

Sao Tome and Principe

Sustainable Development Goal 7: Energy Indicators (2016)

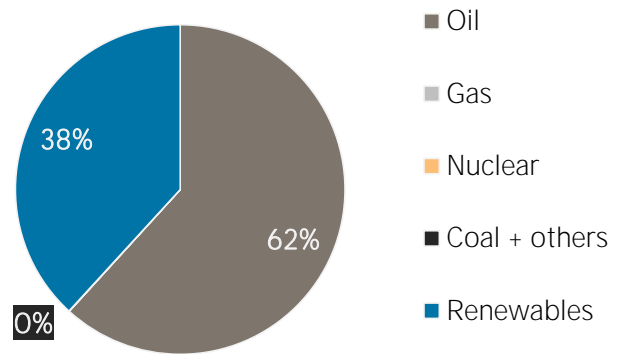
Renewable energy (% of TFEC)	39.2	Access to electricity (% of population)	70.1
Energy efficiency (MJ per \$1 of GDP)	4.6	Access to clean cooking (% of population)	<5

TOTAL PRIMARY ENERGY SUPPLY (TPES)

TPES	2011	2016
Non-renewable (TJ)	1 460	1 700
Renewable (TJ)	1 009	1 051
Total (TJ)	2 469	2 751
Renewable share (%)	41	38

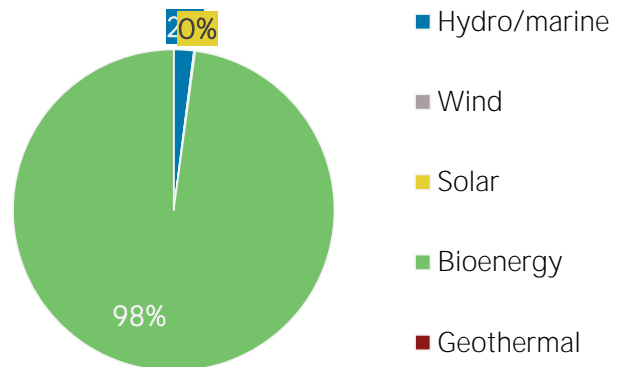
Growth in TPES	2011-16	2015-16
Non-renewable (%)	+16.4	+4.0
Renewable (%)	+4.1	+0.5
Total (%)	+11.4	+2.7

Total primary energy supply in 2016



Primary energy trade	2011	2016
Imports (TJ)	1 900	2 175
Exports (TJ)	0	0
Net trade (TJ)	- 1 900	- 2 175
Imports (% of supply)	77	79
Exports (% of production)	0	0
Energy self-sufficiency (%)	41	38
Net trade (USD million)	- 17	- 22
Net trade (% of GDP)	-7.3	-6.4

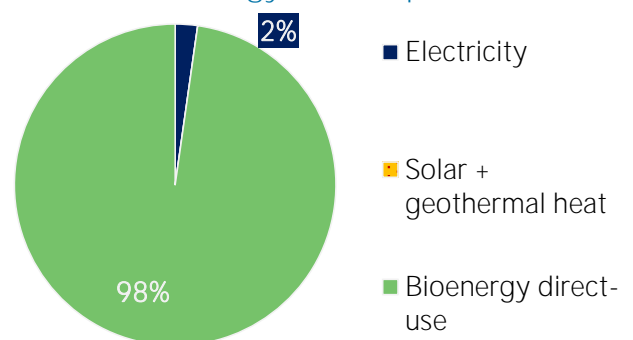
Renewable energy supply in 2016



RENEWABLE ENERGY CONSUMPTION

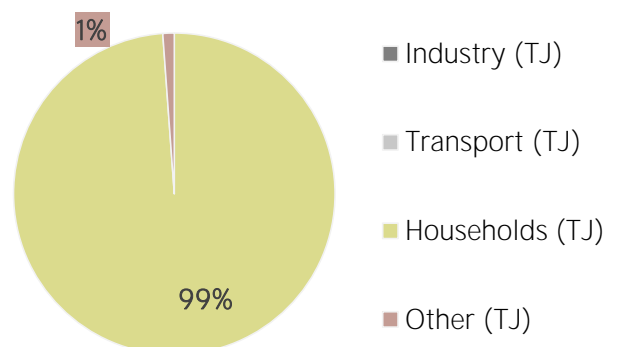
Consumption by source	2011	2016
Renewable electricity (TJ)	15	18
Bioenergy direct-use (TJ)	759	785
Solar+geothermal heat (TJ)	0	0
Total (TJ)	774	803
Electricity share (%)	2	2

