

EAST AFRICA

Kenya

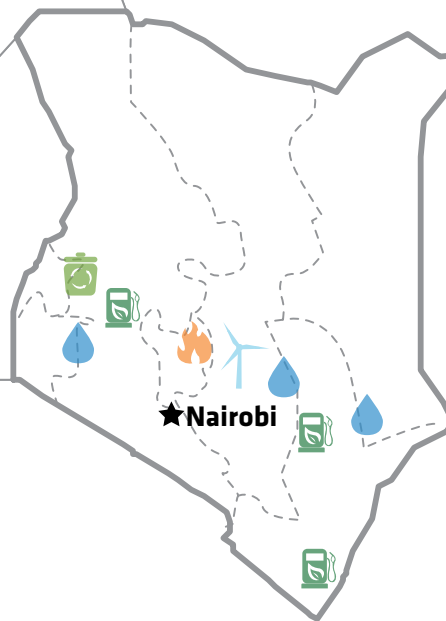
GDP: **\$44.1bn**
 Five-year economic growth rate: **8%**
 Population: **44.4m**
 Total clean energy investments, 2006-2013: **\$4.7m**
 Installed power capacity: **1.8GW**
 Renewable share: **22.4%**
 Total clean energy generation: **2,323GWh**
 Top energy authority: **Energy Regulatory Commission**

OVERALL RANKING
2014

7

OVERALL SCORE
2014

1.73



PARAMETER	RANKING	SCORE
I. Enabling Framework	04	1.57
II. Clean Energy Investment & Climate Financing	10	0.96
III. Low-Carbon Business & Clean Energy Value Chains	07	3.67
IV. Greenhouse Gas Management Activities	15	1.74

SUMMARY

Kenya secured seventh position globally and second in Africa, with a score of 1.73. Its best performance was on Clean Energy Enabling Framework Parameter I, largely due to its solid policy framework. It also received recognition for its strong clean energy value chains.

The country has the largest economy in East Africa, though its regional peers are catching up. The agricultural sector still accounts for the largest share of GDP but Kenya has seen significant growth in services as well. Clean energy investment last year amounted to \$481m, bringing its total for 2006-13 to \$4.7bn. Of that, 85% went to geothermal, its flagship renewables sector.

Kenya's partly liberalized power sector relies almost entirely on large hydro, oil & diesel, and geothermal generation, which together met 91% of local demand in 2013. The country has made significant progress in improving citizens' electricity access, nearly doubling electrification rates since 2006 to 29% in 2013. The government has pledged to reach universal access by 2030.

All eyes are now on forthcoming energy sector legislation. A draft released in Q1 2014 contains ambitious 2030 clean energy targets, including a planned 5.3GW of new geothermal and 3GW of new wind, together with 5.4GW of fossil capacity and 4GW of nuclear.

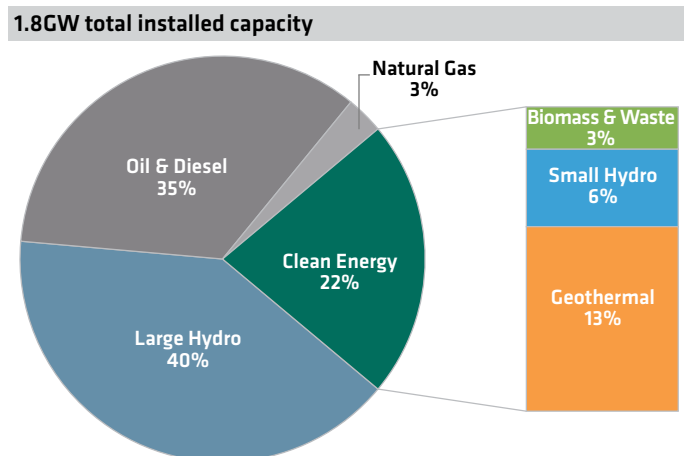
For further information, access www.global-climatescope.org/kenya

I. ENABLING FRAMEWORK

Ranking 4 / Score 1.57

Kenya placed fourth on Enabling Framework Parameter I thanks to its renewable energy and energy access policies. The main tool to incentivize renewable energy development is the feed-in tariff (FiT), which is paid to generators of renewable power from wind, hydro, biomass, biogas and solar PV and thermal (on-grid and off-grid) for a period of 20 years. Projects under this mechanism have priority grid access at the cost of the developer.

