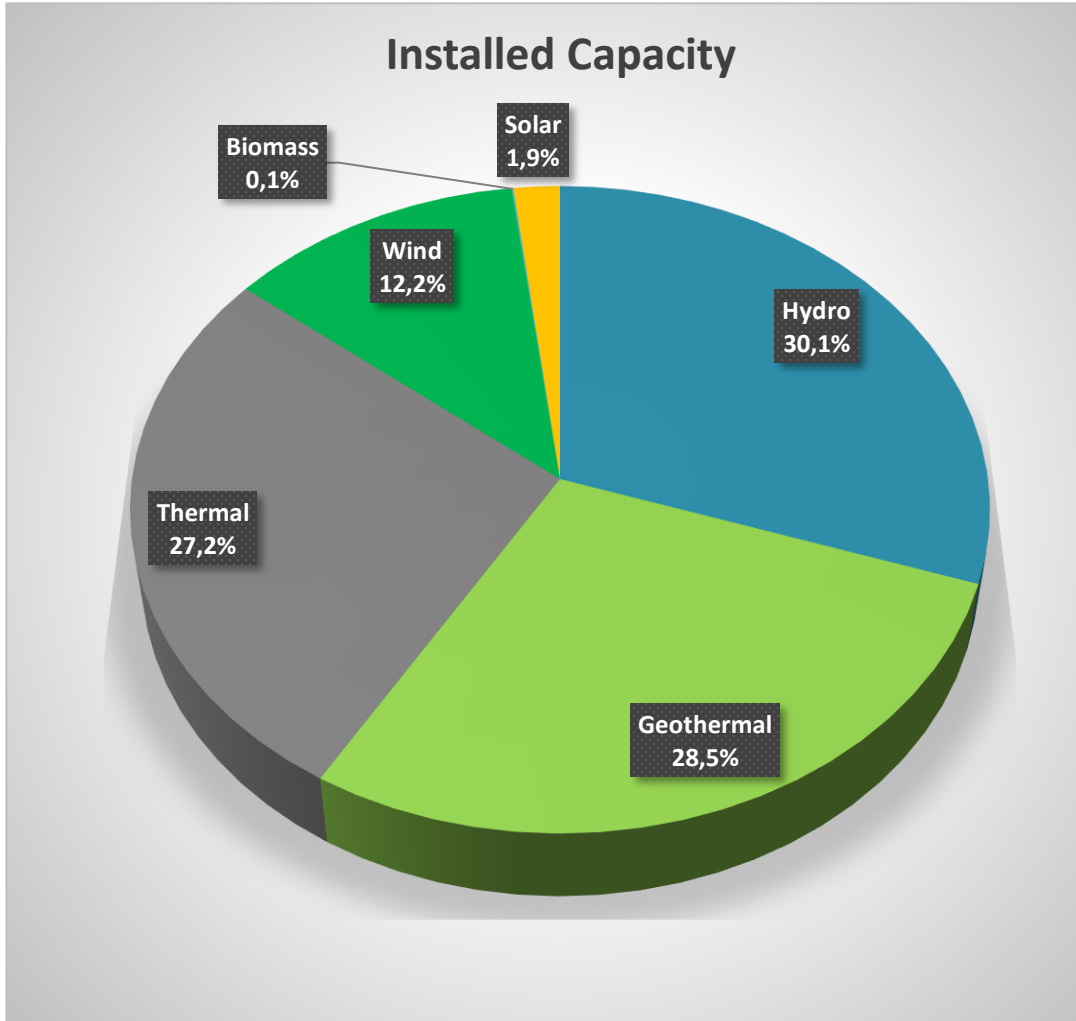


ENERGY FOR COOKING

| Primary Cooking Fuel | Percentage of Households |
|-------------------------------|--------------------------|
| Wood | 55.1% |
| Liquified Petroleum Gas (LPG) | 23.9% |
| Charcoal | 11.6% |
| Paraffin | 7.8% |
| Biogas | 5% |
| Electricity | 0.9% |
| Solar | 0.2% |

3. ELECTRICITY GENERATION BY SOURCE

- Electricity accounts for only 4% of the primary energy consumed in Kenya.
- Installed on-grid capacity is 2,721 MW across 55 plants
- 51 off-grid stations account for an additional 31.5 MW
- About 8% of annual electricity generation comes from fossil fuels.
- Government is implementing a gradual phase-out of expensive diesel generation to provide cheaper, cleaner energy.