Renewable energy consumption in 2016



Consumption growth	2011-16	2015-16
Renewable electricity (%)	+18.3	+5.5
Other renewables (%)	+3.4	+0.3
Total (%)	+3.7	+0.4

Consumption by sector	2011	2016
Industry (TJ)	n.a.	n.a.
Transport (TJ)	0	0
Households (TJ)	767	794
Other (TJ)	8	9
Renewable share of TFEC	43.1	39.2

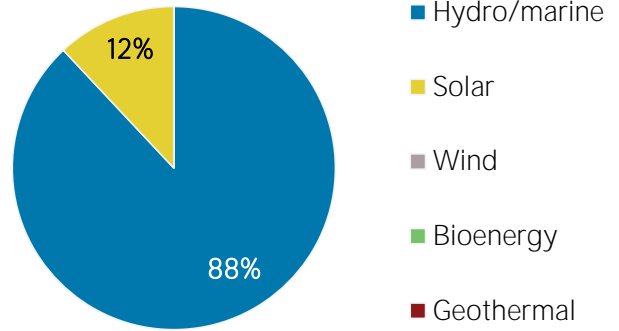


ELECTRICITY CAPACITY AND GENERATION

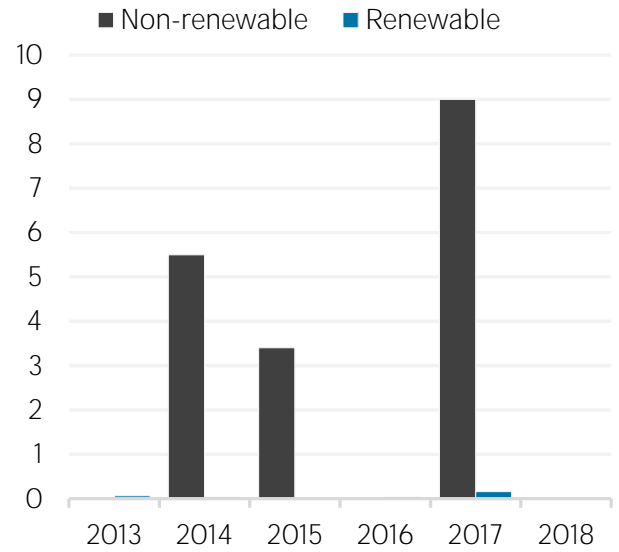
Capacity in 2018	MW	%
Non-renewable	45	94
Renewable	3	6
Hydro/marine	2	5
Solar	0	1
Wind	0	0
Bioenergy	0	0
Geothermal	0	0
Total	48	100

Capacity change (%)	2013-18	2017-18
Non-renewable	+ 66	0.0
Renewable	+ 11	0.0
Hydro/marine	0	0.0
Solar	+ 402	0.0
Wind	0	0.0
Bioenergy	0	0.0
Geothermal	0	0.0
Total	+ 62	0.0

