

Sweden

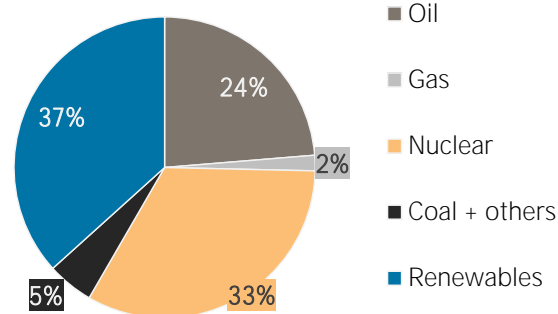
Sustainable Development Goal 7.2: Energy Indicators (2016)

Renewable energy (% of TFEC)	51.4	Access to electricity (% of population)	100.0
Energy efficiency (MJ per \$1 of GDP)	4.5	Access to clean cooking (% of population)	>95

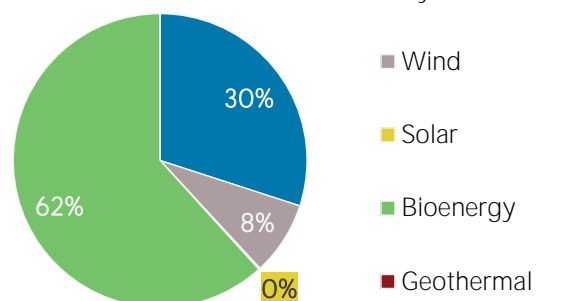
TOTAL PRIMARY ENERGY SUPPLY (TPES)

TPES	2011	2016
Non-renewable (TJ)	1 395 812	1 307 715
Renewable (TJ)	720 821	757 527
Total (TJ)	2 116 633	2 065 242
Renewable share (%)	34	37
Growth in TPES	2011-16	2015-16
Non-renewable (%)	-6.3	+14.0
Renewable (%)	+5.1	+9.8
Total (%)	-2.4	+12.4
Primary energy trade	2011	2016
Imports (TJ)	1 361 715	1 527 702
Exports (TJ)	560 517	820 330
Net trade (TJ)	- 801 198	- 707 372
Imports (% of supply)	64	74
Exports (% of production)	40	56
Energy self-sufficiency (%)	67	71
Net trade (USD million)	- 11 323	- 4 669
Net trade (% of GDP)	-2.0	-0.9

Total primary energy supply in 2016



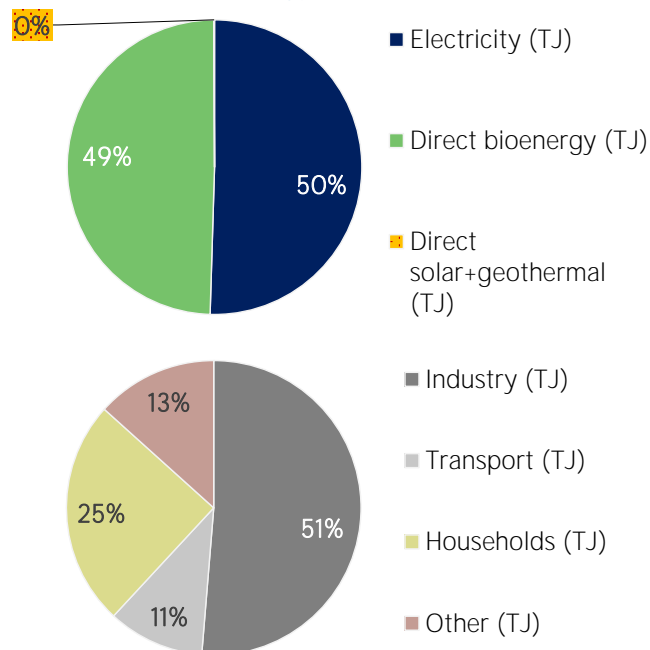
Renewable energy supply in 2016



RENEWABLE ENERGY CONSUMPTION

Consumption by source	2011	2016
Electricity (TJ)	301 985	287 412
Direct bioenergy (TJ)	248 289	281 462
Direct solar+geothermal (TJ)	461	468
Total (TJ)	550 735	569 342
Electricity share (%)	55	50
Consumption growth	2011-16	2015-16
Renewable electricity (%)	-4.8	+16.9
Other renewables (%)	+13.3	+4.1
Total (%)	+3.4	+10.2
Consumption by sector	2011	2016
Industry (TJ)	301 656	292 092
Transport (TJ)	25 960	60 296
Households (TJ)	152 616	141 074
Other (TJ)	70 503	75 880
Renewable share of TFEC	46.4	51.4

