

Senegal

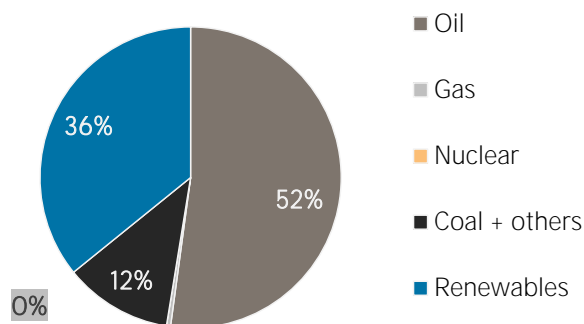
Sustainable Development Goal 7.2: Energy Indicators (2016)

Renewable energy (% of TFEC)	37.6	Access to electricity (% of population)	64.5
Energy efficiency (MJ per \$1 of GDP)	4.9	Access to clean cooking (% of population)	31

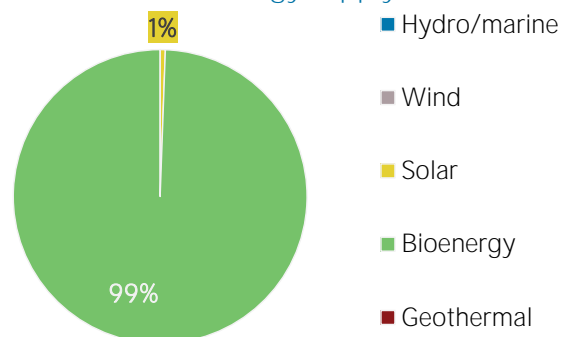
TOTAL PRIMARY ENERGY SUPPLY (TPES)

TPES	2011	2016
Non-renewable (TJ)	84 648	115 551
Renewable (TJ)	86 076	64 515
Total (TJ)	170 723	180 066
Renewable share (%)	50	36
Growth in TPES		
	2011-16	2015-16
Non-renewable (%)	+36.5	+2.6
Renewable (%)	-25.0	-16.1
Total (%)	+5.5	-5.0
Primary energy trade		
	2011	2016
Imports (TJ)	97 448	160 010
Exports (TJ)	6 811	36 927
Net trade (TJ)	- 90 637	- 123 083
Imports (% of supply)	57	89
Exports (% of production)	8	56
Energy self-sufficiency (%)	52	37
Net trade (USD million)	- 1 503	- 803
Net trade (% of GDP)	-8.4	-4.2

Total primary energy supply in 2016



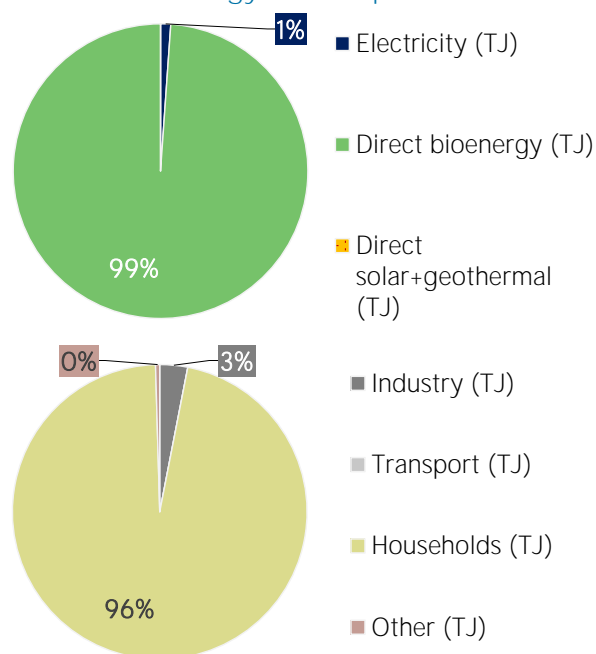
Renewable energy supply in 2016



RENEWABLE ENERGY CONSUMPTION

Consumption by source	2011	2016
Electricity (TJ)	222	521
Direct bioenergy (TJ)	53 908	46 306
Direct solar+geothermal (TJ)	0	0
Total (TJ)	54 130	46 827
Electricity share (%)	0	1
Consumption growth		
	2011-16	2015-16
Renewable electricity (%)	+134.6	+96.8
Other renewables (%)	-14.1	+8.0
Total (%)	-13.5	+8.5
Consumption by sector		
	2011	2016
Industry (TJ)	1 311	1 433
Transport (TJ)	0	0
Households (TJ)	52 772	45 179
Other (TJ)	47	215
Renewable share of TFEC	48.7	37.6

