

Switzerland

Sustainable Development Goal 7.2: Energy Indicators (2016)

Renewable energy (% of TFEC)	25.5	Access to electricity (% of population)	100.0
Energy efficiency (MJ per \$1 of GDP)	2.1	Access to clean cooking (% of population)	>95

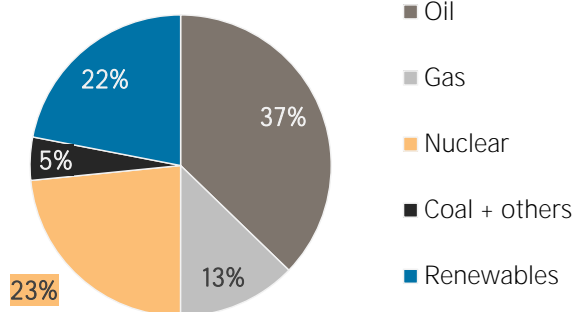
TOTAL PRIMARY ENERGY SUPPLY (TPES)

TPES	2011	2016
Non-renewable (TJ)	859 120	765 868
Renewable (TJ)	209 362	215 549
Total (TJ)	1 068 482	981 417
Renewable share (%)	20	22

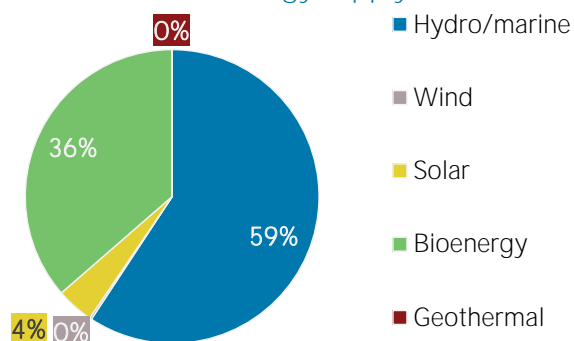
Growth in TPES	2011-16	2015-16
Non-renewable (%)	-10.9	-3.9
Renewable (%)	+3.0	+7.9
Total (%)	-8.1	-1.6

Primary energy trade	2011	2016
Imports (TJ)	734 774	719 323
Exports (TJ)	134 619	128 885
Net trade (TJ)	- 600 155	- 590 438
Imports (% of supply)	69	73
Exports (% of production)	26	28
Energy self-sufficiency (%)	49	48
Net trade (USD million)	n.a.	n.a.
Net trade (% of GDP)	n.a.	n.a.

Total primary energy supply in 2016



Renewable energy supply in 2016



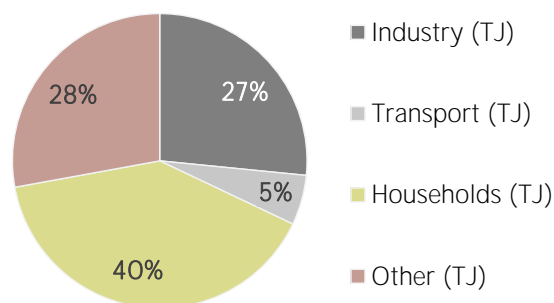
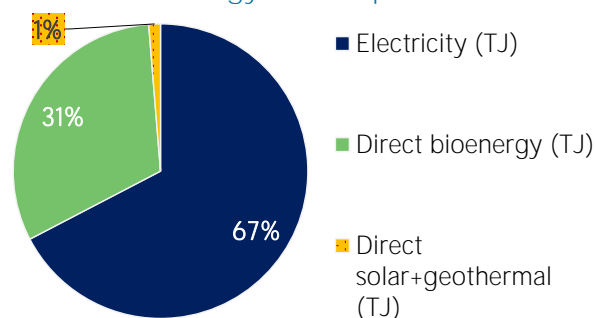
RENEWABLE ENERGY CONSUMPTION

Consumption by source	2011	2016
Electricity (TJ)	136 846	129 533
Direct bioenergy (TJ)	46 660	60 292
Direct solar+geothermal (TJ)	1 656	2 469
Total (TJ)	185 162	192 294
Electricity share (%)	74	67

Consumption growth	2011-16	2015-16
Renewable electricity (%)	-5.3	+8.8
Other renewables (%)	+29.9	+9.3
Total (%)	+3.8	+9.0

Consumption by sector	2011	2016
Industry (TJ)	54 863	51 105
Transport (TJ)	7 565	10 535
Households (TJ)	68 014	77 055
Other (TJ)	54 720	53 598
Renewable share of TFEC	21.6	25.5

