

# RENEWABLES INTERACTIVE MAP

## COUNTRY PROFILE: Kenya

### 1. SUMMARY

#### 1.1 Country Overview

Country size	580 367 km <sup>2</sup>
Population	39 002 772
GDP	33 620 700 000
Energy production	15 108 ktoe/year
Energy consumption	11 401 ktoe/year

#### 1.3 Policies Overview Table

Financial Incentives			Public Financing		Regulatory Policies				
Capital subsidy, grant, or rebate	Tax incentives	Energy production payment	Public investment, loans, or	Public competitive bidding	Feed-in tariff	Utility quota obligation	Net metering	Obligation and mandate	Tradable renewable energy certificate
	✓	✓	✓	✓	✓			✓	

#### 1.4 RE Status Overview (non-technology specific)

	Primary Energy	Final Energy Consumption	Electricity Production	Heating/Cooling Production	Transportation	RE Installed Capacity
Share	69 % 2011		62.62 % 2013			26 MW 2013
	6.2 % 2009		16.2 % 2012			0.967 GW 2009
			63.5 % 2011			
			18.1 % 2010			
			56.0 % 2009			

\* = Conflicting data exists (see respective table below)

## 2. Renewable Energy Policies

#### 2.1 Energy production payment

Sector	Technology	Value	Description	Year	Reference
Non-Sector specific	Non-Technology specific		Energy production payments exist.	2013	Global Status Report (GSR) 2014. "Country Profile Kenya"

#### 2.2 Feed-in tariff

Sector	Technology	Value	Description	Year	Reference
Non-Sector specific	Non-Technology specific		FITs exist.	2013	Global Status Report (GSR) 2014. "Country Profile Kenya"

Non-Sector specific	Non-Technology specific		FITs exist.	2012	Global Status Report (GSR) 2013. "Country Profile Kenya"
Electricity	Wind	0.110 USD/kWh	FIT for wind power.	2012	Kenya Ministry of Energy. "Feed-in-Tariffs policy for wind, biomass, small hydros, geothermal, biogas and solar, 2nd revision," December 2012
Electricity	Hydropower	0.105 USD/kWh	FIT for hydropower.	2012	Kenya Ministry of Energy. "Feed-in-Tariffs policy for wind, biomass, small hydros, geothermal, biogas and solar, 2nd revision," December 2012
Electricity	Hydropower	0.0825 USD/kWh	FIT for hydropower.	2012	Kenya Ministry of Energy. "Feed-in-Tariffs policy for wind, biomass, small hydros, geothermal, biogas and solar, 2nd revision," December 2012
Electricity	Solid Biomass	0.100 USD/kWh	FIT for biomass.	2012	Kenya Ministry of Energy. "Feed-in-Tariffs policy for wind, biomass, small hydros, geothermal, biogas and solar, 2nd revision," December 2012
Electricity	Biogas	0.100 USD/kWh	FIT for biogas.	2012	Kenya Ministry of Energy. "Feed-in-Tariffs policy for wind, biomass, small hydros, geothermal, biogas and solar, 2nd revision," December 2012
Electricity	Solar PV	0.120 USD/kWh	FIT for on-grid solar PV.	2012	Kenya Ministry of Energy. "Feed-in-Tariffs policy for wind, biomass, small hydros, geothermal, biogas and solar, 2nd revision," December 2012
Electricity	Solar PV	0.200 USD/kWh	FIT for off-grid solar PV.	2012	Kenya Ministry of Energy. "Feed-in-Tariffs policy for wind, biomass, small hydros, geothermal, biogas and solar, 2nd revision," December 2012
Electricity	Geothermal	0.088 USD/kWh	FIT for geothermal.	2012	Kenya Ministry of Energy. "Feed-in-Tariffs policy for wind, biomass, small hydros, geothermal, biogas and solar, 2nd revision," December 2012
Non-Sector specific	Geothermal	0.085 USD/kWh	FIT for geothermal.	2011	Global Status Report (GSR) 2011. "Country Profile Kenya"
Electricity	Wind	0.090 USD/kWh	FIT for wind power.	2009	Global Status Report (GSR) 2009. "Country Profile Kenya"
Electricity	Hydropower	0.08-0.12 USD/kWh	FIT for hydropower.	2009	Global Status Report (GSR) 2009. "Country Profile Kenya"