4. NATIONAL POLICY AND LEGISLATION

| Category | National framework | Aims and Objectives |
|---------------------------------------|--|--|
| High-level policy and strategy | The Constitution of Kenya (2010) | Article 203(2) gives county governments considerable influence on investments in energy efficiency actions. |
| | Kenya Vision 2030 (2008) | Improve competitiveness in manufacturing and promoting efficiencies. |
| | Big Four Agenda (2017) | Enhances Ministry's focus on the realization of improved energy access, energy efficiency and conservation. |
| Climate change-related | Climate Change Act (2016) | Enhances energy conservation and efficiency and the use of renewable energy among end-users, industrial, commercial, transport and domestic users and puts in place measures for climate change mitigation. |
| Energy-related | The Energy Act (2019) | <ul style="list-style-type: none"> • Coordinate the development and implementation of national energy efficiency and conservation programmes. • Consolidate regulations and empower the Minister responsible for energy to promote energy efficiency policies and actions. |
| | Energy (Appliances' Energy Performance and Labelling) Regulations (2016) | Specified appliances manufactured or imported in Kenya shall be tested for energy performance in an accredited laboratory, get registered with the EPRA, and be affixed with appropriate energy star label. |
| | Energy (Energy Management) Regulations (2012) | Energy consumers exceeding 180,000 kWh per year should carry out energy audits |
| | Kenya National Electrification Strategy (2018) | Achieve universal access to electricity by 2022 through grid and off-grid electrification options |
| | Energy Management standards (2018) | Kenya Bureau of Standards (KEBS), to cover energy management systems, energy auditing and energy efficiency performance measurement & verifications |

5. HISTORY OF ENERGY EFFICIENCY & CONSERVATION IN KENYA

- Ministry of Energy (MOE) and Kenya Association of Manufacturers (KAM) signed Agency Agreement in 2006.
- The agreement established the Centre for Energy Efficiency and Conservation (CEEC)
- The CEEC has accrued benefits including:
 - Increased public awareness on Energy Efficiency
 - Over KES 13 billion (USD 152.8 Million) of energy cost saving, equivalent to 2014.8 GWh in Industry and Agriculture sector only
- Acknowledgement of need to increase actions in energy efficiency to further increase savings and reduce greenhouse gas (GHG) emissions.

6. RATIONALE FOR ENERGY EFFICIENCY & CONSERVATION STRATEGY

- High energy prices are forcing consumers to consider measures to lower their energy costs.
- Use of highly polluting fuels has rising adverse environmental and health impacts, and GHG emissions.
- Supply and Demand mismatch of some energy sources requires measures to efficiently utilize available resources.
- High level of awareness by governments and the international community is informing the international energy efficiency and conservation agenda.
- Decreasing costs of appropriate technologies.

7. THE STRATEGY FORMULATION PROCESS



- Spearheaded by MOE
- Energy sector situational analysis
- Selection of key sectors and further analysis
- Led by Technical Committee (TC) and supported by technical contributors



Zero draft

- Key stakeholder consultations on findings, targets & recommended actions
- National and county governments, private sector, the public
- 5 Regional workshops
- Review by TC & experts



First to Final Draft

- Iterative review
- Editing, design and print
- Validation exercises

Implemented by Ministry of Energy with support from Copenhagen Centre on Energy Efficiency (UNEP DTU), Kenya Association of Manufacturers (KAM), World Bank and World Bank's Energy Sector Management Assistance Program

8. OBJECTIVES OF THE STRATEGY

Goals

- i. Reducing the national energy intensity by 2.8% per year.
- ii. Achieve a 30 per cent emission reduction in GHG by 2030 relative to Business as Usual (143 MtCO₂e) and hit national targets for Sustainable Development Goal 7 (Affordable and Clean Energy) by 2030.

Key Thematic Sectors

- i. Households
- ii. Buildings
- iii. Industry & Agriculture
- iv. Transport
- v. Power Utilities

These are aligned to the Big Four Agenda:

- Food security,
- Affordable housing
- Manufacturing
- Affordable healthcare for all

Implementation Arrangements

- Multi-sectoral, including national and county governments, state and non-state actors, the private sector and the public.
- Led by Ministry of Energy which will coordinate all the programs.
- Regulatory role by Energy and Petroleum Regulatory Authority (EPRA).

9.1 HOUSEHOLD SECTOR

Baseline

Actions

- Kenya's has about 12 million households.
- 59% use the Three Stone Open Fire (TSOP) stove.
- Almost 70% depend on wood, charcoal and paraffin as the primary cooking fuel
- Minimum Energy Performance Standards (MEPS) covers six electrical appliances.

1. Improve energy efficiency of household energy-using appliances.
2. Improve energy efficiency of household thermal energy.

9.2 BUILDING SECTOR

Baseline

- Building stock of 37m m² (30m m² residential, 1.5m m² office & retail and 5.5m m² commercial).
- Forecasted to reach 47m m² by 2025.
- Most modern buildings are not designed or built to adapt to local climate.
- Building materials, mostly imported, have a huge carbon footprint.
- Residential housing deficit of 2m units nationally.

