Kenya

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Kenya has been conducting long-term planning to consider our clean energy mix for the future. The country currently generates over 70% of its electricity from renewables and looks forward to 100% non-emitting electricity generation This will enable the country to meet economic growth potential and non-emitting energy needs.

Table 1. Key Energy Metrics for Kenya

National Clean Energy goal (All numbers in 2018 values)	100% of electricity generation from non-emitting electricity by 2030
Total Primary Energy Consumption	10.012 Mtoe
Electricity Consumption	11.5 TWh
Total CO2 Emissions	96 million tons
Renewables Generation	10.196 GWh
Renewables Energy Percent of Electricity Generation	73.48%
Nuclear Energy Policy	Deployment of first nuclear power plant by 2036 as NOAK. SMR is also being considered

As of December 2019, the interconnected system in Kenya had a total installed generation capacity of 2,789 MW, comprising 826.2 MW of hydroelectric power, 720.3 MW of thermal, 828.4 MW of geothermal, 335.5 MW of wind, 50.3 MW of solar, and 28 MW from cogeneration. There is also 30.17MW in isolated mini grids bringing the total installed capacity to 2,819 MW. The percentage of the installed capacity is shown in Figure 1.

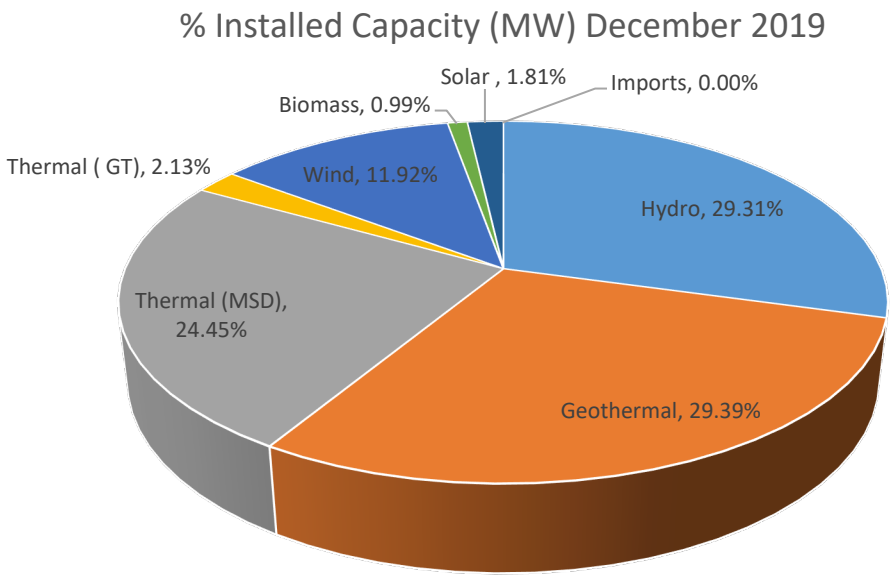

Figure 1. Installed capacity by technology share 2019

Source: Kenya Power annual accounts. Used with permission.

Energy purchased increased to 11,493 GWh in Fiscal Year 2018/19 from 10,702 GWh in the previous financial year. Actual sales increased by 4% from 8,459 GWh in FY 2017/18 to 8,769GWh in Fiscal Year 2018/19, as can be seen in Figure 2.

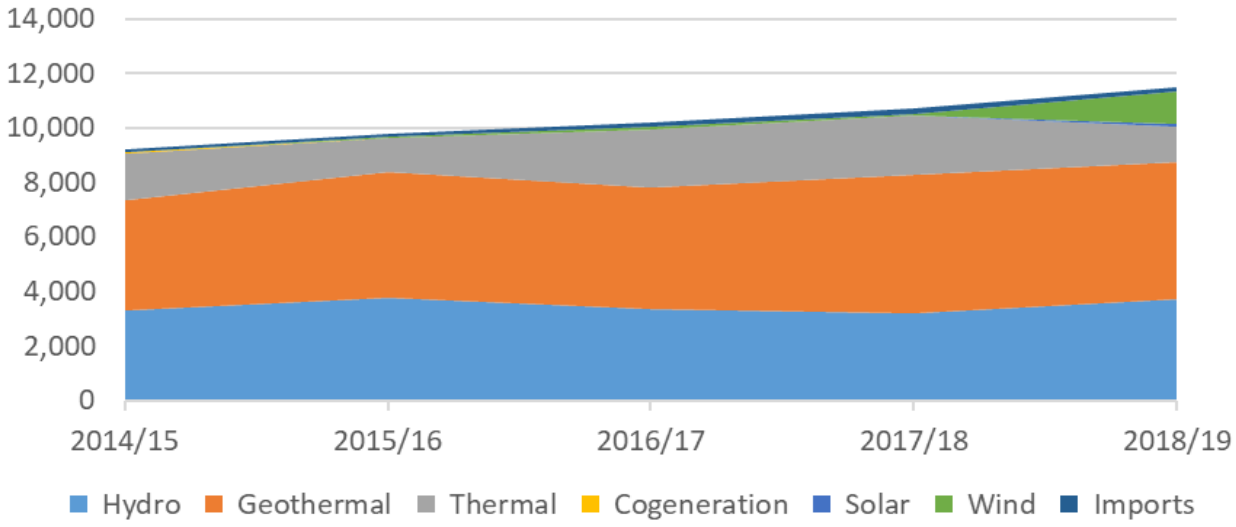

Figure 2. Energy purchased in GWh from 2014 to 2019

Source: Kenya Power annual accounts. Used with permissions.

Kenya is also considering the potential role of nuclear power in the future energy mix. The country is following the IAEA guidelines laid out in the milestones in the development of a national infrastructure for nuclear power, NG-G-3.1, rev. 1. As Kenya embarks on the nuclear power program, extensive national stakeholder engagements were undertaken in the establishment of a robust regulatory framework, which will regulate the application of nuclear science and technology in the country. Furthermore, Kenya has undertaken various technical studies, including siting, reactor technology assessment, and grid evaluation. In ensuring a competent and skilled workforce, Kenya has endeavored to establish local and international capacity building initiatives.

Following the Enactment of the Energy Act 2019, the Nuclear Power and Energy Agency, which is a parastatal under the Ministry of Energy, is mandated to be the implementing organization for the nuclear energy program. The Nuclear Power and Energy Agency will also promote the development of nuclear electricity generation in Kenya and will carry out research, development, and dissemination activities in the energy and nuclear power sector.

To holistically integrate the various energy sources, The Nuclear Power and Energy Agency and the Ministry of Energy are considering long-term economic and other modeling projections and scenarios. Current analysis shows that Kenya has abundant sources of renewable energy, including geothermal, solar, and wind.

Kenya welcomes this opportunity to share information with this global expert working group to more fully understand opportunities and roles for flexible nuclear systems to work in tandem with renewables, leveraging electric and nonelectric applications, to bring various benefits to society, such as desalination and process heat for industrial processes.