### 2.3 Obligation and mandate

Sector	Technology	Value	Description	Year	Reference
Non-Sector specific	Non-Technology specific		Heat obligations exist.	2013	Global Status Report (GSR) 2014. "Country Profile Kenya"
Non-Sector specific	Non-Technology specific		Heat obligation exists.	2012	Global Status Report (GSR) 2013. "Country Profile Kenya"

Heating/Cooling	Solar heating/cooling		Buildings regulation exists.	2012	Solar Thermal World. "Kenya Regulation Increases Solar Water Heater Uptake"
Transport	Biofuels	10.0 %	Ethanol mandate for transport.	2010	International Energy Agency (IEA). "Technology roadmap - Biofuels for transport"

## 2.4 Public competitive bidding

Sector	Technology	Value	Description	Year	Reference
Non-Sector specific	Non-Technology specific		Public competitive bidding exists.	2013	Global Status Report (GSR) 2014. "Country Profile Kenya"

## 2.5 Public investment, loans, or financing

Sector	Technology	Value	Description	Year	Reference
Non-Sector specific	Non-Technology specific	16 billion USD	Investment in renewable energy.	2018	US AID. "Power Africa"
Non-Sector specific	Non-Technology specific		Public investment exists.	2013	Global Status Report (GSR) 2014. "Country Profile Kenya"
Non-Sector specific	Non-Technology specific	456 million USD	Energy sector investment.	2013	The East African. "Energy sector tops IFC investments," 7 September 2013
Non-Sector specific	Non-Technology specific	330 million USD	Funding for renewable energy.	2013	TriplePundit. "Six African Countries Win \$330 Million to Bolster Private Investment in Climate Action," 13 December 2013
Non-Sector specific	Non-Technology specific	250,000,000 NOK	Investment in renewable energy.		Norway Government Administration Services. "Norway to provide NOK 850 million for green energy cooperation in Africa," 22 June 2012

## 2.6 Tax incentives

Sector	Technology	Value	Description	Year	Reference
Non-Sector specific	Non-Technology specific		Tax reductions exist.	2013	Global Status Report (GSR) 2014. "Country Profile Kenya"
Non-Sector specific	Non-Technology specific		Tax reductions exist.	2012	Global Status Report (GSR) 2013. "Country Profile Kenya"

# 3. Renewable Energy Targets

## 3.1 Electricity

Sector	Technology	Value	Description	Year	Reference
Electricity	Geothermal	27.0 %	Targeted share of electricity generation from geothermal.	2031	Observ'ER. "Worldwide electricity generation from renewable energy sources"
Electricity	Geothermal	5,530 MW	Targeted total installed geothermal power capacity.	2030	World Future Council, Heinrich Böll Foundation. "Powering Africa through Feed-in Tariffs. Advancing renewable energy to meet the continent's electricity needs," February 2013

