ENERGY PROFILE

United States of America

SUSTAINABLE DEVELOPMENT GOAL 7: ENERGY INDICATORS (2018)

Renewable energy (% of TFEC)	10.1	Access to electricity (% of population)	100.0
Energy efficiency (MJ per $1 of GDP)	4.7	Access to clean cooking (% of population)	>95
Public flows renewables (2018 USD M)	n.a.	Per capita renewable capacity (W/person)	n.a.

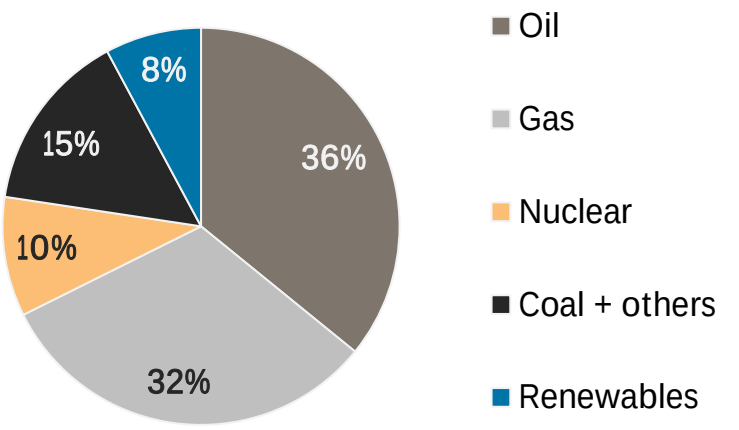
TOTAL PRIMARY ENERGY SUPPLY (TPES)

TPES	2013	2018
Non-renewable (TJ)	84 236 907	86 023 113
Renewable (TJ)	6 262 360	7 315 411
Total (TJ)	90 499 267	93 338 524
Renewable share (%)	7	8

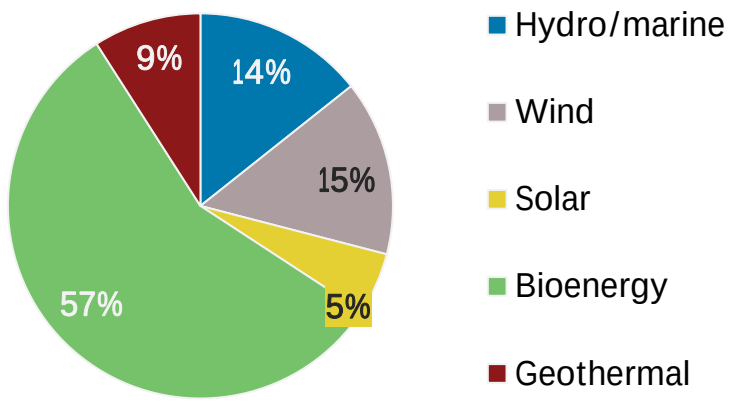
Growth in TPES	2013-18	2017-18
Non-renewable (%)	+2.1	+3.3
Renewable (%)	+16.8	+4.9
Total (%)	+3.1	+3.4

Primary energy trade	2013	2018
Imports (TJ)	23 905 869	24 443 207
Exports (TJ)	11 008 879	20 988 381
Net trade (TJ)	-12 896 990	-3 454 826
Imports (% of supply)	26	26
Exports (% of production)	14	23
Energy self-sufficiency (%)	86	97
Net trade (USD million)	- 240 493	- 49 047
Net trade (% of GDP)	-1.4	-0.2