Renewable energy consumption in 2016

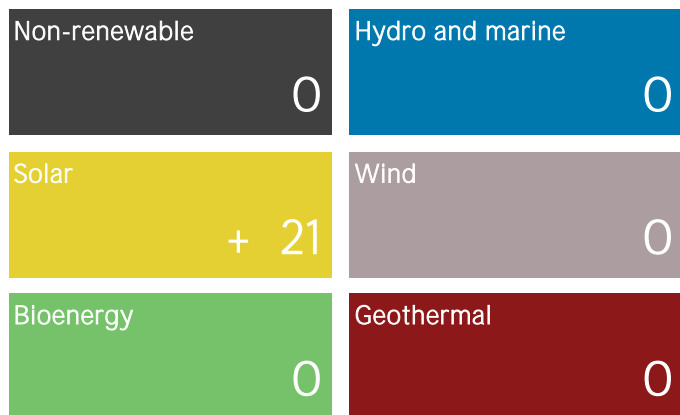


ELECTRICITY CAPACITY AND GENERATION

Capacity in 2018	MW	%
Non-renewable	866	84
Renewable	159	16
Hydro/marine	0	0
Solar	134	13
Wind	0	0
Bioenergy	25	2
Geothermal	0	0
Total	1 025	100

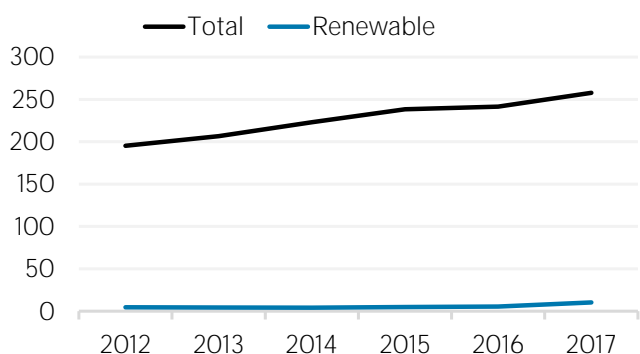
Capacity change (%)	2013-18	2017-18
Non-renewable	+ 10	0.0
Renewable	+ 397	+ 15.2
Hydro/marine	0	0.0
Solar	+ 1 814	+ 18.6
Wind	0	0.0
Bioenergy	0	0.0
Geothermal	0	0.0
Total	+ 25	+ 2.1

Net capacity change in 2018 (MW)

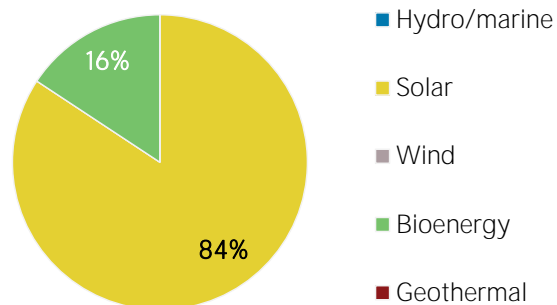


Generation in 2017	GWh	%
Non-renewable	3 816	96
Renewable	159	4
Hydro and marine	0	0
Solar	101	3
Wind	0	0
Bioenergy	58	1
Geothermal	0	0
Total	3 976	100

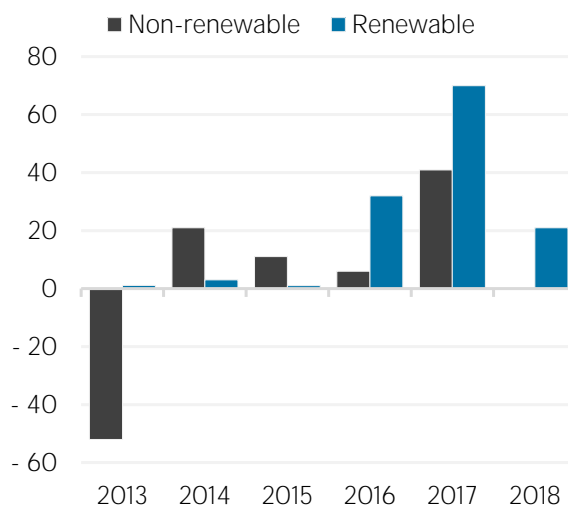
Per capita electricity generation (kWh)