Electricity	Wind	2,000 MW	Targeted total installed wind power capacity.	2030	World Future Council, Heinrich Böll Foundation. "Powering Africa through Feed-in Tariffs. Advancing renewable energy to meet the continent's electricity needs," February 2013
Electricity	Solid Biomass	1,000 MW	Targeted total installed biomass power capacity.	2030	World Future Council, Heinrich Böll Foundation. "Powering Africa through Feed-in Tariffs. Advancing renewable energy to meet the continent's electricity needs," February 2013
Electricity	Hydropower	300 MW	Targeted total installed small hydropower capacity.	2030	World Future Council, Heinrich Böll Foundation. "Powering Africa through Feed-in Tariffs. Advancing renewable energy to meet the continent's electricity needs," February 2013
Electricity	Non-Technology specific	5.0 GW	Targeted additional renewable electricity generation.	2017	WWEA. "Kenya will scale up its wind power programme," 30 August 2013.
Electricity	Geothermal	1,600.0 MW	Targeted total installed geothermal power capacity.	2016	Republic of Kenya. "Scaling-up renewable energy program (SREP) - Investment Plan for Kenya: Draft 2011"
Electricity	Hydropower	794 MW	Targeted total installed hydropower capacity.	2016	Republic of Kenya. Ministry of Energy and Petroleum. "5000+ MW by 2016. Power to Transform Kenya. Investment Prospectus. 2013-2016"
Electricity	Geothermal	1887 MW	Targeted total installed geothermal capacity.	2016	Republic of Kenya. Ministry of Energy and Petroleum. "5000+ MW by 2016. Power to Transform Kenya. Investment Prospectus. 2013-2016"
Electricity	Wind	635 MW	Targeted total installed wind power capacity.	2016	Republic of Kenya. Ministry of Energy and Petroleum. "5000+ MW by 2016. Power to Transform Kenya. Investment Prospectus. 2013-2016"
Electricity	Geothermal	400.0 MW	Targeted total installed geothermal power capacity.	2015	Republic of Kenya. "Scaling-up renewable energy program (SREP) - Investment Plan for Kenya: Draft 2011"
Electricity	Non-Technology specific	5,167.0 GWh	Targeted renewable electricity generation.	2015	Republic of Kenya. "Scaling-up renewable energy program (SREP) - Investment Plan for Kenya: Draft 2011"
Electricity	Hydropower	24 MW	Targeted added installed hydropower capacity.	2013-2016	Republic of Kenya. Ministry of Energy and Petroleum. "5000+ MW by 2016. Power to Transform Kenya. Investment Prospectus. 2013-2016"
Electricity	Geothermal	1646 MW	Targeted added installed geothermal capacity.	2013-2016	Republic of Kenya. Ministry of Energy and Petroleum. "5000+ MW by 2016. Power to Transform Kenya. Investment Prospectus. 2013-2016"

Electricity	Wind	630 MW	Targeted added installed wind power capacity.	2013-2016	Republic of Kenya. Ministry of Energy and Petroleum. "5000+ MW by 2016. Power to Transform Kenya. Investment Prospectus. 2013-2016"
Electricity	Wind	300.0 MW	Targeted total installed wind power capacity.	2013	Observ'ER. "Worldwide electricity generation from renewable energy sources"

### 3.2 Not specified

Sector	Technology	Value	Description	Year	Reference
Non-Sector specific	Non-Technology specific		Renewable energy targets exist.	2013	Global Status Report (GSR) 2014. "Country Profile Kenya"

## 4. Renewable Energy Shares

### 4.1 Electricity consumption

Sector	Technology	Value	Description	Year	Reference
Rural Energy	Non-Technology specific	30 %	Electrification rate.	2011	World Future Council, Heinrich Böll Foundation. "Powering Africa through Feed-in Tariffs. Advancing renewable energy to meet the continent's electricity needs," February 2013

### 4.2 Electricity production

Sector	Technology	Value	Description	Year	Reference
Electricity	Non-Technology specific	62.62 %	Share of renewables in electricity generation.	2013	Republic of Kenya, Ministry of Energy and Petroleum. "5000+MW by 2016. Power to transform Kenya. Investment Prospectus 2013-2016"
Electricity	Non-Technology specific	65 %	Share of renewables in electricity generation.	2012	Republic of Kenya, Ministry of Energy. "National Energy Policy"
Electricity	Non-Technology specific	16.2 %	Share of renewables in electricity generation capacity.	2012	Energy & Enviro World. "Renewables grow fastest in Kenya power mix," 9 January 2014
Electricity	Geothermal	14.1 %	Share of geothermal power in electricity generation capacity.	2012	Energy & Enviro World. "Renewables grow fastest in Kenya power mix," 9 January 2014
Electricity	Non-Technology specific	2.1 %	Share of solar PV, wind and biomass in electricity generation capacity.	2012	Energy & Enviro World. "Renewables grow fastest in Kenya power mix," 9 January 2014
Electricity	Hydropower	54.4 %	Share of large hydropower in electricity generation capacity.	2012	Energy & Enviro World. "Renewables grow fastest in Kenya power mix," 9 January 2014
Electricity	Non-Technology specific	63.5 %	Share of renewables in electricity generation.	2011	Observ'ER. "Worldwide electricity generation from renewable energy sources"
Electricity	Solar PV	0.3 %	Share of solar PV in electricity generation.	2011	Observ'ER. "Worldwide electricity generation from renewable energy sources"