Total primary energy supply in 2018



Renewable energy supply in 2018



RENEWABLE ENERGY CONSUMPTION

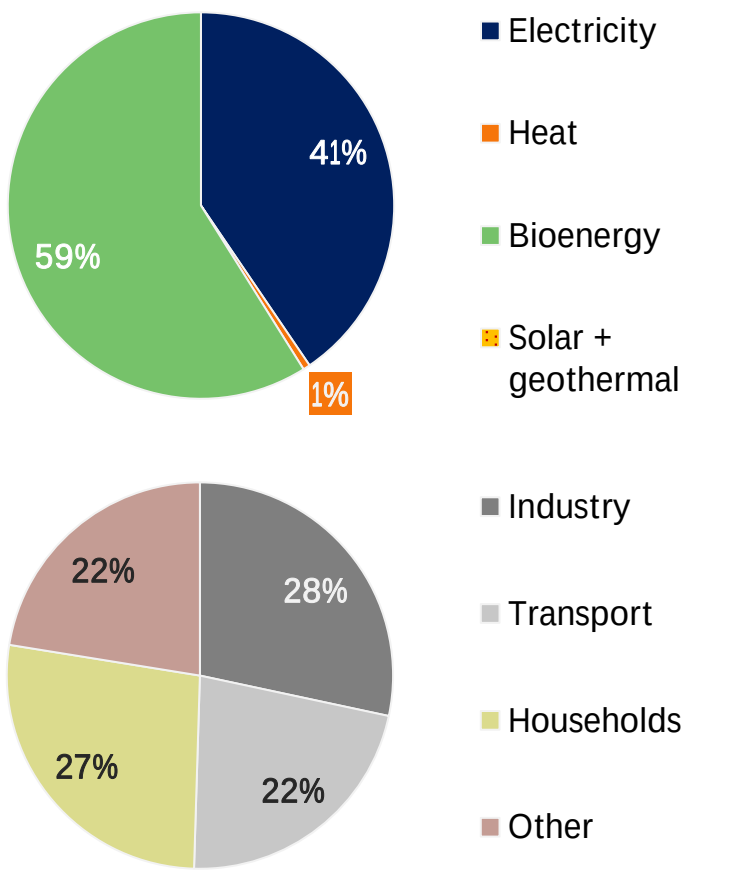
Consumption by source	2013	2018
Electricity (TJ)	1 772 629	2 428 145
Heat (TJ)	24 948	35 309
Bioenergy (TJ)	3 172 971	3 531 881
Solar + geothermal (TJ)	0	0
Total (TJ)	**4 970 548**	**5 995 335**
Electricity share (%)	36	41

Consumption growth	2013-18	2017-18
Renewable electricity (%)	+37.0	+3.5
Other renewables (%)	+11.5	+8.0
Total (%)	**+20.6**	**+6.1**

Consumption by sector	2013	2018
Industry (TJ)	1 684 880	1 699 867
Transport (TJ)	1 207 635	1 326 794
Households (TJ)	1 036 377	1 622 559
Other (TJ)	1 041 656	1 346 116

Renewable share of TFEC	9.1	10.1

Renewable energy consumption in 2018



ELECTRICITY CAPACITY AND GENERATION

Capacity in 2020	MW	%
Non-renewable	**858 093**	**75**
Renewable	**291 680**	**25**
Hydro/marine	83 797	7
Solar	75 572	7
Wind	117 744	10
Bioenergy	11 980	1
Geothermal	2 587	0
Total	**1 149 772**	**100**

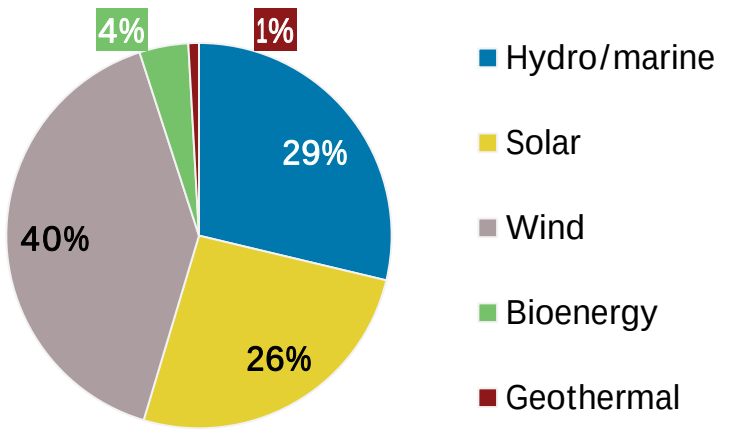
Capacity change (%)	2015-20	2019-20
Non-renewable	**- 2**	**- 0.8**
Renewable	**+ 50**	**+ 11.0**
Hydro/marine	+ 1	+ 0.2
Solar	+ 222	+ 24.2
Wind	+ 62	+ 13.6
Bioenergy	- 8	- 0.6
Geothermal	+ 2	+ 1.2
Total	**+ 7**	**+ 2.0**

