

Angola

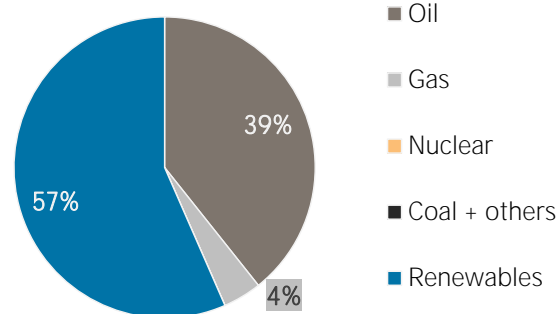
Sustainable Development Goal 7.2: Energy Indicators (2016)

Renewable energy (% of TFEC)	54.7	Access to electricity (% of population)	40.6
Energy efficiency (MJ per \$1 of GDP)	4.0	Access to clean cooking (% of population)	48

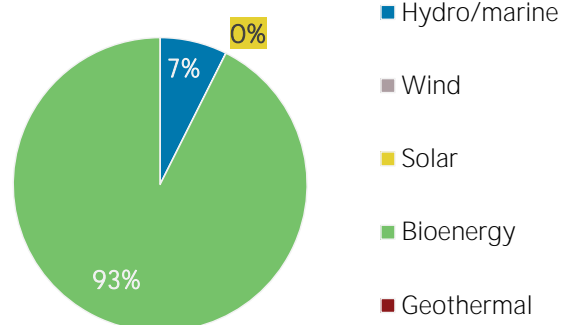
TOTAL PRIMARY ENERGY SUPPLY (TPES)

TPES	2011	2016
Non-renewable (TJ)	231 384	287 496
Renewable (TJ)	325 802	374 365
Total (TJ)	557 186	661 861
Renewable share (%)	58	57
Growth in TPES	2011-16	2015-16
Non-renewable (%)	+24.3	+4.1
Renewable (%)	+14.9	+3.3
Total (%)	+18.8	+3.6
Primary energy trade	2011	2016
Imports (TJ)	150 745	227 997
Exports (TJ)	3 304 936	3 649 033
Net trade (TJ)	3 154 191	3 421 036
Imports (% of supply)	27	34
Exports (% of production)	87	89
Energy self-sufficiency (%)	682	621
Net trade (USD million)	+ 62 773	n.a.
Net trade (% of GDP)	+56.2	n.a.

Total primary energy supply in 2016



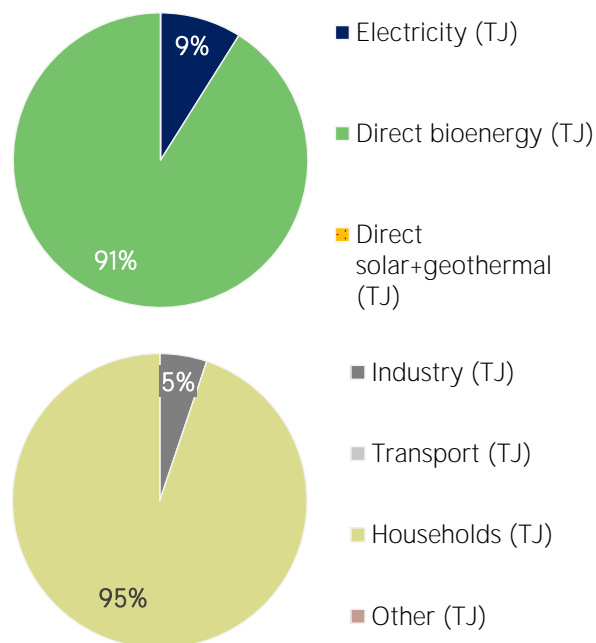
Renewable energy supply in 2016



RENEWABLE ENERGY CONSUMPTION

Consumption by source	2011	2016
Electricity (TJ)	11 793	25 178
Direct bioenergy (TJ)	231 153	256 776
Direct solar+geothermal (TJ)	0	0
Total (TJ)	242 946	281 954
Electricity share (%)	5	9
Consumption growth	2011-16	2015-16
Renewable electricity (%)	+113.5	+24.0
Other renewables (%)	+11.1	+2.0
Total (%)	+16.1	+3.6
Consumption by sector	2011	2016
Industry (TJ)	9 492	14 618
Transport (TJ)	0	0
Households (TJ)	233 454	267 336
Other (TJ)	0	0
Renewable share of TFEC	55.0	54.7