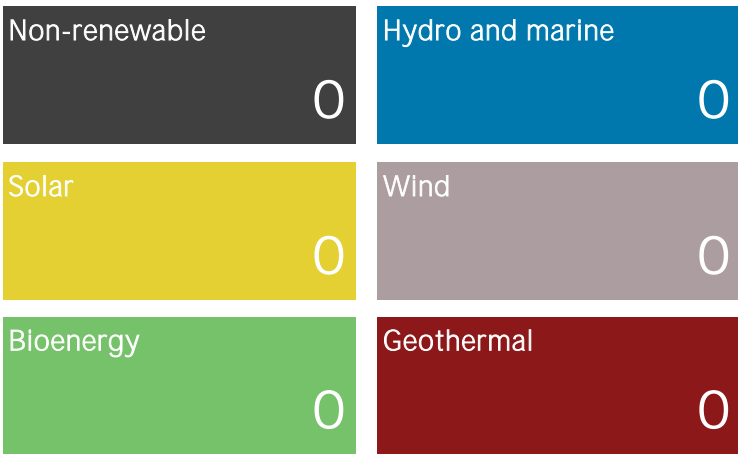
Renewable capacity in 2018



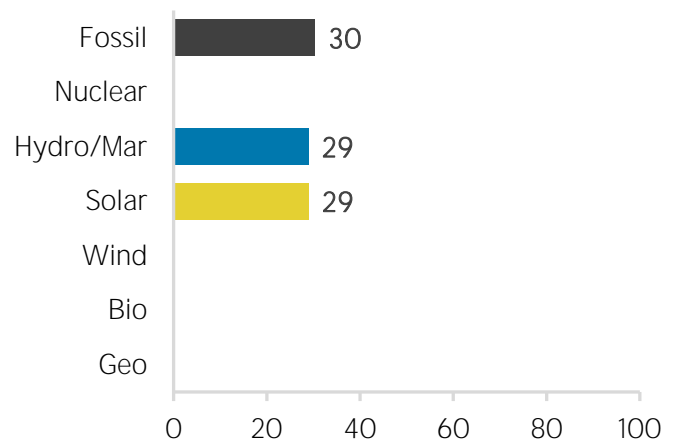
Net capacity change (MW)



Net capacity change in 2018 (MW)

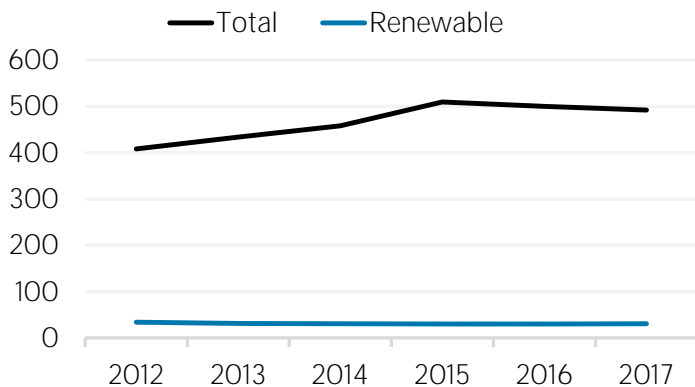


Capacity utilisation in 2017 (%)

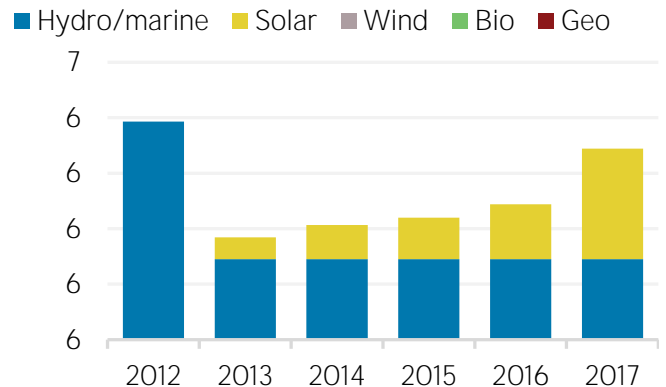


Generation in 2017	GWh	%
Non-renewable	96	94
Renewable	6	6
Hydro and marine	6	6
Solar	0	0
Wind	0	0
Bioenergy	0	0
Geothermal	0	0
Total	102	100

Per capita electricity generation (kWh)



Renewable generation (GWh)



TARGETS, POLICIES AND MEASURES

Most immediate clean energy targets & NDCs

	year	target	unit
Renewable energy:			
Renewable electricity:	2030	47	%
Renewable capacity:			
Renewable transport:			
Liquid Biofuel blending mandate:			
Other transport targets:			
Renewable heating/cooling:			
Renewable Hydropower	2030	34	%
Off-grid renewable technologies:			
Energy efficiency (Energy):			
Energy efficiency (Electricity):			

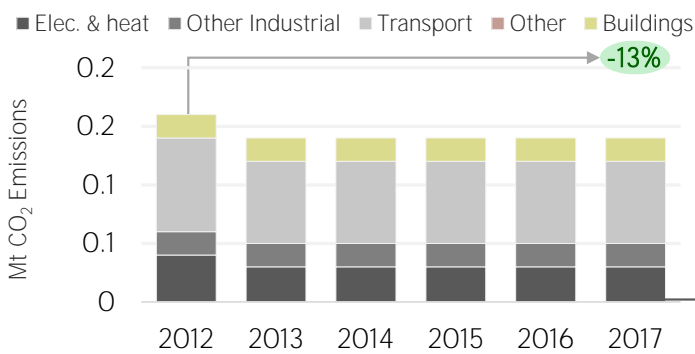
Latest policies, programmes and legislation

References to sustainable energy in Nationally Determined Contribution (NDC)

