

SUSTAINABLE DEVELOPMENT GOAL 7: ENERGY INDICATORS (2017)

Renewable energy (% of TFEC)	86.7	Access to electricity (% of population)	34.1
Energy efficiency (MJ per \$1 of GDP)	4.4	Access to clean cooking (% of population)	<5
Public flows renewables (2017 USD M)	79.3	Per capita renewable capacity (W/person)	10.6

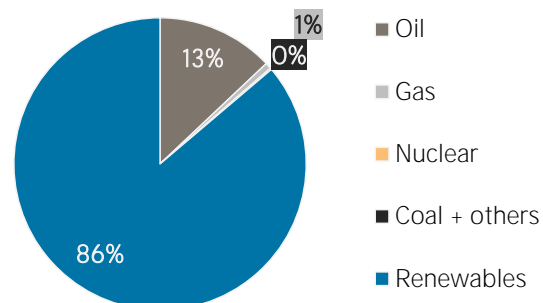
TOTAL PRIMARY ENERGY SUPPLY (TPES)

TPES	2012	2017
Non-renewable (TJ)	10 322	13 740
Renewable (TJ)	81 078	85 821
Total (TJ)	91 400	99 561
Renewable share (%)	89	86

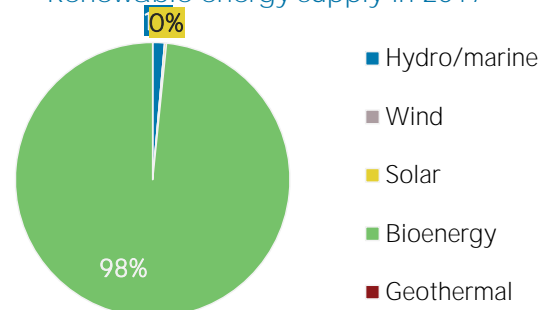
Growth in TPES	2012-17	2016-17
Non-renewable (%)	+33.1	+0.1
Renewable (%)	+5.9	+1.0
Total (%)	+8.9	+0.9

Primary energy trade	2012	2017
Imports (TJ)	11 294	14 434
Exports (TJ)	10	15
Net trade (TJ)	- 11 284	- 14 419
Imports (% of supply)	12	14
Exports (% of production)	0	0
Energy self-sufficiency (%)	89	87
Net trade (USD million)	- 83	- 361
Net trade (% of GDP)	-1.1	-3.9

Total primary energy supply in 2017



Renewable energy supply in 2017



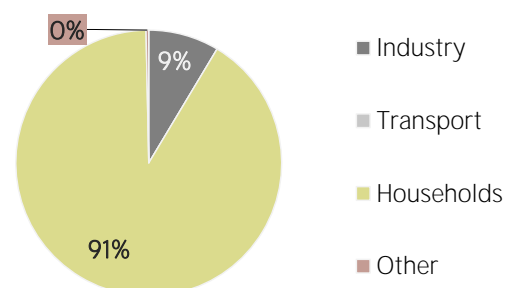
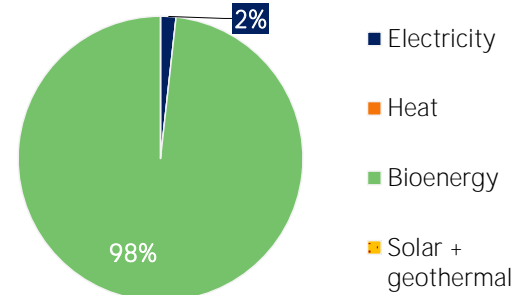
RENEWABLE ENERGY CONSUMPTION

Consumption by source	2012	2017
Electricity (TJ)	851	1 219
Heat (TJ)	0	0
Bioenergy (TJ)	65 469	68 530
Solar + geothermal (TJ)	0	0
Total (TJ)	66 320	69 749
Electricity share (%)	1	2

Consumption growth	2012-17	2016-17
Renewable electricity (%)	+43.2	+10.3
Other renewables (%)	+4.7	+0.7
Total (%)	+5.2	+0.8

Consumption by sector	2012	2017
Industry (TJ)	5 413	5 999
Transport (TJ)	0	0
Households (TJ)	60 909	63 522
Other (TJ)	- 2	228
Renewable share of TFEC		86.7