Renewable energy consumption in 2016

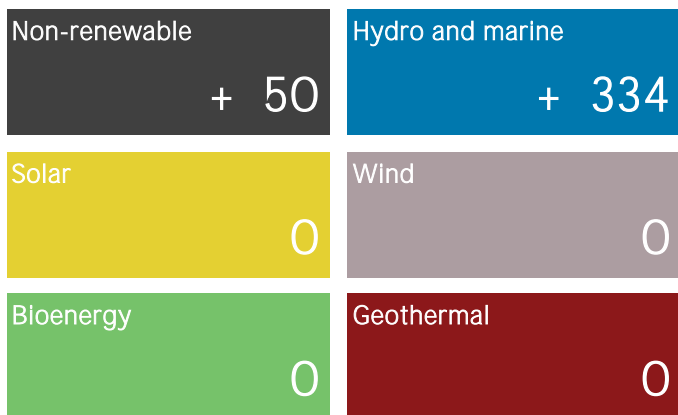


ELECTRICITY CAPACITY AND GENERATION

Capacity in 2018	MW	%
Non-renewable	1 761	39
Renewable	2 763	61
Hydro/marine	2 699	60
Solar	13	0
Wind	0	0
Bioenergy	51	1
Geothermal	0	0
Total	4 524	100

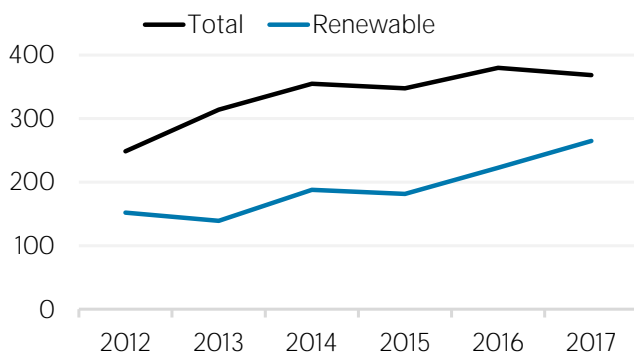
Capacity change (%)	2013-18	2017-18
Non-renewable	+ 129	+ 2.9
Renewable	+ 191	+ 13.7
Hydro/marine	+ 188	+ 14.1
Solar	+ 24	0.0
Wind	0	0.0
Bioenergy	0	0.0
Geothermal	0	0.0
Total	+ 163	+ 9.3

Net capacity change in 2018 (MW)

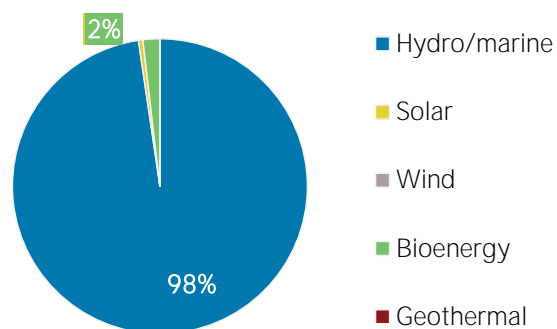


Generation in 2017	GWh	%
Non-renewable	3 086	28
Renewable	7 897	72
Hydro and marine	7 679	70
Solar	18	0
Wind	0	0
Bioenergy	200	2
Geothermal	0	0
Total	10 983	100

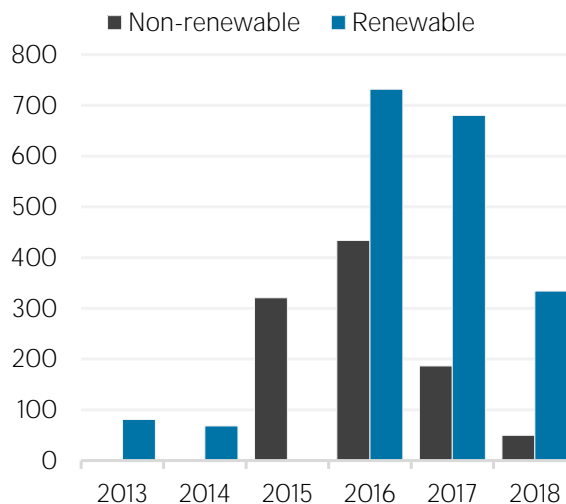
Per capita electricity generation (kWh)