INSTALLED POWER CAPACITY BY SOURCE, 2013 (%)



Source: Bloomberg New Energy Finance, Kenya Power & Lighting Company, KenGen
Note: Some values cannot be graphically represented due to scale, please see source data for the complete numbers

The Ministry of Energy initially released its FiT policy in March 2008 but this failed to attract significant investment. Tariffs were subsequently reviewed and the process of negotiating power purchase agreements (PPAs) was streamlined. Projects below 10MW are now paid a different rate from

KEY POLICIES

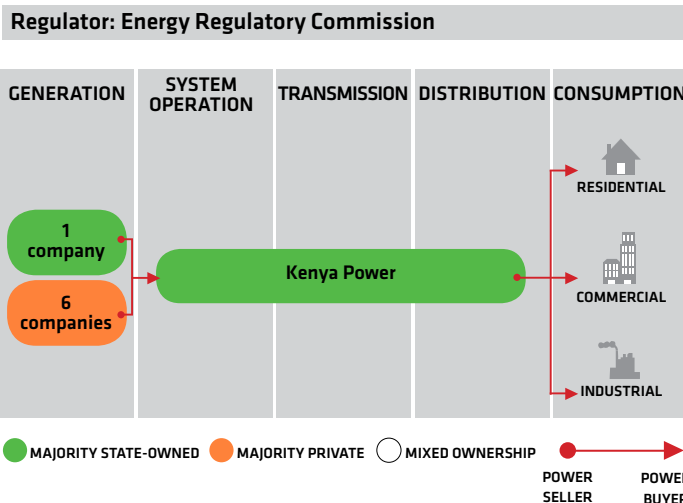
Feed-in Tariff	A 20-year fixed tariff for wind, solar, geothermal, hydro, biomass and biogas projects was revised in 2012, alongside a standardized power purchase agreement.
Energy Target	The current target is to reach 20GW of power capacity by 2030, comprising 51% renewable energy. The draft National Energy Policy, yet to be approved as of Q3 2014, contains new targets by technology.
Biofuels	The draft National Energy Policy would introduce a bio-fuel blending mandate by 2030.
Utility Regulation	Energy management regulations introduced in 2012 aim to reduce losses from industry, commercial buildings and large institutions.
Net Metering	The Q1 2014 draft of the new energy bill, as well as the draft National Energy Policy, contains provisions for net metering for small-scale renewable generators.
Tax Incentives	Investors are eligible for a range of tax reductions and import duty exemptions.

Source: Bloomberg New Energy Finance Policy Library

those above 10MW, and they receive a standardized PPA. The government intends to start competitive bidding for projects larger than 10MW.

The electricity sector in Kenya has evolved from a monopolistic system into a relatively open and competitive structure. In the past, generation, transmission and distribution of electricity were the exclusive domain of state-owned generator Kenya Power & Light Co (KPLC). Today, generation has been liberalized, with several licensed independent power producers now operating locally.

POWER SECTOR STRUCTURE



Source: Bloomberg New Energy Finance

Legislation is due before parliament in 2014 that could spur further clean energy investment. The bill would pave the way for the introduction of “net metering” for solar installations, establish a range of biofuel blending requirements, and set ambitious 2030 renewables targets: 5.5GW of geothermal capacity, 3GW of wind, 1.2GW of cogeneration and 0.5GW of solar.

In 2013, geothermal was Kenya's primary non-large hydro clean energy technology, representing 13% of all power capacity nationally (large hydro took the largest share at 40%). On-grid wind capacity should soon jump as over 600MW potential capacity has been financed, including the flagship Lake Turkana project in March 2014.

Some 16MW of off-grid fossil-fuel capacity, together with a modest 1.1MW of solar and wind, has been installed as part of the government's rural electrification program. The country scores well for both its distributed energy regulatory framework and energy access targets. Mini-grids below 1MW do not require an electricity generating permit and there are clear guidelines on connecting projects up to 10MW. Under its Vision 2030 strategy, Kenya aims to reach 100% electrification by 2030.