Renewable energy consumption in 2016

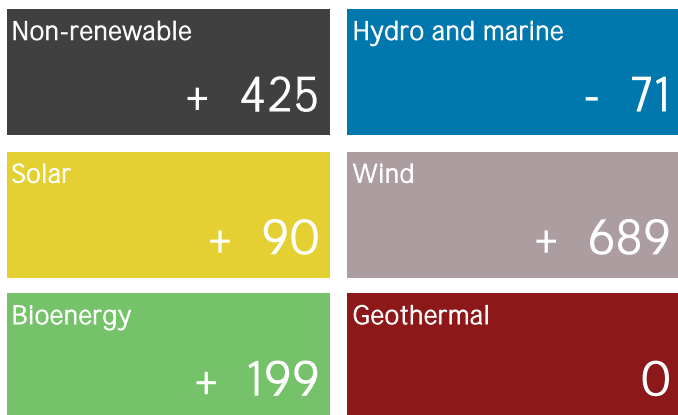


ELECTRICITY CAPACITY AND GENERATION

Capacity in 2018	MW	%
Non-renewable	12 044	29
Renewable	29 244	71
Hydro/marine	16 431	40
Solar	492	1
Wind	7 300	18
Bioenergy	5 021	12
Geothermal	0	0
Total	41 287	100

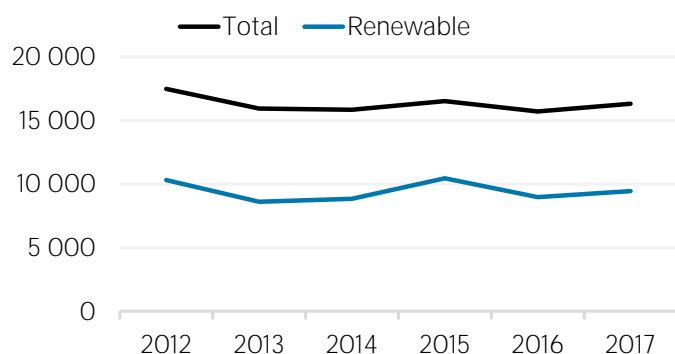
Capacity change (%)	2013-18	2017-18
Non-renewable	- 9	+ 3.7
Renewable	+ 19	+ 3.2
Hydro/marine	+ 0	- 0.4
Solar	+ 1 044	+ 22.4
Wind	+ 74	+ 10.4
Bioenergy	+ 25	+ 4.1
Geothermal	0	0.0
Total	+ 9	+ 3.3

Net capacity change in 2018 (MW)

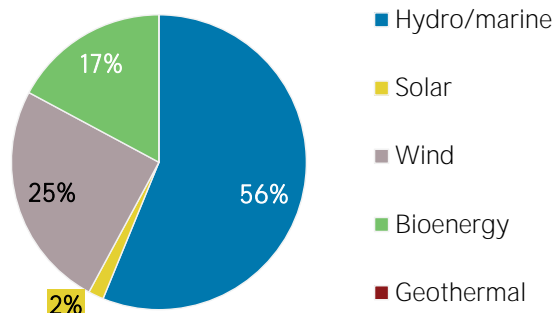


Generation in 2017	GWh	%
Non-renewable	69 192	42
Renewable	95 058	58
Hydro and marine	65 143	40
Solar	230	0
Wind	17 609	11
Bioenergy	12 076	7
Geothermal	0	0
Total	164 250	100

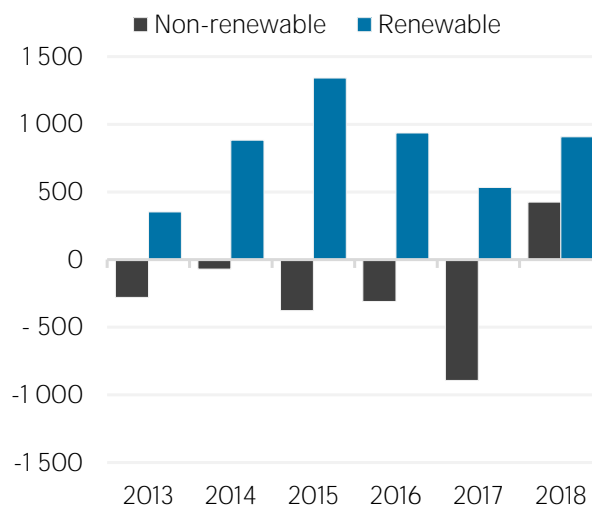
Per capita electricity generation (kWh)