Net capacity change in 2020 (MW)

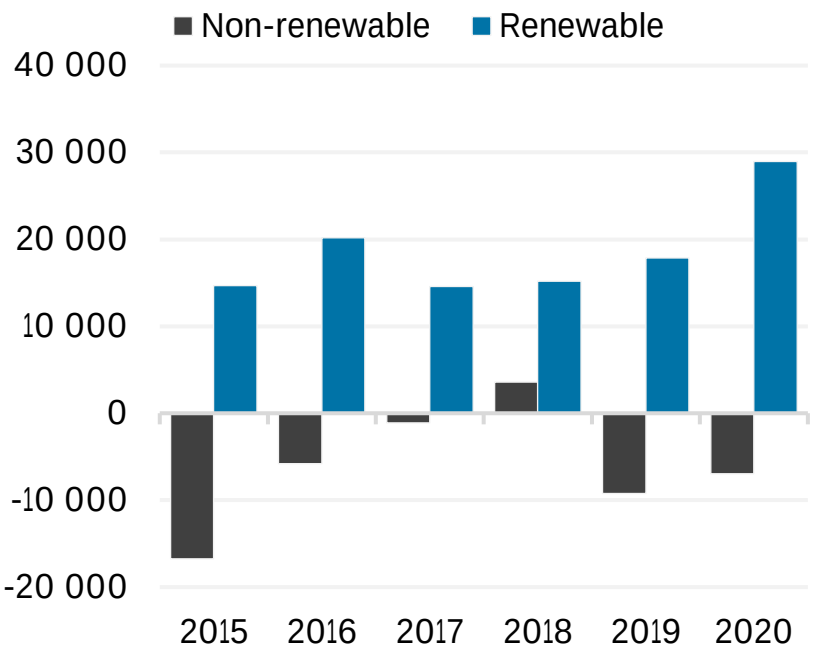
Non-renewable	Hydro and marine
- 6 944	+ 173
Solar	**Wind**
+ 14 746	+ 14 074
Bioenergy	**Geothermal**
- 77	+ 32

Generation in 2019	GWh	%
Non-renewable	**3 624 729**	**83**
Renewable	**767 035**	**17**
Hydro and marine	289 799	7
Solar	97 478	2
Wind	298 200	7
Bioenergy	63 194	1
Geothermal	18 364	0
Total	**4 391 764**	**100**