Renewable energy consumption in 2016

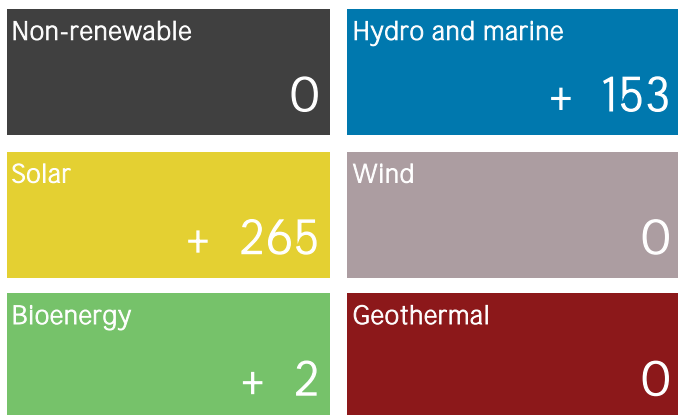


ELECTRICITY CAPACITY AND GENERATION

Capacity in 2018	MW	%
Non-renewable	4 565	21
Renewable	17 468	79
Hydro/marine	14 979	68
Solar	2 171	10
Wind	75	0
Bioenergy	243	1
Geothermal	0	0
Total	22 033	100

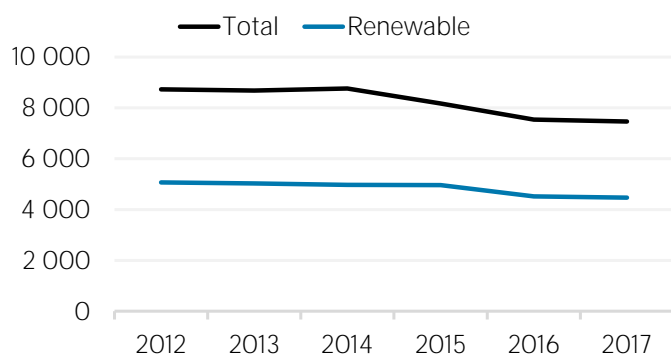
Capacity change (%)	2013-18	2017-18
Non-renewable	+ 1	0.0
Renewable	+ 21	+ 2.5
Hydro/marine	+ 12	+ 1.0
Solar	+ 187	+ 13.9
Wind	+ 25	0.0
Bioenergy	+ 5	+ 0.7
Geothermal	0	0.0
Total	+ 16	+ 1.9

Net capacity change in 2018 (MW)

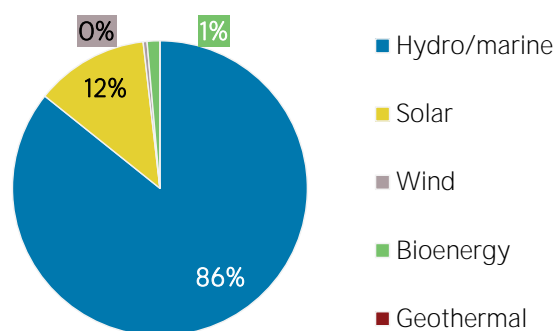


Generation in 2017	GWh	%
Non-renewable	25 327	40
Renewable	37 762	60
Hydro and marine	34 092	54
Solar	1 683	3
Wind	133	0
Bioenergy	1 854	3
Geothermal	0	0
Total	63 089	100

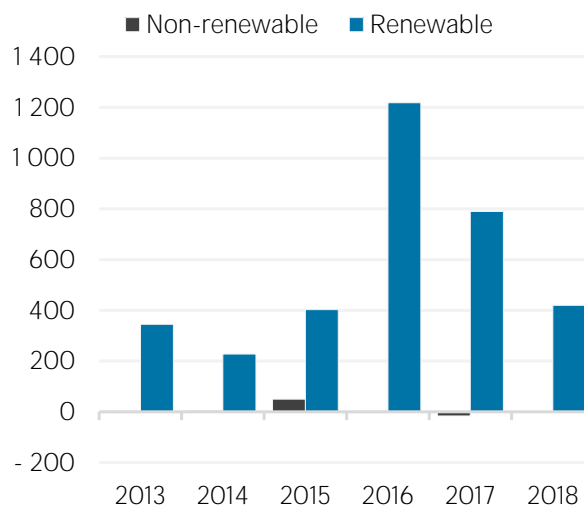
Per capita electricity generation (kWh)