II. CLEAN ENERGY INVESTMENT AND CLIMATE FINANCING

Ranking 10 / Score 0.96

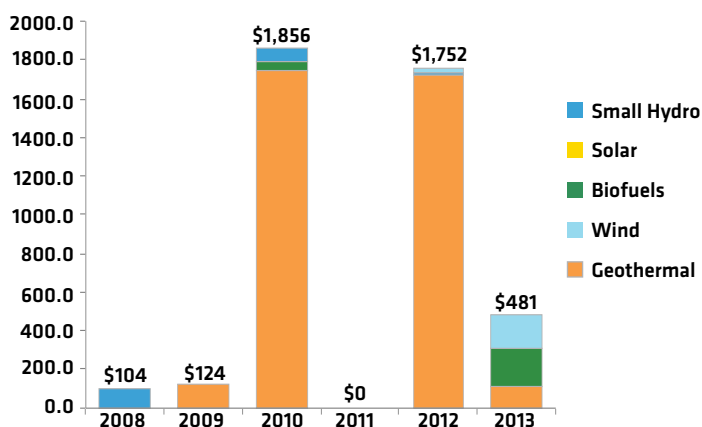
Kenya finished 10th on Clean Energy Investment Parameter II. It attracted \$481m for non-large hydro renewable technologies in 2013. That represented a healthy volume, given the paucity of investment in sub-Saharan Africa, but a relatively modest sum compared with the cumulative \$4.7bn the country has attracted since 2006. It was low compared with the \$4bn secured by South Africa, the only African country to score higher than Kenya on this parameter.

In contrast with previous years, when substantial sums in asset financing were directed at Kenya's burgeoning geothermal sector, the large majority in 2013 went to biofuel and wind projects (\$247m and \$200m, respectively). Small hydro is the only other clean energy sector to have attracted investment over the last eight years, scooping \$215m in 2008.

Like many developing nations, Kenya has yet to attract any significant venture capital or corporate investment. Rather, all transactions to date have been asset (project) oriented. This effectively represents capital deployed to build out the country's project pipeline but not necessarily to expand its local manufacturing value chains or technology expertise.

ANNUAL INVESTMENT IN CLEAN ENERGY, 2008-2013 (\$m)

\$4.7bn total cumulative investment



Source: Bloomberg New Energy Finance

Notes: Total investment includes: Asset Finance, Corporate Finance and Venture Capital / Private Equity Commitments.

Kenya's clean energy investment volumes appear poised to rebound in 2014. In March, a consortium behind the country's largest planned project, the 310MW Lake Turkana wind farm, secured debt financing for the \$787m plant. Construction was expected to start in 2014 with commissioning planned for 2016.

One factor that restrained Kenya from scoring higher on Parameter II was its relatively high cost of debt (over 17%) compared with South Africa (8.5%, and lowest in the region). Another dampener was the relatively low number of borrowers and high average cost of microfinance for green products, according to those enterprises surveyed by *Climatescope*.

GREEN MICROFINANCE HIGHLIGHTS

Summary Green MFI Survey 2013

Green Microfinance Institutions / Total MFIs	7/68
Average Cost of Green Microloans	2.7%

Source: Bloomberg New Energy Finance

Note: Figures based on survey conducted by BNEF from March to June 2014, with a total of 837 microfinance institutions based in the 19 Climatescope countries in Africa.

LEAGUE TABLE

2013 Total Investors	\$481m
----------------------	--------

Top Investors, 2013 (\$m)

1st	Standard Bank Group Ltd	\$128m
-----	-------------------------	--------

Top Three Asset Finance Deals, 2013 (\$m)

Rank	Sector	Project (MW)	Developer	Value
1st		Kiscol Kwale Bioethanol and Power Plant (10mLpa, 18MW)	Kiscol	\$200m
2nd		Aeolus Kinangop Wind Farm Phase I (60.8MW)	Aeolus	\$150m
3rd		KenGen Ngong Hills Wind Farm Phase III (13.6MW)	KenGen	\$19m

Source: Bloomberg New Energy Finance

Notes: Figures refer to asset finance investments committed in 2013 and include balance sheet commitments

III. LOW-CARBON BUSINESS AND CLEAN ENERGY VALUE CHAINS

Ranking 7 / Score 3.67

Having become something of a financial services and clean energy hub in East Africa, Kenya ranked seventh overall on Low-Carbon and Clean Energy Business Value Chains Parameter III. Most types of on-grid service providers are operating in the country and it is home to one of the rare photovoltaic manufacturing facilities in sub-Saharan Africa.