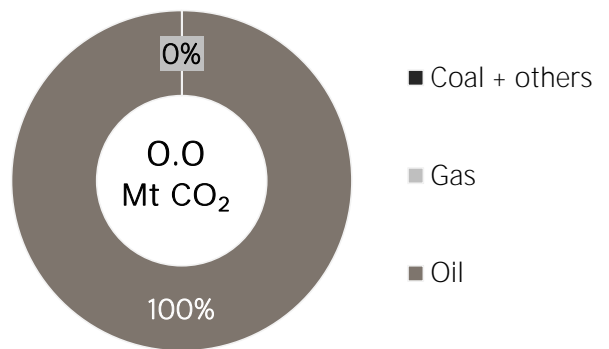
	Conditional	Unconditional	unit
- Renewable energy			
- electricity	47		%
- transport			
- heating/cooling			
- Energy efficiency			

ENERGY AND EMISSIONS

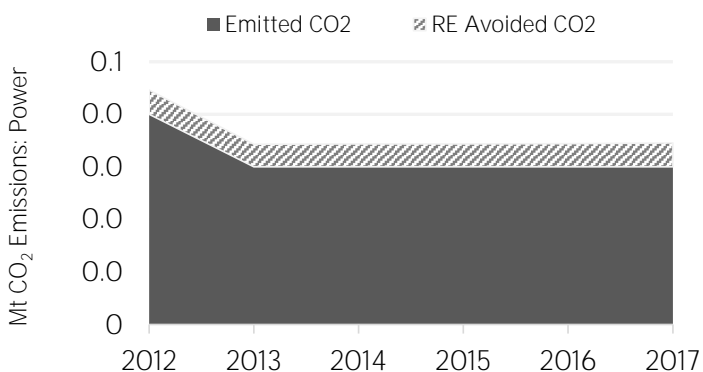
Energy-related CO₂ emissions by sector



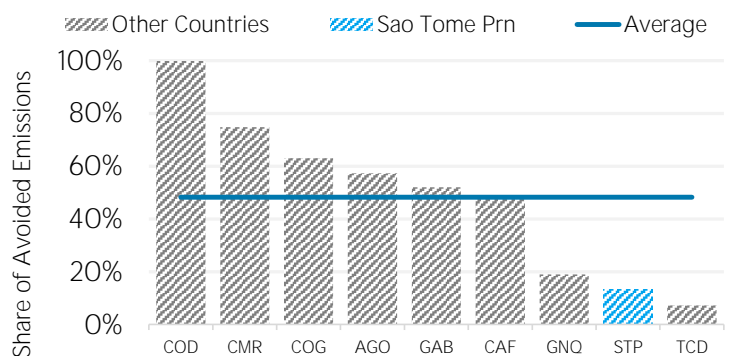
Elec. & heat generation CO₂ emissions in 2017



Avoided emissions from renewable power



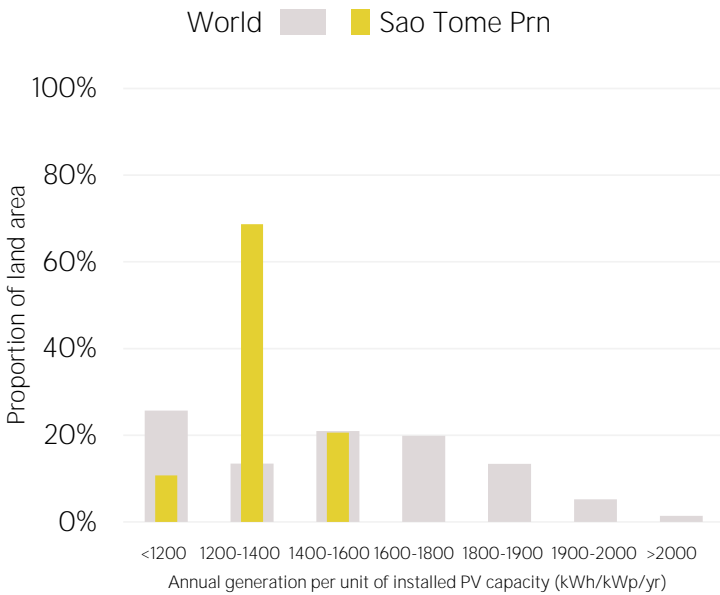
Reduction in power emissions due to RE in 2017