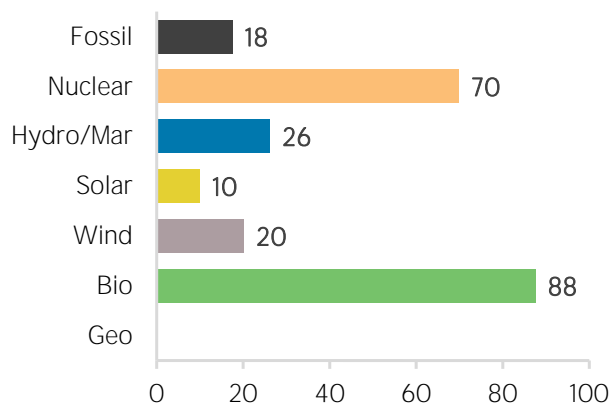
Renewable capacity in 2018



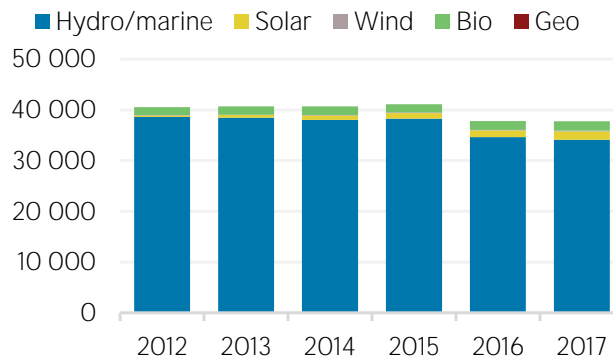
Net capacity change (MW)



Capacity utilisation in 2017 (%)



Renewable generation (GWh)



Most immediate clean energy targets & NDCs

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

Latest policies, programmes and legislation

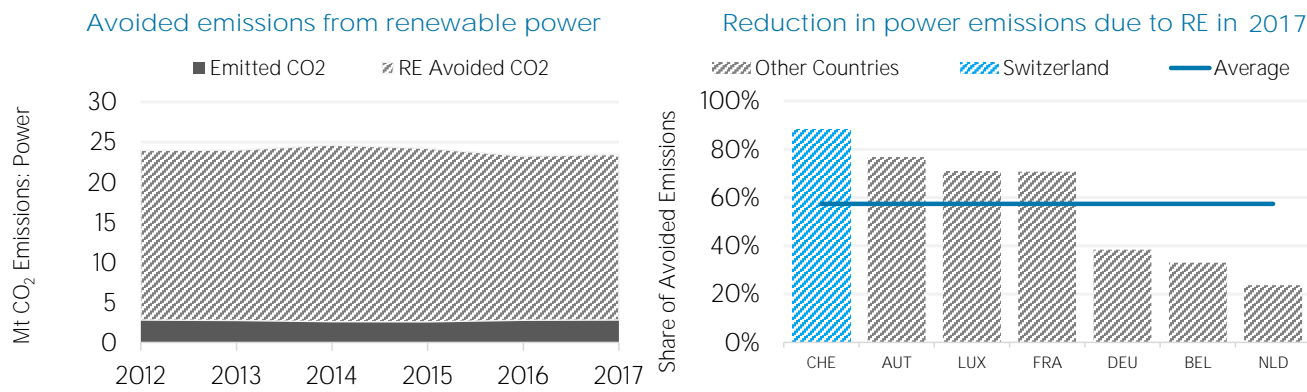
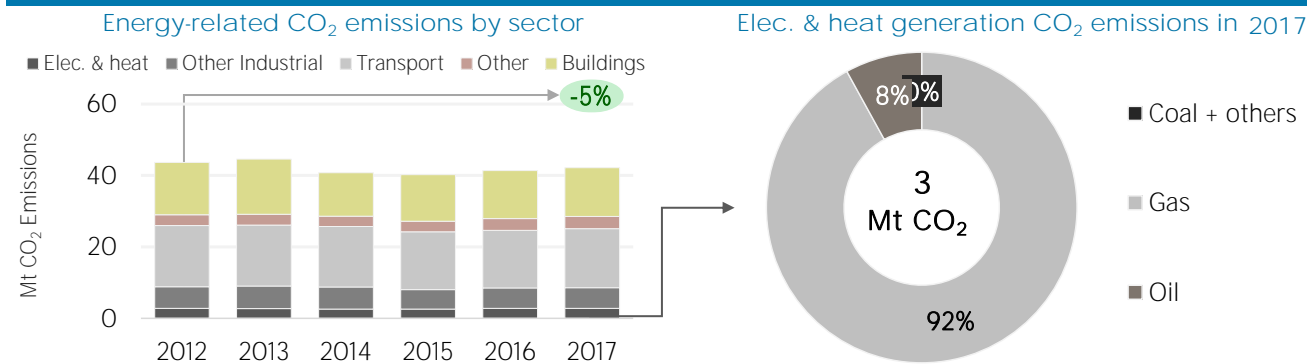
1	Feed-in Tariffs for RES and investment grants for small and large (>100kW) PV, hydropower, and biomass	2018
2	Switzerland Energy Act of 30 September 2016	2018
3	Obligation for CO2 Compensation by Fuel Importers	2013
4	Technology Fund for Innovative Technologies	2013
5	Building Renovation Program (Das Gebäudeprogramm, Le Programme Bâtiments)	2010