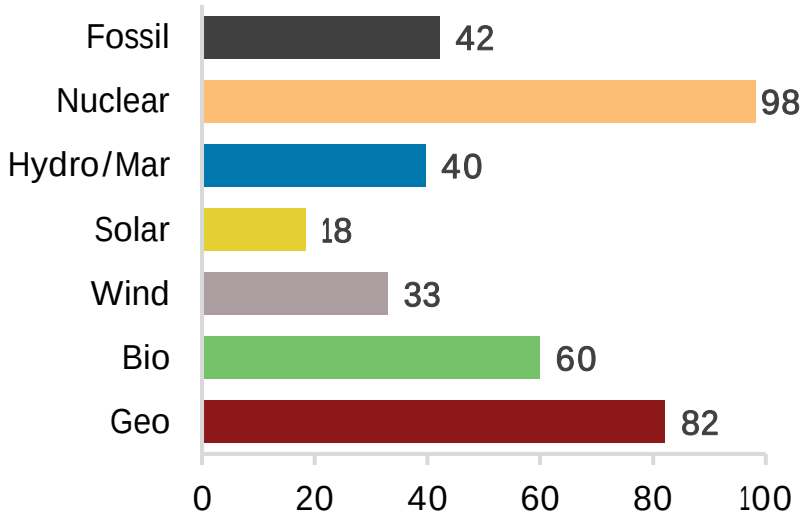
Renewable capacity in 2020



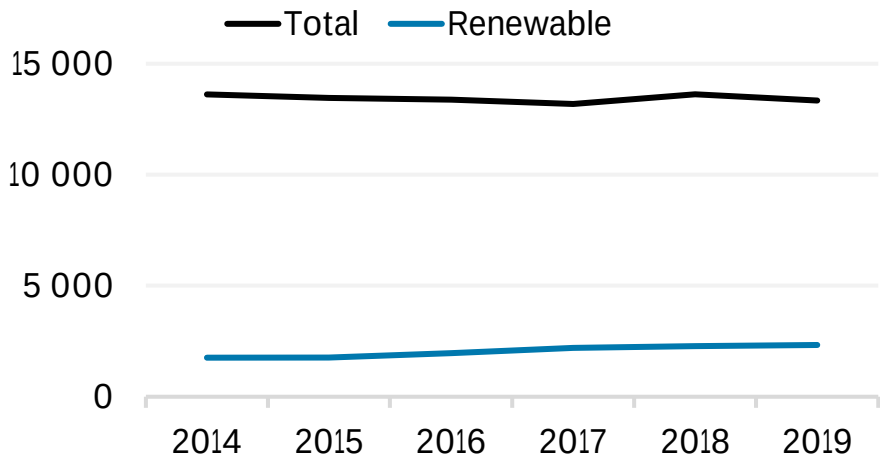
Net capacity change (MW)



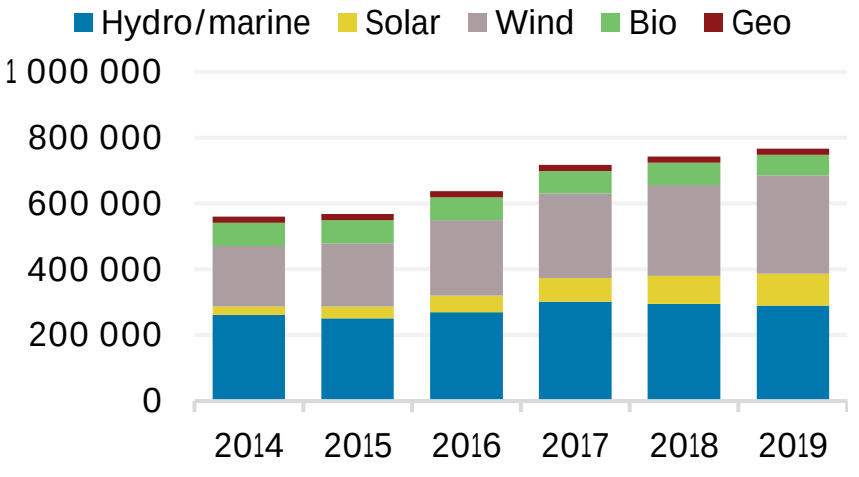
Capacity utilisation in 2019 (%)



Per capita electricity generation (kWh)



Renewable generation (GWh)



TARGETS, POLICIES AND MEASURES

Most immediate clean energy targets & NDCs

	year	target
Renewable energy:		
Renewable electricity:	2018	25 %
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