Electricity	Solid Biomass	4.0 %	Share of biomass in electricity generation.	2011	Observ'ER. "Worldwide electricity generation from renewable energy sources"
Electricity	Geothermal	18.7 %	Share of geothermal in electricity generation.	2011	Observ'ER. "Worldwide electricity generation from renewable energy sources"
Electricity	Wind	0.1 %	Share of wind power in electricity generation.	2011	Observ'ER. "Worldwide electricity generation from renewable energy sources"
Electricity	Hydropower	40.4 %	Share of hydropower in electricity generation.	2011	Observ'ER. "Worldwide electricity generation from renewable energy sources"
Electricity	Hydropower	749.2 MW	Share of large hydropower capacity in total electric capacity.	2011	Republic of Kenya. "Scaling-up renewable energy program (SREP) - Investment Plan for Kenya: Draft 2011"
Electricity	Hydropower	1.0 MW	Share of small capacity in total electric capacity.	2011	Republic of Kenya. "Scaling-up renewable energy program (SREP) - Investment Plan for Kenya: Draft 2011"
Electricity	Wind	0.3 MW	Share of wind power capacity in total electric capacity.	2011	Republic of Kenya. "Scaling-up renewable energy program (SREP) - Investment Plan for Kenya: Draft 2011"
Electricity	Geothermal	12.9 MW	Share of geothermal capacity in total electric capacity.	2011	Republic of Kenya. "Scaling-up renewable energy program (SREP) - Investment Plan for Kenya: Draft 2011"
Electricity	Non-Technology specific	67.5 %	Share of renewables in electricity generation.	2011	Republic of Kenya, Ministry of Energy. "National Energy Policy"
Electricity	Hydropower	52.1 %	Share of hydroelectricity in total installed electricity capacity .	2010	Renewable Energy & Energy Efficiency Partnership (REEP). "Policy DB Details: Kenya (2012)"
Electricity	Geothermal	13.2 %	Share of geothermal in total installed electricity capacity.	2010	Renewable Energy & Energy Efficiency Partnership (REEP). "Policy DB Details: Kenya (2012)"
Electricity	Wind	2.2 %	Share of wind and others in total installed electricity capacity.	2010	Renewable Energy & Energy Efficiency Partnership (REEP). "Policy DB Details: Kenya (2012)"

### 4.3 Final energy

Sector	Technology	Value	Description	Year	Reference
Non-Sector specific	Solid Biomass	76 %	Share of wood fuel and charcoal in final energy consumption.	2010	Republic of Kenya. "Updated Least Cost Power Development Plan study period 2011-2031"

### 4.4 Heating/cooling production

Sector	Technology	Value	Description	Year	Reference
Heating/Cooling	Non-Technology specific	68 %	Share of renewables in heat generation.	2012	Republic of Kenya, Ministry of Energy. "National Energy Policy"

## 4.5 Primary energy

Sector	Technology	Value	Description	Year	Reference
Non-Sector specific	Non-Technology specific	69 %	Share of renewables in total primary energy supply.	2011	Republic of Kenya, Ministry of Energy. "National Energy Policy"
Non-Sector specific	Solid Biomass	76 %	Share of comb renewables and waste in total primary energy supply.	2009	Renewable Energy & Energy Efficiency Partnership (REEP). "Policy DB Details: Kenya (2012)"
Non-Sector specific	Non-Technology specific	6.2 %	Share of geothermal, solar, and wind in total primary energy supply.	2009	Renewable Energy & Energy Efficiency Partnership (REEP). "Policy DB Details: Kenya (2012)"
Non-Sector specific	Hydropower	1 %	Share of hydropower in total primary energy supply.	2009	Renewable Energy & Energy Efficiency Partnership (REEP). "Policy DB Details: Kenya (2012)"