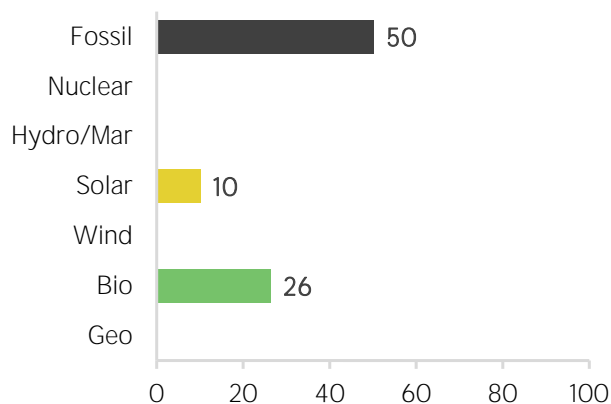
Renewable capacity in 2018



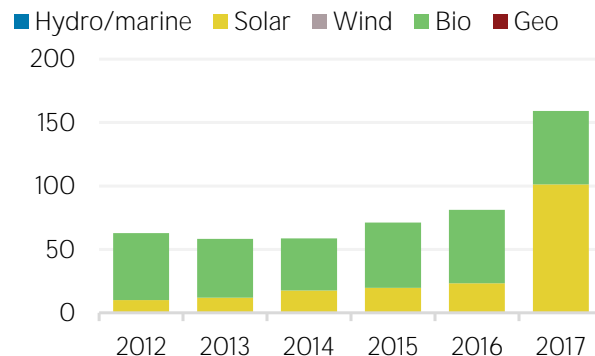
Net capacity change (MW)



Capacity utilisation in 2017 (%)



Renewable generation (GWh)



TARGETS, POLICIES AND MEASURES

Most immediate clean energy targets & NDCs

	year	target	unit
Renewable energy:	2017	20	%
Renewable electricity:	2020	20	%
Renewable capacity:			
Renewable transport:			
Liquid Biofuel blending mandate:			
Other transport targets:			
Renewable heating/cooling:			
Renewable Hydropower	2025	200	GWh
Off-grid renewable technologies:			

Energy efficiency (Energy):

Energy efficiency (Electricity):

Latest policies, programmes and legislation

1	Renewable Energy Law	2010
2	Senegalese National Biogas Programme Phase I	2009
3	2007-2012 Special Programme for Biofuels	2007
4	Program for the promotion of renewable energies, rural electrification and sustainable supply in domestic fuel (PERACOD)	2004

References to sustainable energy in Nationally Determined Contribution (NDC)