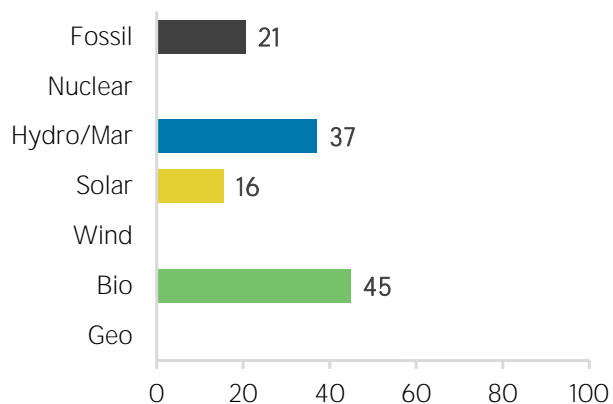
Renewable capacity in 2018



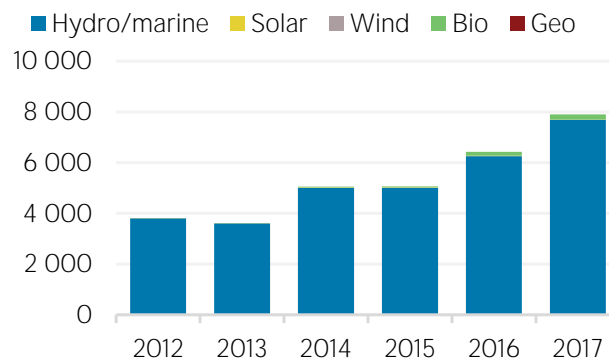
Net capacity change (MW)



Capacity utilisation in 2017 (%)



Renewable generation (GWh)



TARGETS, POLICIES AND MEASURES

Most immediate clean energy targets & NDCs

	year	target	unit
Renewable energy:			
Renewable electricity:	2030	8 491	MW (additional)
Renewable capacity:			
Renewable transport:			
Liquid Biofuel blending mandate:	2019	23 000	m3/year
Other transport targets:			
Renewable heating/cooling:			
Renewable Hydropower	2030	6 540	MW (additional)
Off-grid renewable technologies:			

Energy efficiency (Energy):

Energy efficiency (Electricity):

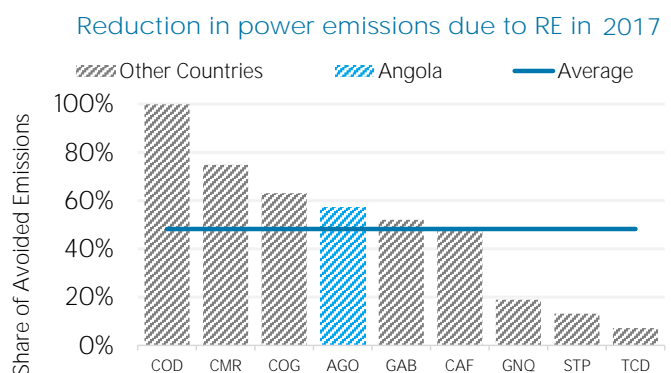
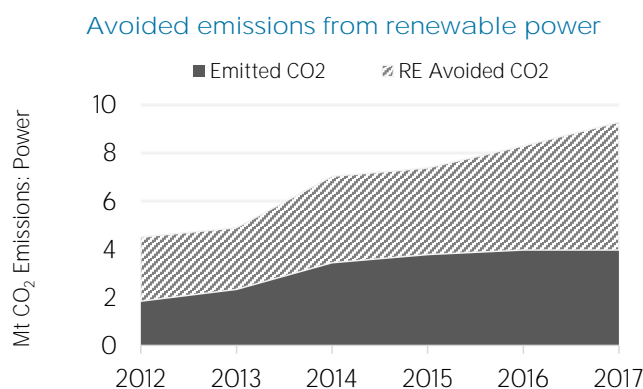
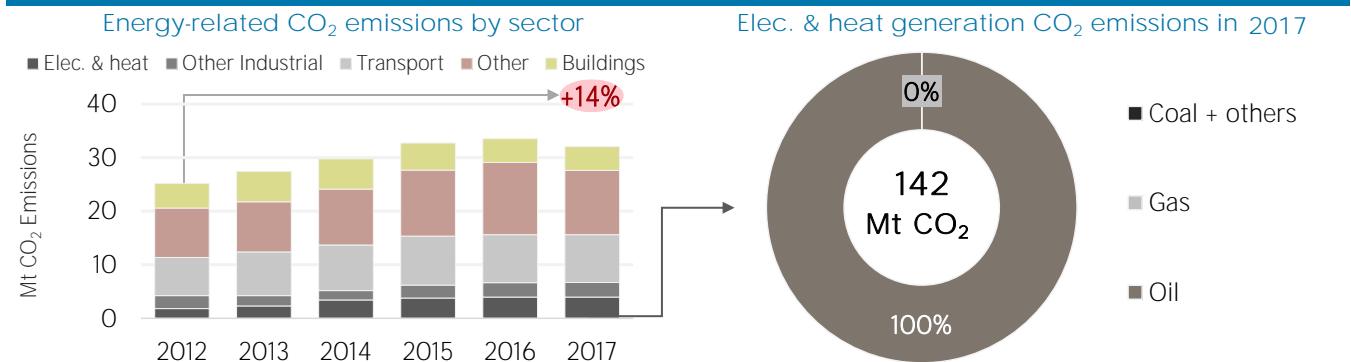
Latest policies, programmes and legislation

