

Norway

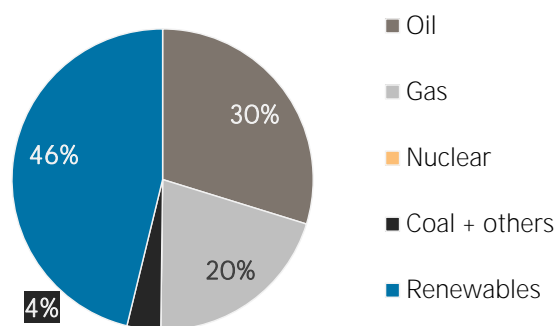
Sustainable Development Goal 7.2: Energy Indicators (2016)

Renewable energy (% of TFEC)	59.5	Access to electricity (% of population)	100.0
Energy efficiency (MJ per \$1 of GDP)	3.4	Access to clean cooking (% of population)	>95

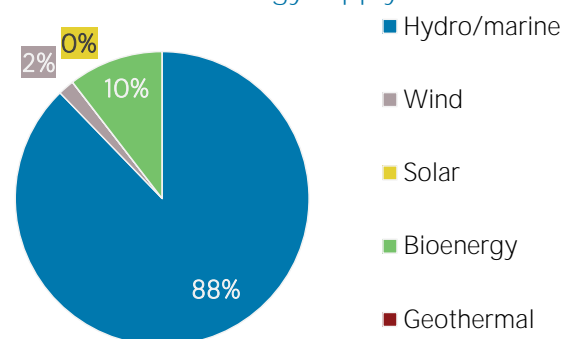
TOTAL PRIMARY ENERGY SUPPLY (TPES)

TPES	2011	2016
Non-renewable (TJ)	632 384	610 761
Renewable (TJ)	569 291	524 230
Total (TJ)	1 201 675	1 134 991
Renewable share (%)	47	46
Growth in TPES	2011-16	2015-16
Non-renewable (%)	-3.4	-12.8
Renewable (%)	-7.9	+0.6
Total (%)	-5.5	-7.1
Primary energy trade	2011	2016
Imports (TJ)	318 917	353 197
Exports (TJ)	7 467 601	7 896 710
Net trade (TJ)	7 148 684	7 543 513
Imports (% of supply)	27	31
Exports (% of production)	89	91
Energy self-sufficiency (%)	700	768
Net trade (USD million)	n.a.	n.a.
Net trade (% of GDP)	n.a.	n.a.

Total primary energy supply in 2016



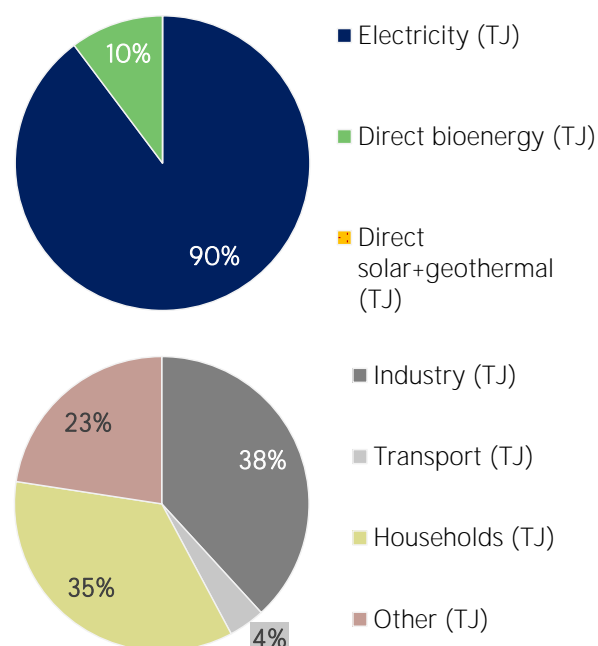
Renewable energy supply in 2016



RENEWABLE ENERGY CONSUMPTION

Consumption by source	2011	2016
Electricity (TJ)	455 227	403 306
Direct bioenergy (TJ)	53 639	46 023
Direct solar+geothermal (TJ)	0	0
Total (TJ)	508 866	449 329
Electricity share (%)	89	90
Consumption growth	2011-16	2015-16
Renewable electricity (%)	-11.4	-2.7
Other renewables (%)	-14.2	+19.1
Total (%)	-11.7	-0.9
Consumption by sector	2011	2016
Industry (TJ)	207 688	171 675
Transport (TJ)	7 089	17 894
Households (TJ)	179 068	158 316
Other (TJ)	115 022	101 443
Renewable share of TFEC	56.5	59.5