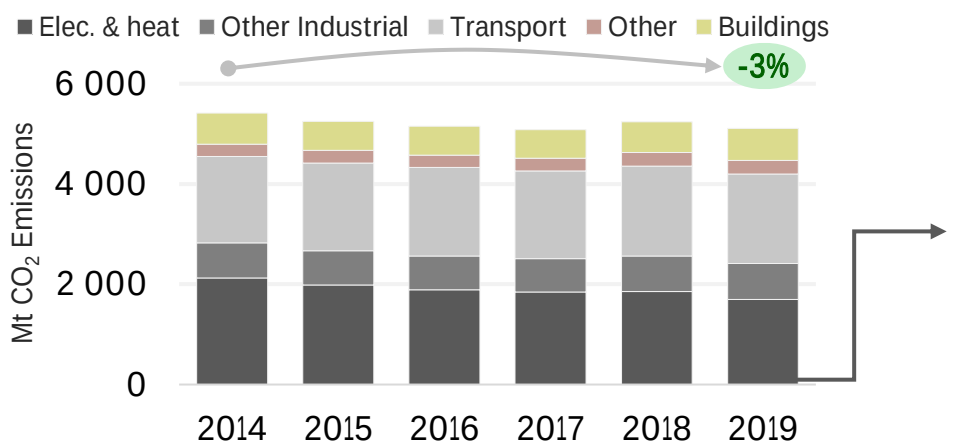
1	30 GW offshore wind target for 2030, and offshore wind loan guarantee program and R&D funding	2021
2	Advanced Research Projects Agency Energy (ARPA-E) "Reducing Emissions of Methane Every Day of the Year" (REMEDY) program	2021
3	ARPA-E Research Programme, Biofuels	2021
4	ARPA-E, ONWARDS programme - Limiting the nuclear waste	2021
5	Climate Innovation Research Opportunity investment program	2021

References to sustainable energy in Nationally Determined Contribution (NDC)

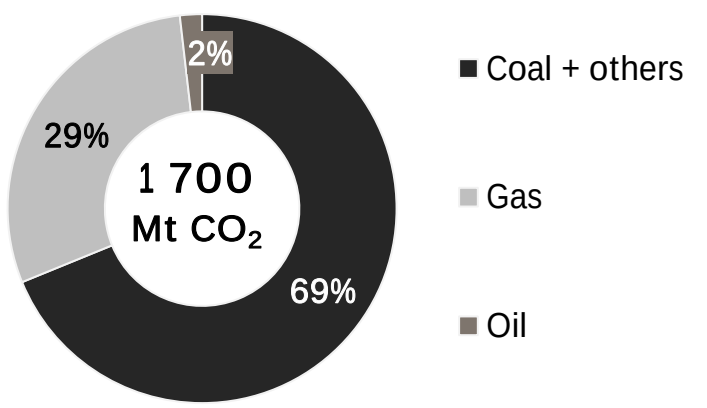
	Conditional	Unconditional	unit
- Renewable energy			
- electricity			
- transport			
- heating/cooling			
- Energy efficiency			