Actions

1. Enhance energy performance of new buildings.
2. Improve energy performance of existing buildings through retrofits.

**Building growth trends are based on Nairobi (the Capital)*

9.3 INDUSTRY & AGRICULTURE SECTOR

Baseline

- Manufacturing contributed 7.7% of GDP in 2019, while Agriculture contributed 34.1%.
- High energy costs, regional competition & increased globalization affect business competitiveness, energy security and industry expansion.
- Commercial and Industrial electricity consumption is increasing
- Utilization of solar energy is increasing productive use of energy for agriculture.

Actions

1. Increase adoption of EE programmes
2. Improve acceptance of energy audits (EA) and implementation of EA recommendations
3. Enhance EPRA and CEEC activities
4. Promote the use of efficient off-grid
Productive Use of Energy

9.4 TRANSPORT SECTOR

Baseline

- Contributed 8% to GDP in 2019.
- Consumes 72% of imported petroleum products
- Transport needs increase significantly annually
 - Railway freight by 300%
 - Cargo handled at port by 0.6m tonnes
 - # of air passengers by 1.7m
 - Commercial by 0.7m tonnes.
- There are 2m vehicles, 98% use petrol & diesel.
- There were 1.5 m petrol motorcycles as of June 2018

Actions

1. Improve fuel economy performance of vehicles in Kenya.
2. Increase adoption of E-Mobility.
3. Improve urban vehicular management.
4. Enhance public modes of transport.

9.5 POWER UTILITIES SECTOR

Baseline

- 98.6% of electricity supplied is produced locally, 92% is from renewable sources.
- There are over 7.6m customers, having increased from 3.6m in 2015.
- National electricity access rate is 77.7%; 90.8 % in urban and 56.3 % in rural areas
- 7,174 km of primary transmission lines of 132 kV and above.

Actions

1. Create and implement models for utility-financed EE implementation.
2. Improve efficiency of energy supply system delivery infrastructure & reduce commercial losses.
3. Improve grid stability (ancillary services, adopt modern energy storage for system stabilization and deploy distributed generation).

OTHER CROSSCUTTING ACTIONS

- Strengthen institutions responsible for EE in Kenya
- Enhance EE Professional Competence
- Mainstream EE in the Kenyan education system
- Increase financing opportunities for EE
- Enhance gender mainstreaming in EE activities
- Scale-up cooperation and linkages between MoE and academia/industry on EE

10. Measurable Targets of The Strategy by Sector

| | |
|-----------------------------------|--|
| Households | <ul style="list-style-type: none"> • Increase number of the 6 Minimum Energy Performance Standard (MEPS) - covering motors, air conditioners, fridges, CFLs, magnetic ballasts, and fluorescent lamps - to 10 by adding MEPS for LEDs, Computers, TVs, and Cookstoves. • Reduce the number of households using biomass fuel from 70% to 50% of households. |
| Buildings | <ul style="list-style-type: none"> • Develop and gazette 1 MEPS for buildings, • Ensure at least 10% share of newly built floor area is compliant with energy efficiency requirements in the total building stock • Improve the energy efficiency of lighting in existing public buildings by 50%, • Ensure 25% of buildings under affordable housing are green buildings. |
| Industry & Agriculture | <ul style="list-style-type: none"> • Increase the reach of successful industrial energy efficiency programmes to cover 4000 facilities from the current 1800 • Increase number of certified energy efficiency professionals from the current 70 licensed EE professionals to 120, • Increase annual savings from the current estimated annual savings level from programmes: 177,000 MWh/20MW demand/51m litres heavy fuel oil/1.8m litres industrial fuel oil to 885,000 MWh/100MW demand/250m litres heavy fuel oil/9.0m litres industrial fuel oil, • At least 5 ESCOs created and undertaking EE projects, • 5 number of demonstration projects for EE in Productive Use of Energy activities in agricultural value chain in off-grid areas. Target projects include pumping water systems, cold chains, grain milling. |
| Transport | <ul style="list-style-type: none"> • Enhance public modes of transport to increase number of passengers using commuter trains in Nairobi City by over 30,000 daily, • Improve urban vehicular management enhanced speed of vehicles in urban areas from 41 to 50 m/Hr through reduced traffic jams and increased parking capacity |
| Power Utilities | <ul style="list-style-type: none"> • Increase Energy efficiency project investments by Kenyan power utilities to over Ksh 5 billion, • Improve the efficiency of the energy supply system and delivery infrastructure to reduce Technical and Commercial losses from 23 % to 15%, • Study on ancillary service requirements, energy storage requirement and energy generation distribution. |

11. RESOURCE MOBILIZATION FOR THE STRATEGY

- Successful implementation of the strategy requires substantial financial resources.
- Key stakeholders are required to mobilize adequate resources to finance their relevant programmes/projects.
- The strategy will be financed through the national government, county governments, other devolved funds, development partners, public-private partnerships and non-governmental partners, Private sector, among others



THANK YOU!