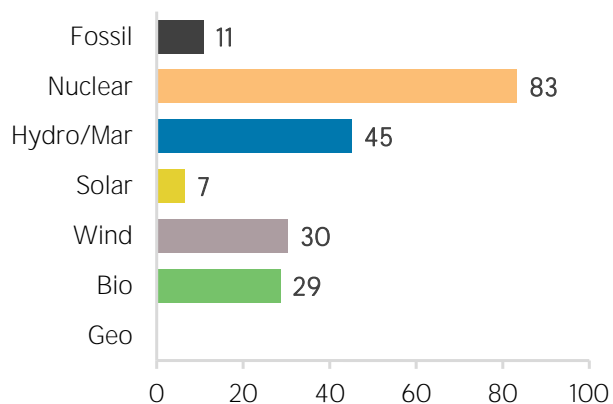
Renewable capacity in 2018



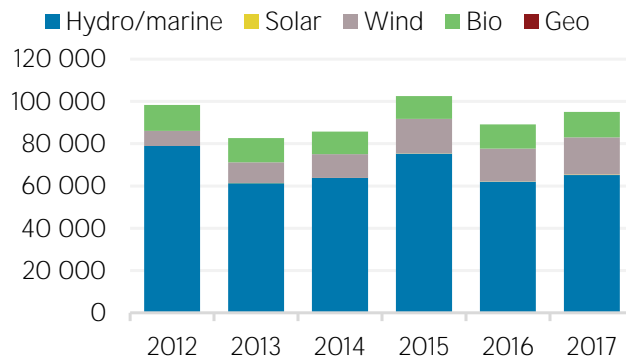
Net capacity change (MW)



Capacity utilisation in 2017 (%)



Renewable generation (GWh)



Most immediate clean energy targets & NDCs

	year	target	unit
Renewable energy:	2020	50	%
Renewable electricity:	2020	63	%
Renewable capacity:			
Renewable transport:	2020	14	%
Liquid Biofuel blending mandate:			
Other transport targets:			
Renewable heating/cooling:	2020	62	%
Renewable Hydropower			
Off-grid renewable technologies:			

Energy efficiency (Energy):

Energy efficiency (Electricity):

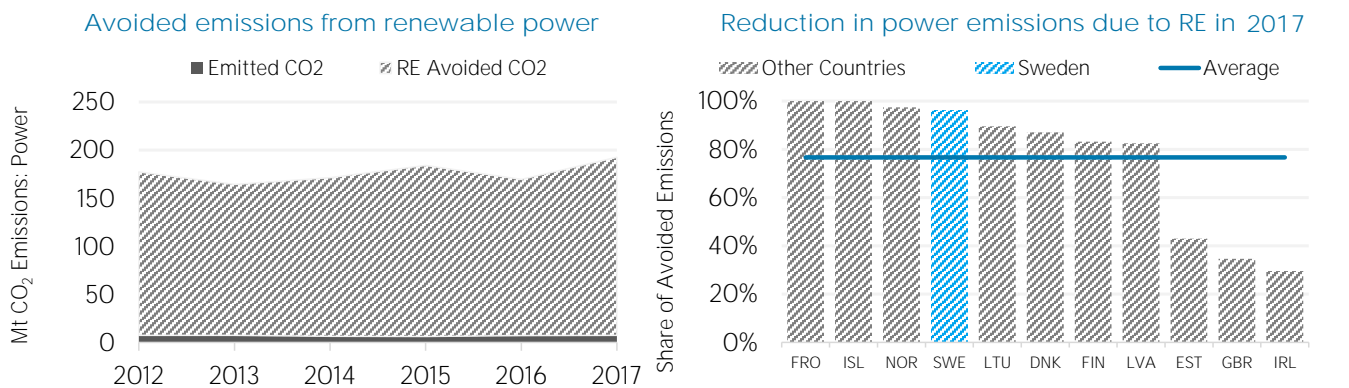
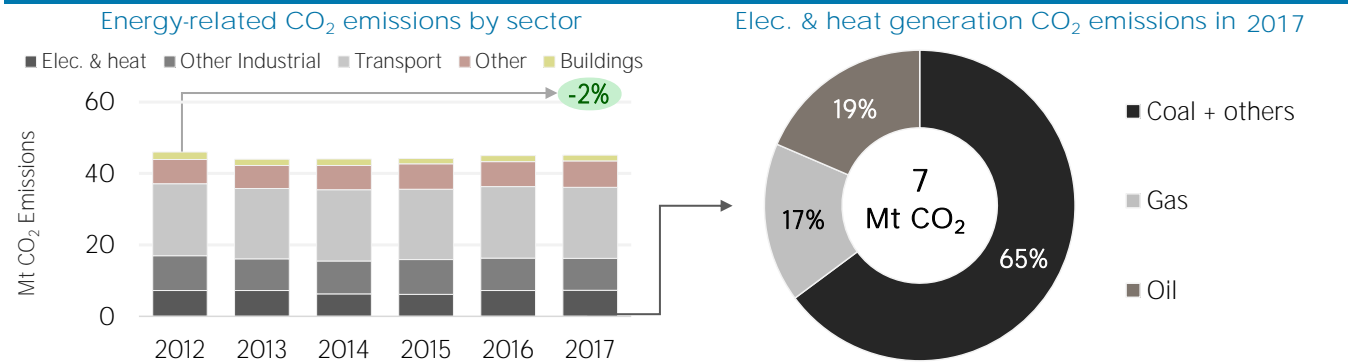
Latest policies, programmes and legislation