Renewable energy consumption in 2017

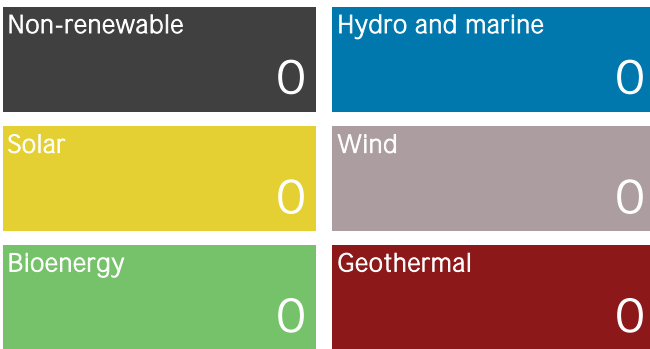


ELECTRICITY CAPACITY AND GENERATION

Capacity in 2019	MW	%
Non-renewable	118	46
Renewable	137	54
Hydro/marine	99	39
Solar	38	15
Wind	0	0
Bioenergy	1	0
Geothermal	0	0
Total	255	100

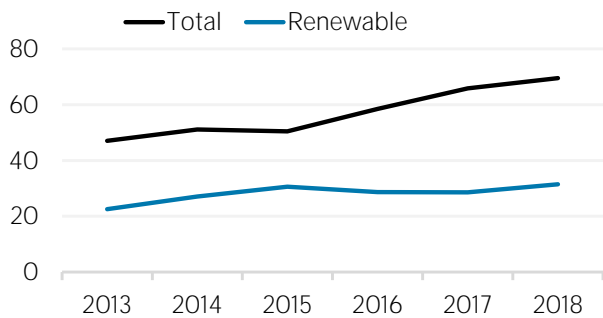
Capacity change (%)	2014-19	2018-19
Non-renewable	+ 119	0.0
Renewable	+ 78	0.0
Hydro/marine	+ 49	0.0
Solar	+ 275	0.0
Wind	0	0.0
Bioenergy	0	0.0
Geothermal	0	0.0
Total	+ 95	0.0

Net capacity change in 2019 (MW)

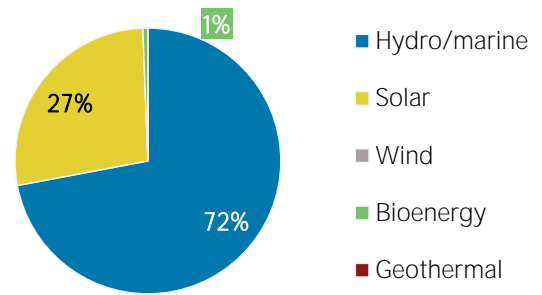


Generation in 2018	GWh	%
Non-renewable	468	55
Renewable	387	45
Hydro and marine	331	39
Solar	54	6
Wind	0	0
Bioenergy	2	0
Geothermal	0	0
Total	855	100

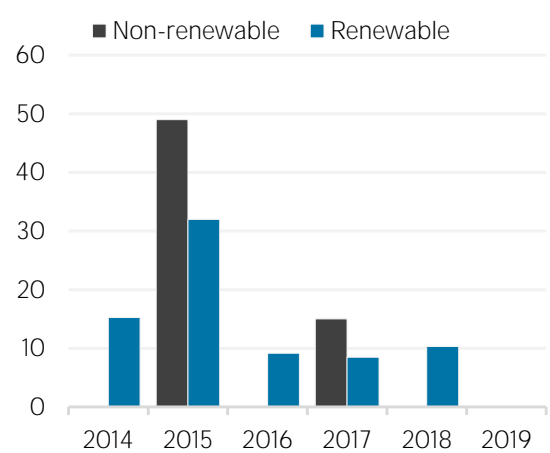
Per capita electricity generation (kWh)