## 5. Installed Capacity

### 5.1 Installed capacity

Sector	Technology	Value	Description	Year	Reference
Electricity	Hydropower	24 MW	Targeted added installed hydropower electricity generation capacity.	2016	Republic of Kenya, Ministry of Energy and Petroleum. "5000+MW by 2016. Power to transform Kenya. Investment Prospectus 2013-2016"
Electricity	Geothermal	1,646 MW	Targeted added installed geothermal electricity generation capacity.	2016	Republic of Kenya, Ministry of Energy and Petroleum. "5000+MW by 2016. Power to transform Kenya. Investment Prospectus 2013-2016"
Electricity	Wind	630 MW	Targeted added installed wind electricity generation capacity.	2016	Republic of Kenya, Ministry of Energy and Petroleum. "5000+MW by 2016. Power to transform Kenya. Investment Prospectus 2013-2016"
Electricity	Hydropower	794 MW	Targeted total installed hydropower electricity generation capacity.	2016	Republic of Kenya, Ministry of Energy and Petroleum. "5000+MW by 2016. Power to transform Kenya. Investment Prospectus 2013-2016"
Electricity	Geothermal	1,887 MW	Targeted total installed geothermal electricity generation capacity.	2016	Republic of Kenya, Ministry of Energy and Petroleum. "5000+MW by 2016. Power to transform Kenya. Investment Prospectus 2013-2016"
Electricity	Wind	635.0 MW	Targeted total installed wind electricity generation capacity.	2016	Republic of Kenya, Ministry of Energy and Petroleum. "5000+MW by 2016. Power to transform Kenya. Investment Prospectus 2013-2016"
Electricity	Hydropower	770 MW	Total installed hydropower electricity generation capacity.	2013	Republic of Kenya, Ministry of Energy and Petroleum. "5000+MW by 2016. Power to transform Kenya. Investment Prospectus 2013-2016"

Electricity	Geothermal	241 MW	Total installed geothermal electricity generation capacity.	2013	Republic of Kenya, Ministry of Energy and Petroleum. "5000+MW by 2016. Power to transform Kenya. Investment Prospectus 2013-2016"
Electricity	Wind	5.1 MW	Total installed wind electricity generation capacity.	2013	Republic of Kenya, Ministry of Energy and Petroleum. "5000+MW by 2016. Power to transform Kenya. Investment Prospectus 2013-2016"
Electricity	Non-Technology specific	26 MW	Total installed CHP electricity generation capacity.	2013	Republic of Kenya, Ministry of Energy and Petroleum. "5000+MW by 2016. Power to transform Kenya. Investment Prospectus 2013-2016"
Electricity	Wind	5.1 MW	Total installed wind power capacity.	2013	Global Status Report (GSR) 2014. "Country Profile Kenya" provided by Dennis Kibira, African Solar Designs
Electricity	Solar PV	0.575 MWp	Total installed solar PV capacity.	2013	Global Status Report (GSR) 2014. "Country Profile Kenya" provided by Dennis Kibira, African Solar Designs
Electricity	Hydropower	770 MW	Total installed hydropower capacity.	2013	Global Status Report (GSR) 2014. "Country Profile Kenya" provided by Dennis Kibira, African Solar Designs
Non-Sector specific	Geothermal	241 MW	Total installed geothermal capacity.	2013	Global Status Report (GSR) 2014. "Country Profile Kenya" provided by Dennis Kibira, African Solar Designs
Electricity	Hydropower	788.0 MW	Total installed hydropower capacity.	2012	Kenya Power and Lighting Co. Ltd (KPLC). "Annual report & financial statements for the year ended 10 June 2012"
Electricity	Geothermal	209.0 MW	Total installed geothermal capacity.	2012	Kenya Power and Lighting Co. Ltd (KPLC). "Annual report & financial statements for the year ended 10 June 2012"
Electricity	Wind	5.0 MW	Total installed wind power capacity.	2012	Kenya Power and Lighting Co. Ltd (KPLC). "Annual report & financial statements for the year ended 10 June 2012"
Electricity	Hydropower	25.0 MW	Added installed hydropower capacity.	2012	Kenya Power and Lighting Co. Ltd (KPLC). "Annual report & financial statements for the year ended 10 June 2012"
Electricity	Hydropower	13.4 MW	Added installed small hydropower capacity.	2012	Kenya Power and Lighting Co. Ltd (KPLC). "Annual report & financial statements for the year ended 10 June 2012"
Electricity	Hydropower	13.7 MW	Total installed hydropower capacity.	2012	Kenya Power and Lighting Co. Ltd (KPLC). "Annual report & financial statements for the year ended 10 June 2012"