Ubbink, a subsidiary of German firm Centrotec, established East Africa's first solar module manufacturing facility in country and the plant began operating in 2011. Foreign players have a strong presence in the country. Of three operating grid-connected photovoltaic plants, two were installed by German companies, Energiebau and Asantys, while inverters from another German firm SMA are often used in larger installations.

The country's diverse renewable resources require a wide range of expertise. For instance, development of its large geothermal potential could provide opportunities along the technology's entire value chain, from drilling equipment and drilling services through to steam pipeline systems, turbines, cooling, transmission and substations.

Kenya also showed strength in the "off-grid focus" areas of Parameter II with complete value chains for all sectors but one. Kenya has made significant progress in increasing access to electricity for its population in recent years.

FINANCIAL INSTITUTIONS IN CLEAN ENERGY

<input checked="" type="checkbox"/> Banks	<input checked="" type="checkbox"/> Corporate Finance
<input type="checkbox"/> Funds	<input checked="" type="checkbox"/> Impact Funds
<input type="checkbox"/> Private Equity / Venture Capital	

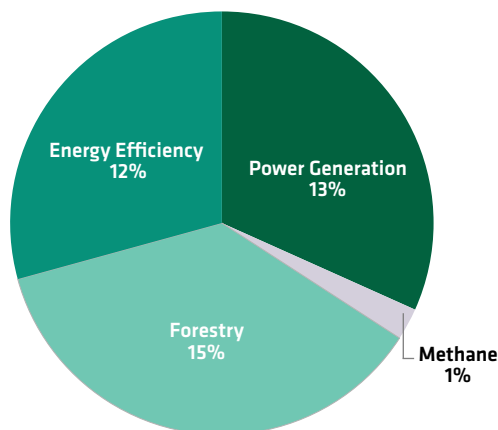
Source: Bloomberg New Energy Finance
 Note: Refers to types of institutions that finance clean energy projects. Check means that at least one institution is active in that segment in the country

IV. GREENHOUSE GAS MANAGEMENT ACTIVITIES

Ranking 15 / Score 1.74

CDM OFFSET PROJECTS BY SECTOR

82 CDM projects



ClimateScope 2014 Report by Bloomberg New Energy Finance
 Multilateral Investment Fund part of the Inter-American Development Bank,
 UK Department for International Development, Power Africa

CLEAN ENERGY VALUE CHAINS BY SECTOR

Sector / Quantity	Available Sub-Sector, Unavailable Sub-Sector
Biofuels 	Producers ; Engineering ; O&M ; Equipment Manufacturing ; Distribution and Blending
Biomass & Waste 	Project Development ; Engineering ; O&M ; Equipment Manufacturing ; Feedstock Supply
Geothermal 	Project Development ; Engineering ; O&M ; Resource Development ; Turbines ; Balance of Plant
Small Hydro 	Project Development ; Engineering ; O&M ; Turbines ; Balance of Plant
Solar 	Project Development ; Engineering ; O&M ; Polysilicon/ingots ; Wafers ; Cells ; Modules ; Inverters ; Balance of Plant
Wind 	Project Development ; Engineering ; O&M ; Turbines ; Blades ; Gearboxes ; Towers ; Balance of Plant

Source: Bloomberg New Energy Finance
 Note: Colored icons represent the number of available subsectors for a given clean energy sector value chain. Bold text, on the right, illustrates at least one organization in that sub-sector is active in the country.

Kenya ranked 15th on Greenhouse Gas Management Activities Parameter IV, its lowest *ClimateScope* ranking among the four parameters. The country has no national emissions reduction instruments and no national reduction target. That said, it is in the initial stages of establishing a greenhouse gas inventory system.

Set against this is Kenya's relatively strong track record on carbon offset activity. Its 41 carbon offset projects are the second-highest in Africa after South Africa. Kenya also recorded the most voluntary standard projects. The country was credited under *ClimateScope* for the diversity of its offsets, which were spread quite evenly between power generation, energy efficiency and forestry.

Finally, Kenya gained recognition for its relatively low CDM development risk, having experienced no project failures and only one restart.