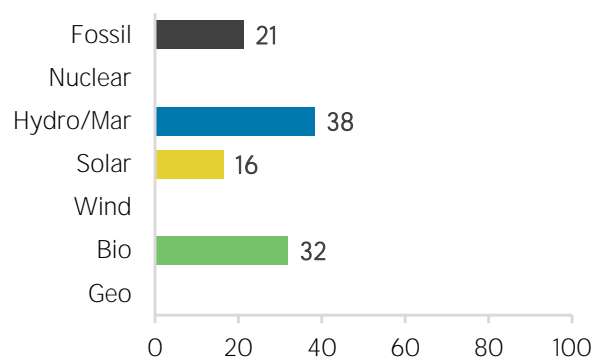
Renewable capacity in 2019



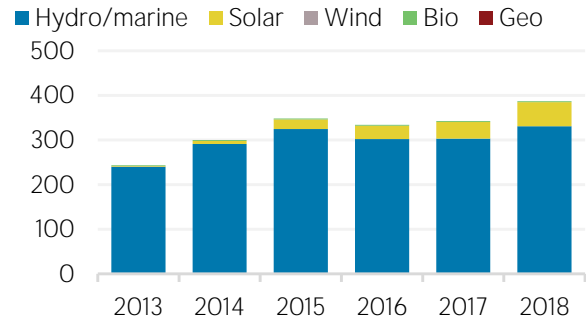
Net capacity change (MW)



Capacity utilisation in 2018 (%)



Renewable generation (GWh)



Most immediate clean energy targets & NDCs

	year	target	unit
Renewable energy:	2050	100	%
Renewable electricity:			
Renewable capacity:			
Renewable transport:			
Liquid Biofuel blending mandate:			
Other transport targets:			
Renewable heating/cooling:			
Renewable Hydropower			
Off-grid renewable technologies:			
Energy efficiency (Energy):			
Energy efficiency (Electricity):			

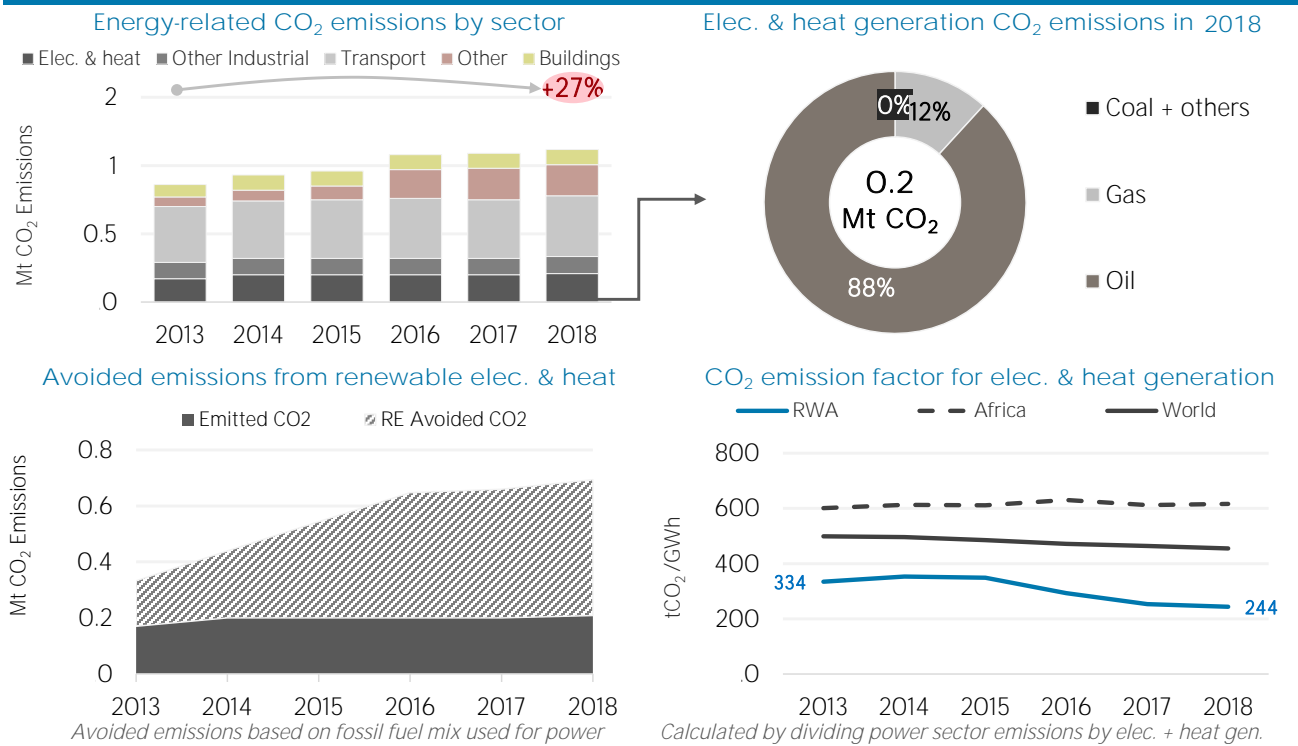
Latest policies, programmes and legislation