References to sustainable energy in Nationally Determined Contribution (NDC)

- Renewable energy
 - electricity
 - transport
 - heating/cooling
- Energy efficiency

Conditional Unconditional unit

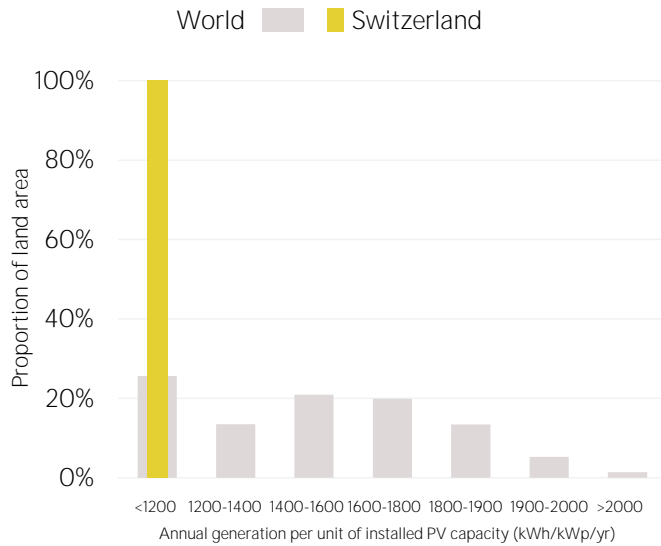
ENERGY AND EMISSIONS



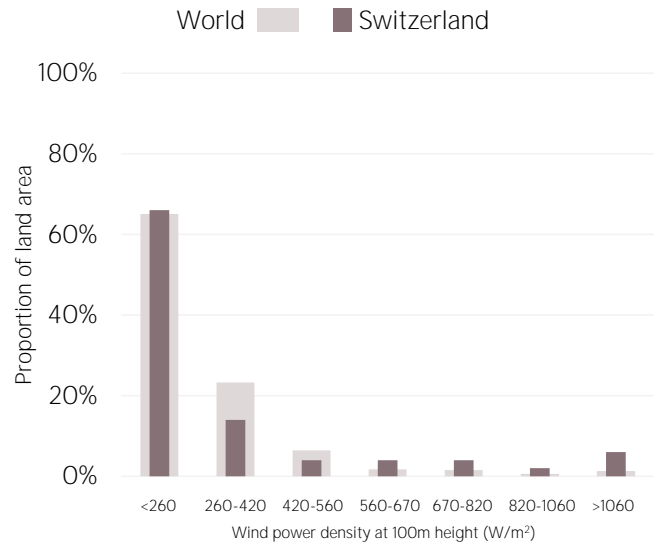
Avoided emissions based on fossil fuel mix used for power

Reduction is RE Avoided divided by sum of avoided and emitted

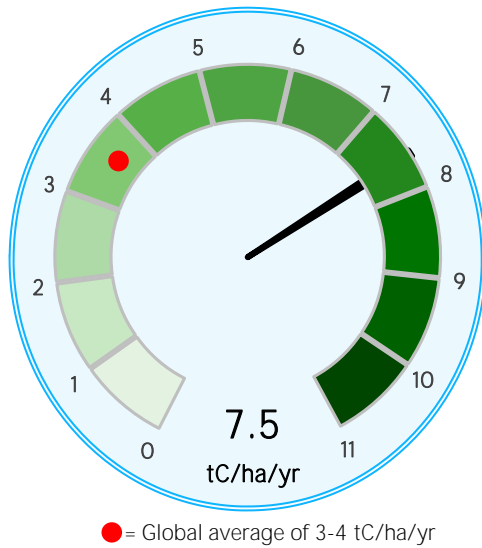
Distribution of solar potential



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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