1	General Electricity Act 2014	2015
2	National Renewable Energy Strategy	2015
3	Sustainable Energy for All 2030	2015
4	Regional Policy for Universal Access to Modern Energy 2014 - 2030	2014
5	Ministry of Energy and Water Action Plan 2013-2017	2013

References to sustainable energy in Nationally Determined Contribution (NDC)

	Conditional	Unconditional	unit
- Renewable energy			
- electricity	8 491		MW (additional)
- transport			
- heating/cooling			
- Energy efficiency	23 000		m3/year

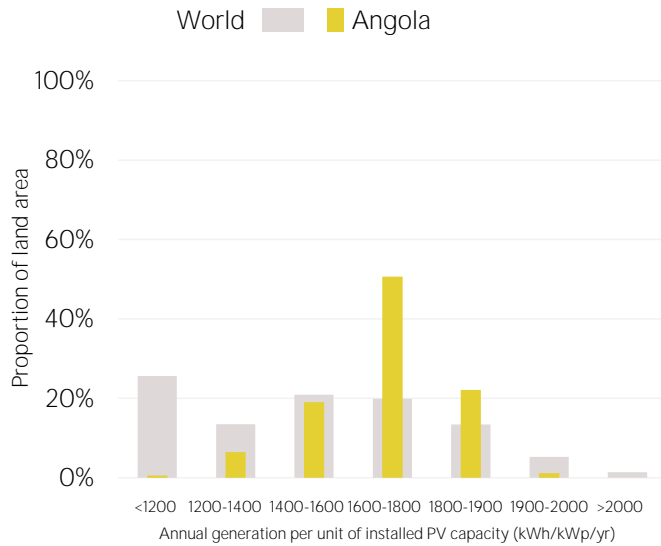
ENERGY AND EMISSIONS



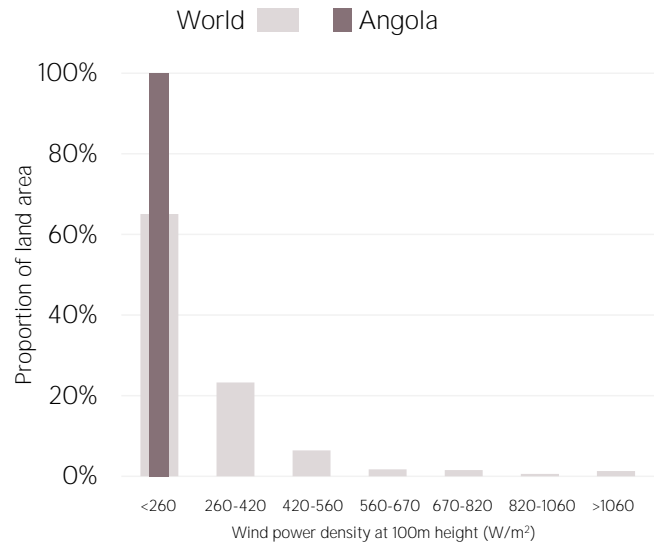
Avoided emissions based on fossil fuel mix used for power

Reduction is RE Avoided divided by sum of avoided and emitted

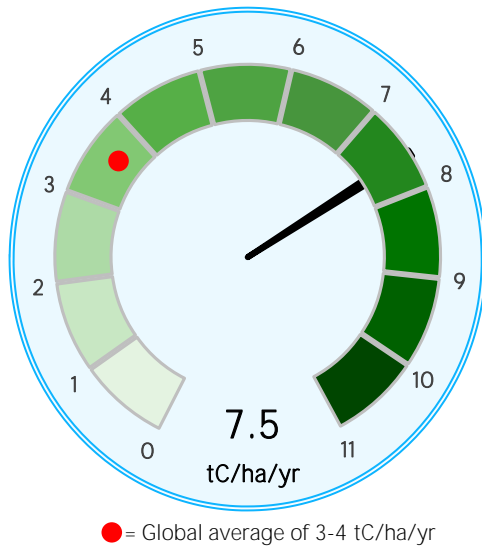
Distribution of solar potential



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/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.

Last updated on: 26th May, 2020



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