1	Voluntary Certification of Installers of Certain Heating Systems	2012
2	Environmental Requirements in the Procurement of Vehicles	2011
3	Implementation of the Sustainability Criteria of the Renewables Directive	2010
4	National Renewable Energy Action Plan (NREAP)	2010
5	Investment Aid for Biogas and Other Renewable Gases	2009

References to sustainable energy in Nationally Determined Contribution (NDC)

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

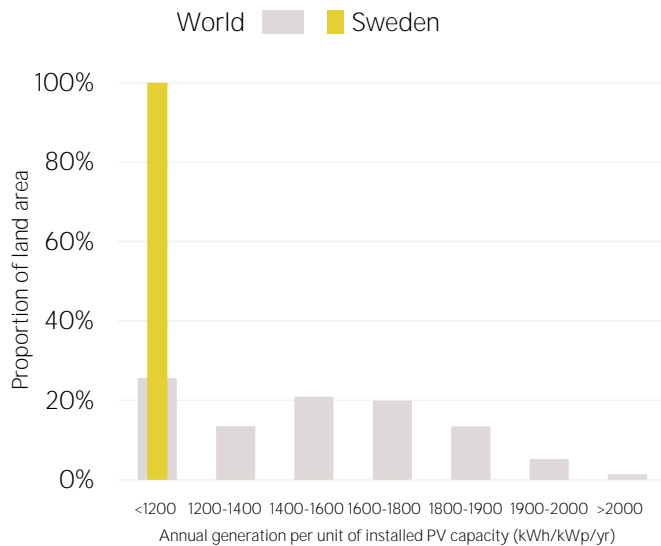
ENERGY AND EMISSIONS



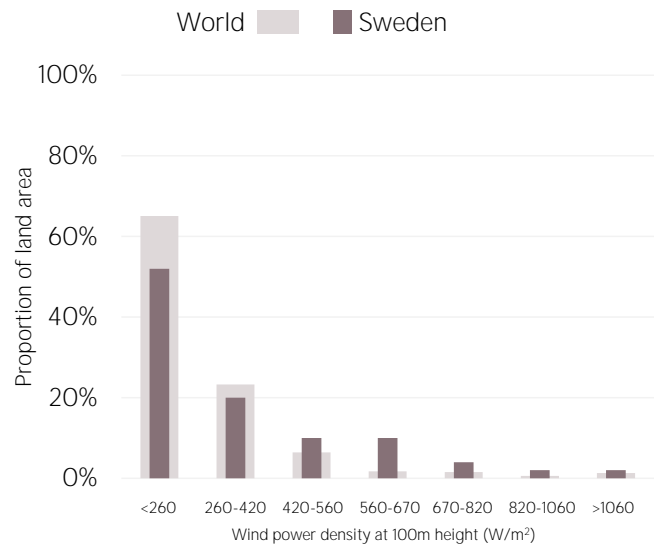
Avoided emissions based on fossil fuel mix used for power

Reduction is RE Avoided divided by sum of avoided and emitted

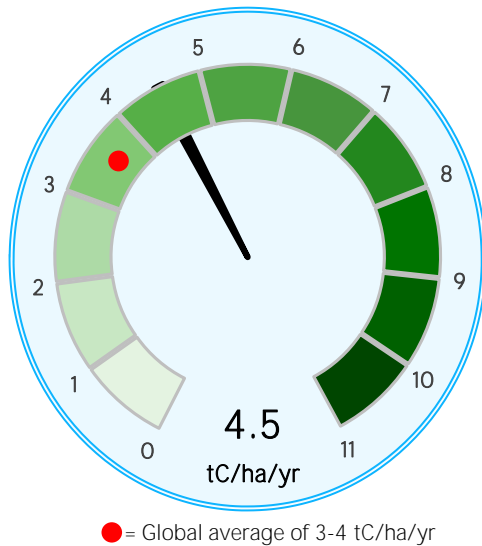
Distribution of solar potential



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.

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