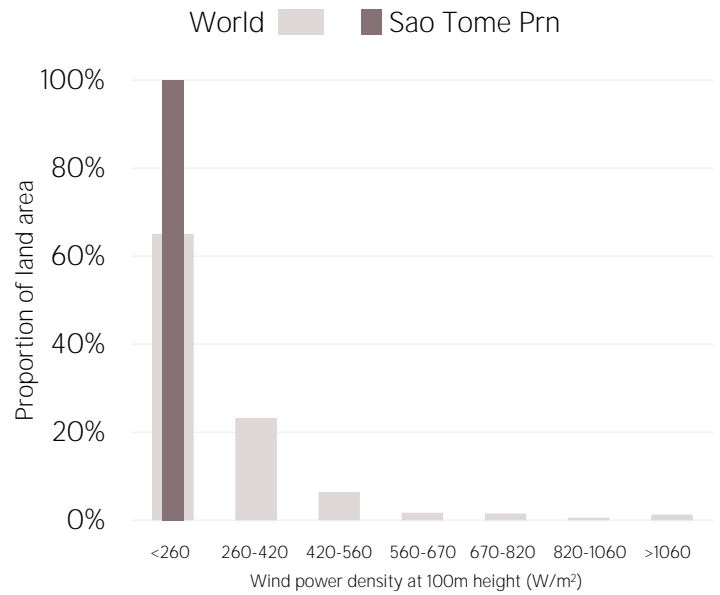
Avoided emissions based on fossil fuel mix used for power

Reduction is RE Avoided divided by sum of avoided and emitted

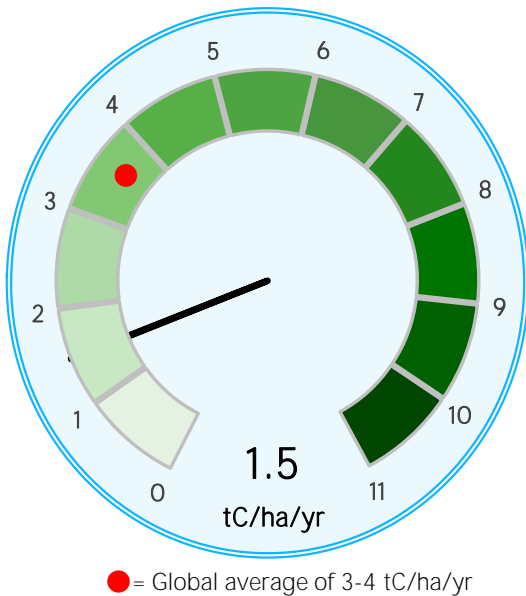
Distribution of solar potential



Distribution of wind potential



Biomass potential: net primary production



Indicators of renewable resource potential

Solar PV: Solar resource potential has been divided into seven classes, each representing a range of annual PV output per unit of capacity (kWh/kWp/yr). The bar chart shows the proportion of a country's land area in each of these classes and the global distribution of land area across the classes (for comparison).

Onshore wind: Potential wind power density (W/m²) is shown in the seven classes used by NREL, measured at a height of 100m. The bar chart shows the distribution of the country's land area in each of these classes compared to the global distribution of wind resources. Areas in the third class or above are considered to be a good wind resource.

Biomass: Net primary production (NPP) is the amount of carbon fixed by plants and accumulated as biomass each year. It is a basic measure of biomass productivity. The chart shows the average NPP in the country (tC/ha/yr), compared

Sources: IRENA statistics, plus data from the following sources: UN SDG Indicators Database (original sources: WHO; World Bank; IEA; IRENA; and UNSD); UNSD Energy Balances; UN COMTRADE; World Bank World Development Indicators; EDGAR; REN21 Global Status Report; IEA-IRENA Joint Policies and Measures Database; IRENA Global Atlas; and World Bank Global Solar Atlas and Global Wind Atlas.

Additional notes: Energy self-sufficiency has been defined as total primary energy production divided by total primary energy supply. The value of energy trade has been defined as including all commodities in Chapter 27 of the Harmonised System (HS). Capacity utilisation has been calculated as annual generation divided by capacity x 8,760. Avoided emissions from renewable power have been calculated as renewable generation divided by fossil fuel generation multiplied by reported emissions from the power sector. This assumes that, if renewable power did not exist, fossil fuels would be used in its place to generate the same amount of power and using the same mix of fossil fuels. In countries and years where no fossil fuel generation occurs, an average fossil fuel emission factor has been used to calculate the avoided emissions.

This note has been produced to provide policy makers with a brief overview of developments in renewable energy in a country. The IRENA statistics team would welcome comments and feedback on its structure and content, which can be sent to statistics@irena.org.