Renewable energy consumption in 2016

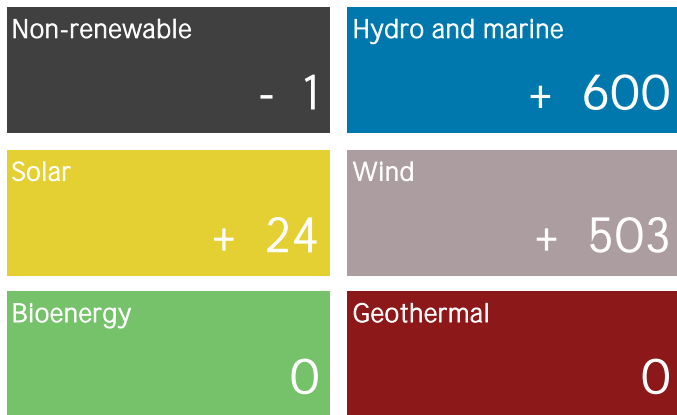


ELECTRICITY CAPACITY AND GENERATION

Capacity in 2018	MW	%
Non-renewable	1 021	3
Renewable	34 396	97
Hydro/marine	32 530	92
Solar	68	0
Wind	1 710	5
Bioenergy	87	0
Geothermal	0	0
Total	35 417	100

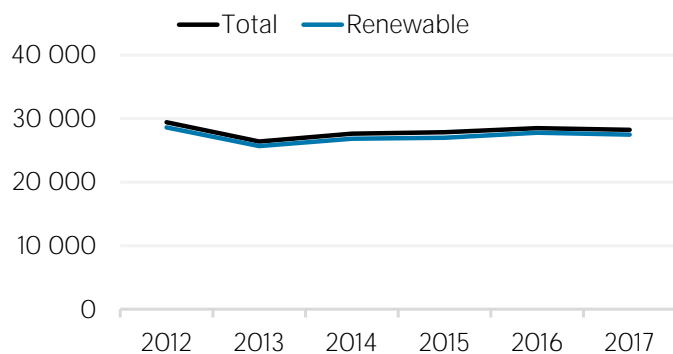
Capacity change (%)	2013-18	2017-18
Non-renewable	- 32	- 0.1
Renewable	+ 7	+ 3.4
Hydro/marine	+ 5	+ 1.9
Solar	+ 522	+ 52.3
Wind	+ 109	+ 41.7
Bioenergy	- 38	0.0
Geothermal	0	0.0
Total	+ 6	+ 3.3

Net capacity change in 2018 (MW)

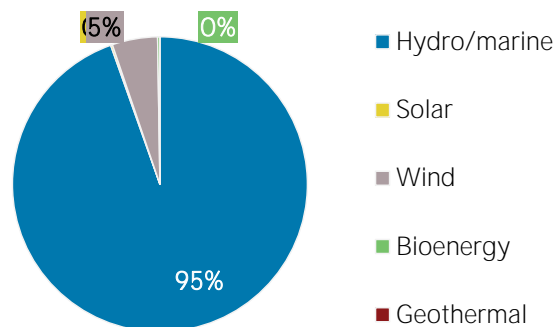


Generation in 2017	GWh	%
Non-renewable	4 001	3
Renewable	144 989	97
Hydro and marine	141 836	95
Solar	40	0
Wind	2 854	2
Bioenergy	259	0
Geothermal	0	0
Total	148 990	100

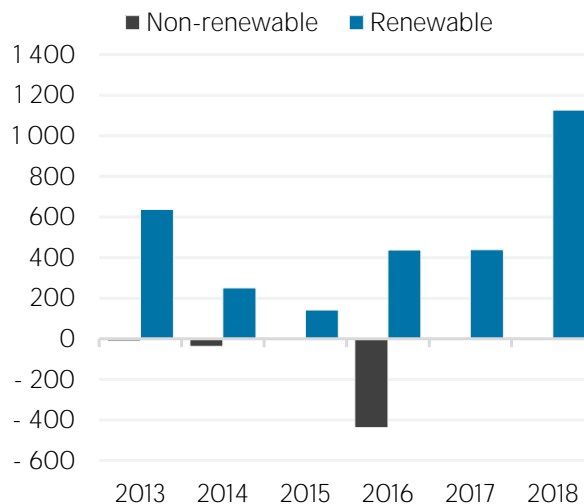
Per capita electricity generation (kWh)