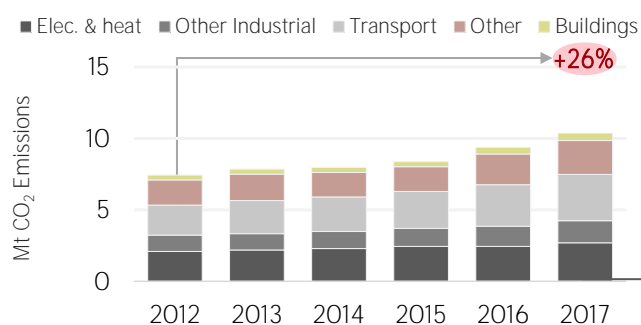
- Renewable energy

- electricity
- transport
- heating/cooling
- Energy efficiency

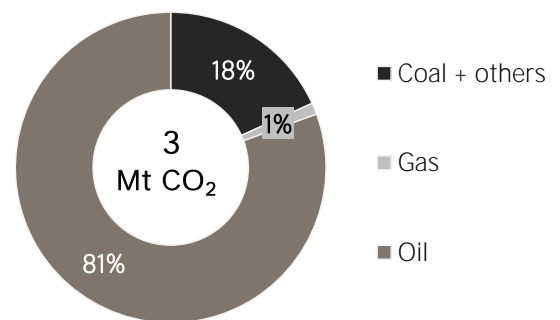
Conditional Unconditional unit

ENERGY AND EMISSIONS

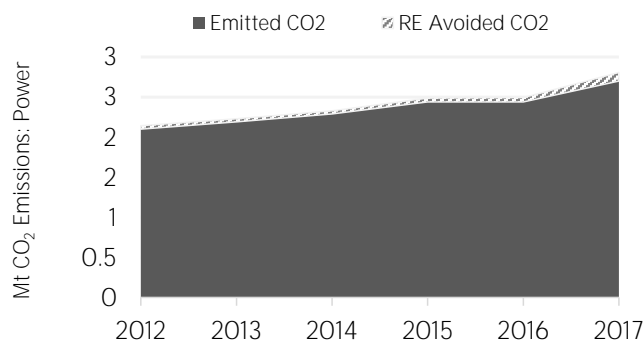
Energy-related CO₂ emissions by sector



Elec. & heat generation CO₂ emissions in 2017

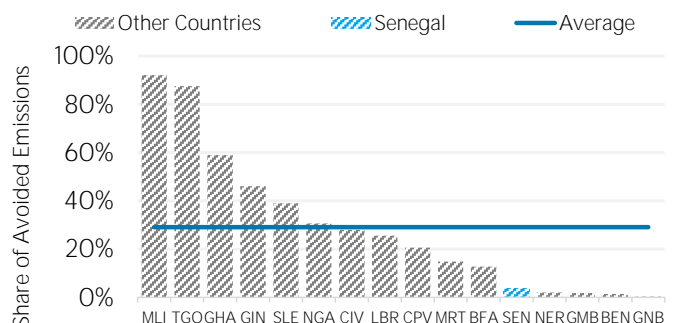


Avoided emissions from renewable power



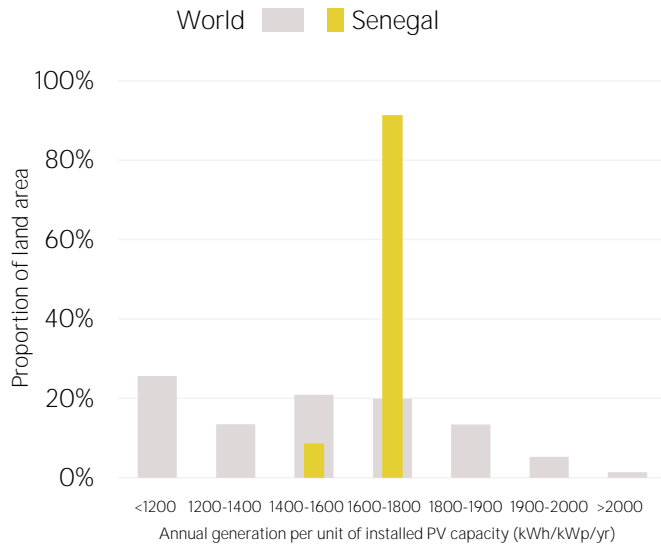
Avoided emissions based on fossil fuel mix used for power

Reduction in power emissions due to RE in 2017

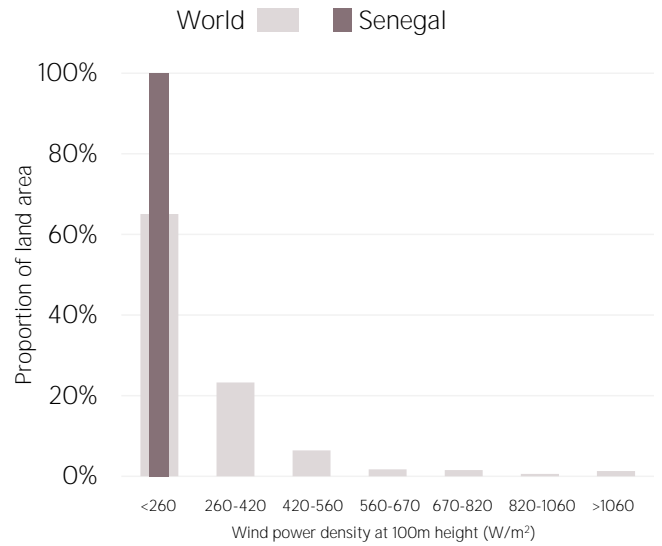


Reduction is RE Avoided divided by sum of avoided and emitted

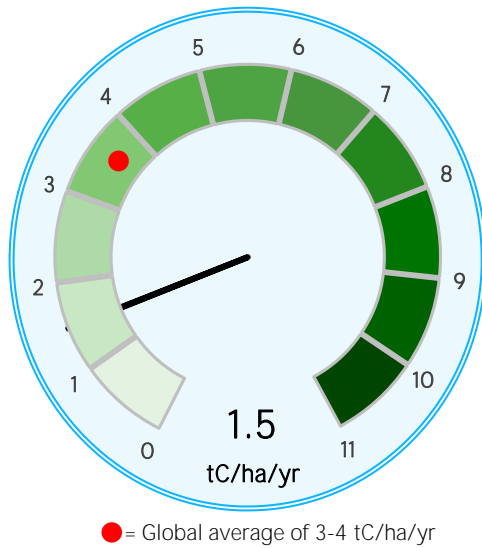
Distribution of solar potential



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/m^2) 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 to the global average NPP of 3-4 tonnes of carbon per year.

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.

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