1	Minimum Standards for Solar Home Systems	2019
2	National Cooling Strategy	2019
3	National Environment and Climate Change Policy	2019
4	Building Code	2015
5	Rwanda Energy Policy	2015

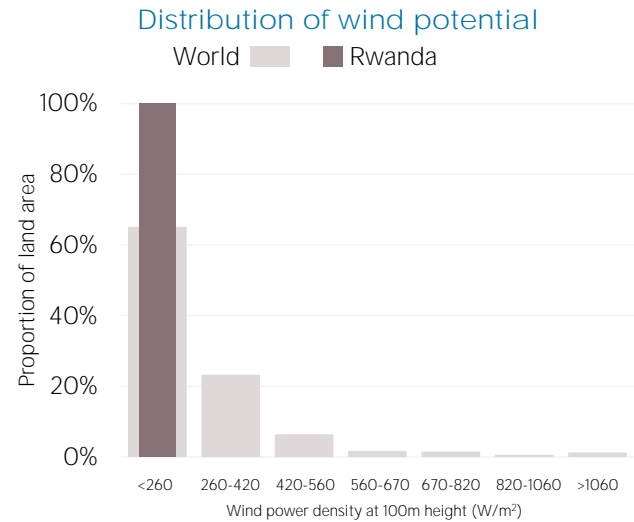
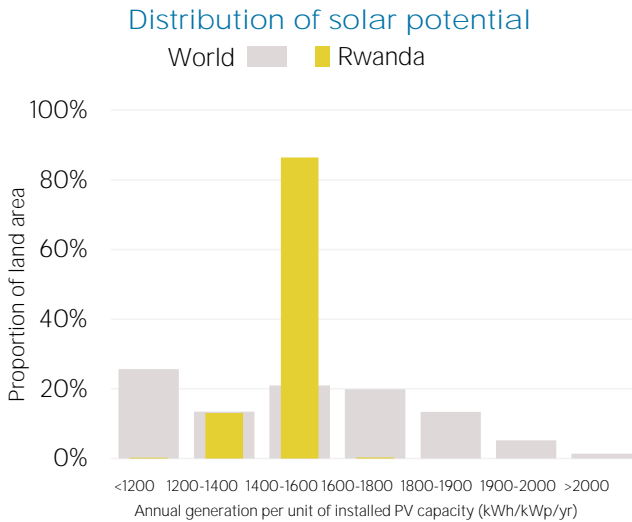
References to sustainable energy in Nationally Determined Contribution (NDC)

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

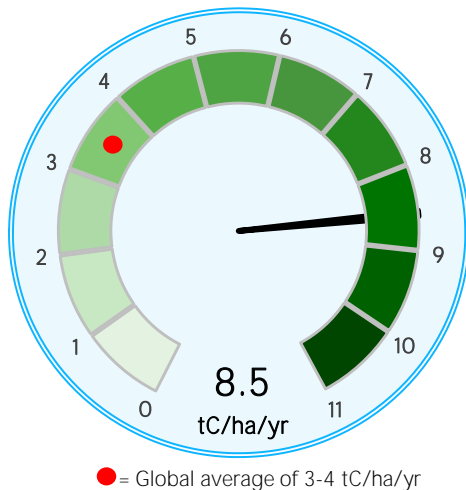
ENERGY AND EMISSIONS



RENEWABLE RESOURCE 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 to the global average NPP of 3-4 tonnes of carbon per year.

Sources: IRENA statistics, plus data from the following sources: UN SDG Database (original sources: WHO; World Bank; IEA; IRENA; and UNSD); UN World Population Prospects; 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: Capacity per capita and public investments SDGs only apply to developing areas. Energy self-sufficiency has been defined as total primary energy production divided by total primary energy supply. Energy trade includes all commodities in Chapter 27 of the Harmonised System (HS). Capacity utilisation is calculated as annual generation divided by year-end capacity x 8,760h/year. Avoided emissions from renewable power is 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.

These profiles have been produced to provide an overview of developments in renewable energy in different countries and areas. 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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