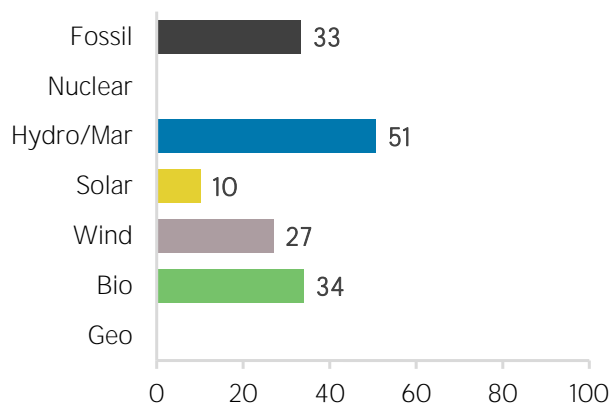
Renewable capacity in 2018



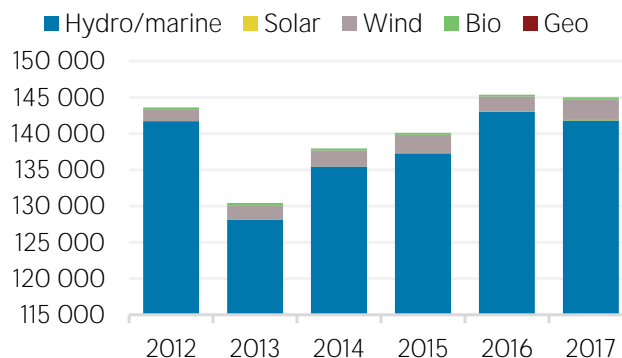
Net capacity change (MW)



Capacity utilisation in 2017 (%)



Renewable generation (GWh)



Most immediate clean energy targets & NDCs

	year	target	unit
Renewable energy:	2020	68	%
Renewable electricity:	2020	114	%
Renewable capacity:			
Renewable transport:	2020	10	%
Liquid Biofuel blending mandate:			
Other transport targets:			
Renewable heating/cooling:	2020	43	%
Renewable Hydropower			
Off-grid renewable technologies:			

Energy efficiency (Energy):

Energy efficiency (Electricity):

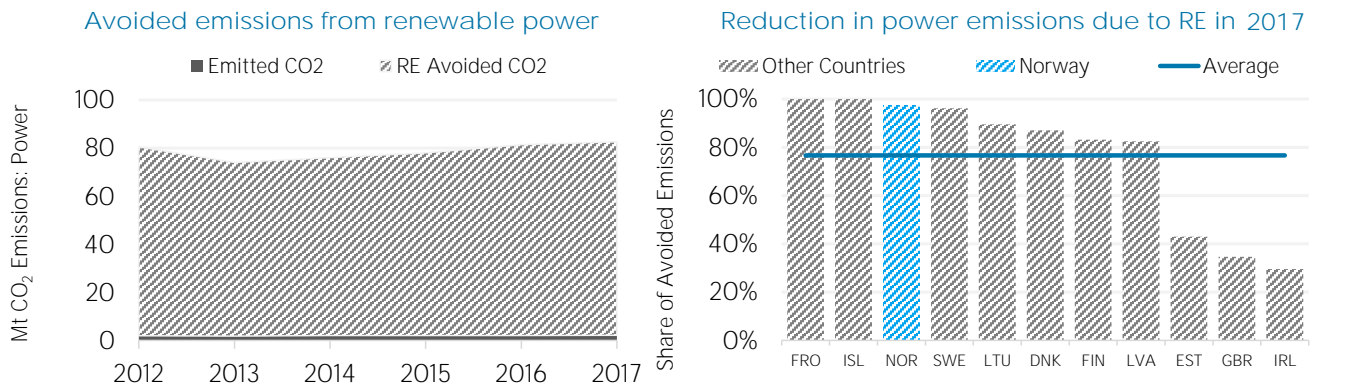
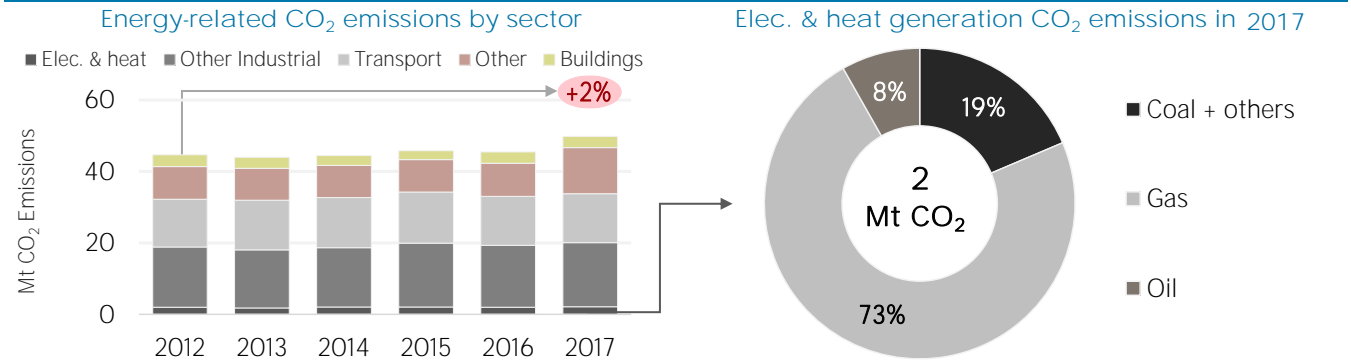
Latest policies, programmes and legislation