## 6. Energy Production



## 6.1 Energy production

Sector	Technology	Value	Description	Year	Reference
Electricity	Hydropower	3,450.0 GWh	Total hydropower electricity generation.	2012	Kenya Power and Lighting Co. Ltd (KPLC). "Annual report & financial statements for the year ended 10 June 2012"
Electricity	Geothermal	1,106.0 GWh	Total geothermal electricity generation.	2012	Kenya Power and Lighting Co. Ltd (KPLC). "Annual report & financial statements for the year ended 10 June 2012"
Non-Sector specific	Solid Biomass	99.0 GWh	Total residue and by-products output.	2011	Global Status Report (GSR) 2012. "Country Profile Kenya"
Electricity	Solar PV	9.0 GWh	Total solar PV electricity generation.	2011	Republic of Kenya. "Updated Least Cost Power Development Plan study period 2011-2031"
Electricity	Wind	1.7 GWh	Total wind power electricity generation.	2011	Kenya Power and Lighting Co. Ltd (KPLC). "Annual report & financial statements for the year ended 10 June 2010"
Electricity	Non-Technology specific	5.1 TWh	Total renewable electricity generation.	2011	Observ'ER. "Worldwide electricity generation from renewable energy sources"
Electricity	Hydropower	3.2 TWh	Total hydropower electricity generation.	2011	Observ'ER. "Worldwide electricity generation from renewable energy sources"
Electricity	Solar PV	20.0 GWh	Total solar PV electricity generation.	2011	Observ'ER. "Worldwide electricity generation from renewable energy sources"
Electricity	Geothermal	1.5 TWh	Total geothermal electricity generation.	2011	Observ'ER. "Worldwide electricity generation from renewable energy sources"
Electricity	Wind	10.0 GWh	Total wind power electricity generation.	2011	Observ'ER. "Worldwide electricity generation from renewable energy sources"
Electricity	Solid Biomass	321.0 GWh	Total biomass electricity generation.	2011	Observ'ER. "Worldwide electricity generation from renewable energy sources"
Non-Sector specific	Geothermal	1.1 TWh	Total geothermal electricity generation.	2011	Republic of Kenya. "Scaling-up renewable energy program (SREP) - Investment Plan for Kenya: Draft 2011"
Electricity	Hydropower	3,427.0 GWh	Total hydropower electricity generation.	2011	Kenya Power and Lighting Co. Ltd (KPLC). "Annual report & financial statements for the year ended 10 June 2012"
Electricity	Geothermal	1,081.0 GWh	Total geothermal electricity generation.	2011	Kenya Power and Lighting Co. Ltd (KPLC). "Annual report & financial statements for the year ended 10 June 2012"
Electricity	Solid Biomass	0.32 TWh	Total biomass electricity generation.	2011	World Bioenergy Association (WBA). "WBA Global Bioenergy Statistics 2014"

Electricity	Hydropower	46.0 GWh	Total small hydropower electricity generation.	2010	Kenya Power and Lighting Co. Ltd (KPLC). "Annual report & financial statements for the year ended 10 June 2010"
Electricity	Non-Technology specific	5.1 TWh	Total renewable electricity generation.	2010	Observ'ER. "Worldwide electricity generation from renewable energy sources"
Electricity	Hydropower	3.2 TWh	Total hydropower electricity generation.	2010	Observ'ER. "Worldwide electricity generation from renewable energy sources"
Electricity	Solar PV	20.0 GWh	Total solar PV electricity generation.	2010	Observ'ER. "Worldwide electricity generation from renewable energy sources"
Electricity	Geothermal	1.5 TWh	Total geothermal electricity generation.	2010	Observ'ER. "Worldwide electricity generation from renewable energy sources"