1	Duty of negotiations on third party access to district heating networks	2013
2	Investment aid for Energy measures in households through Enova SF	2013
3	Renewable heat production	2013
4	ENERGIX Programme	2012
5	Investment aid and conditional loans to innovative energy and climate technology through Enova SF	2012

References to sustainable energy in Nationally Determined Contribution (NDC)

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

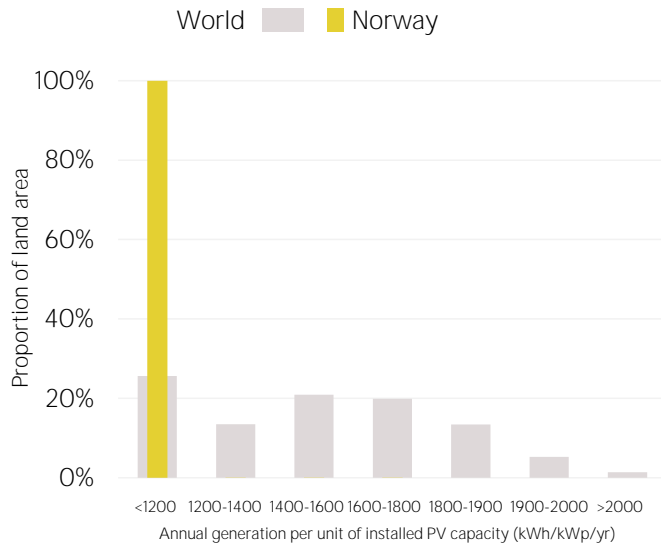
ENERGY AND EMISSIONS



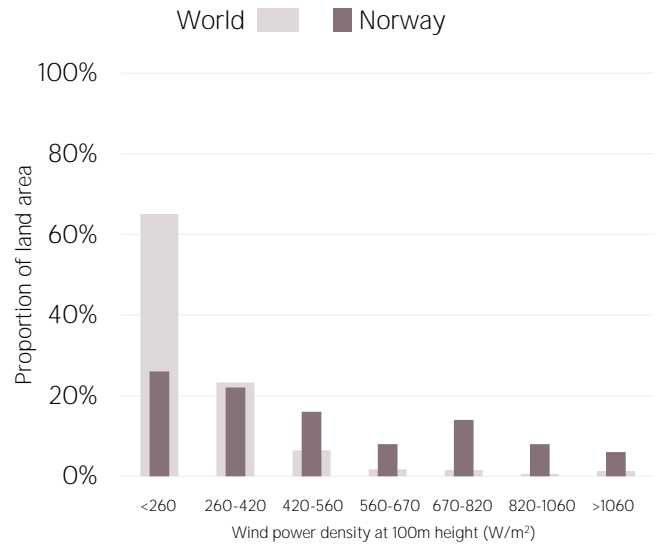
Avoided emissions based on fossil fuel mix used for power

Reduction is RE Avoided divided by sum of avoided and emitted

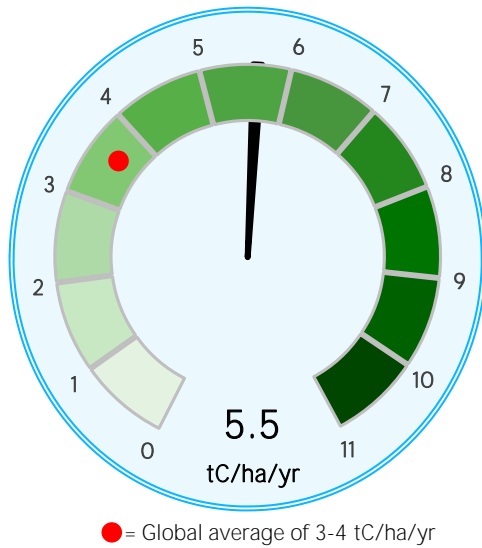
Distribution of solar potential



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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