ENERGY AND EMISSIONS

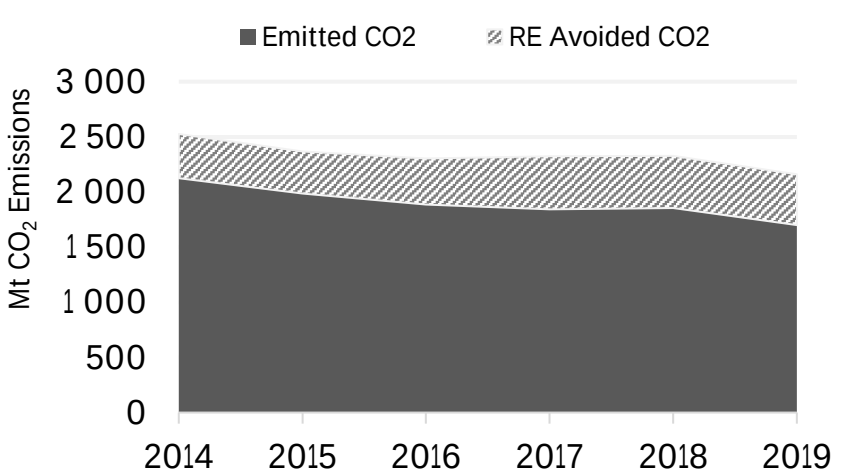
Energy-related CO_2 emissions by sector



Elec. & heat generation CO_2 emissions in 2019

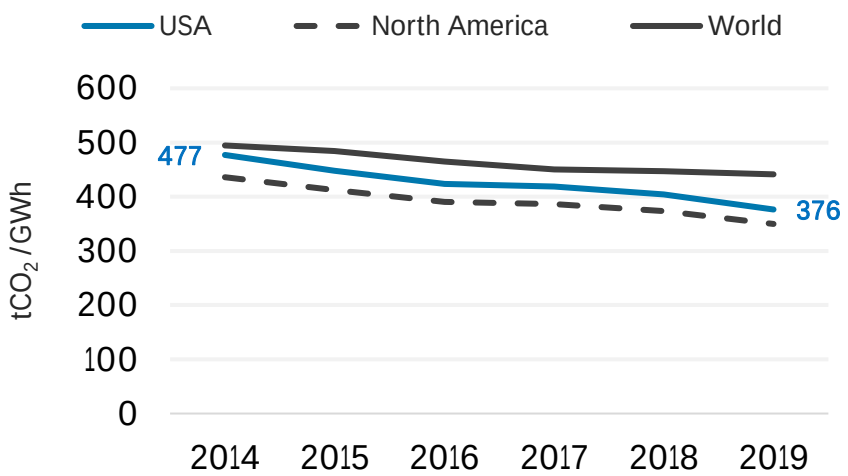


Avoided emissions from renewable elec. & heat



Avoided emissions based on fossil fuel mix used for power

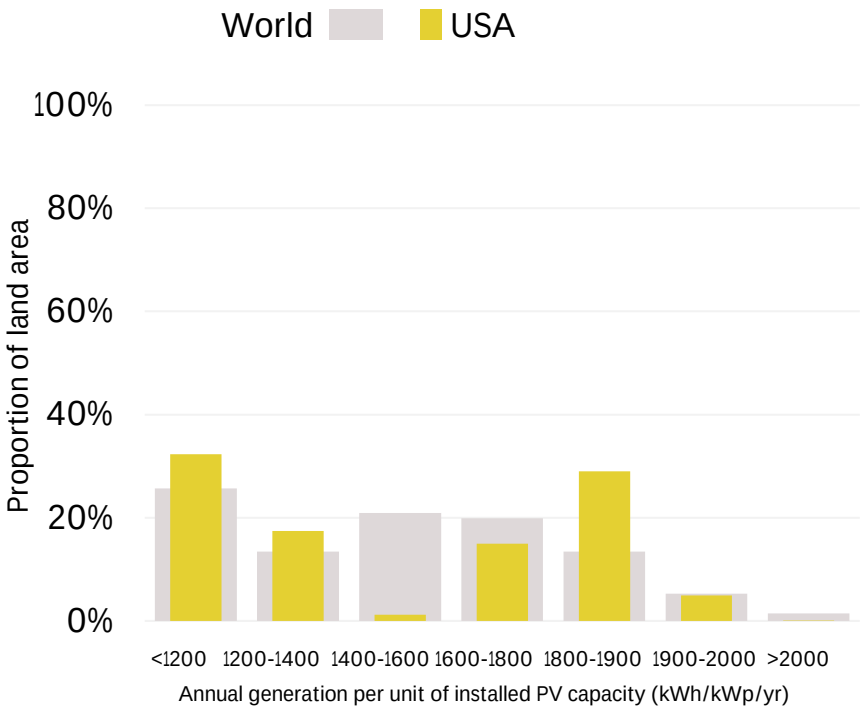
CO_2 emission factor for elec. & heat generation



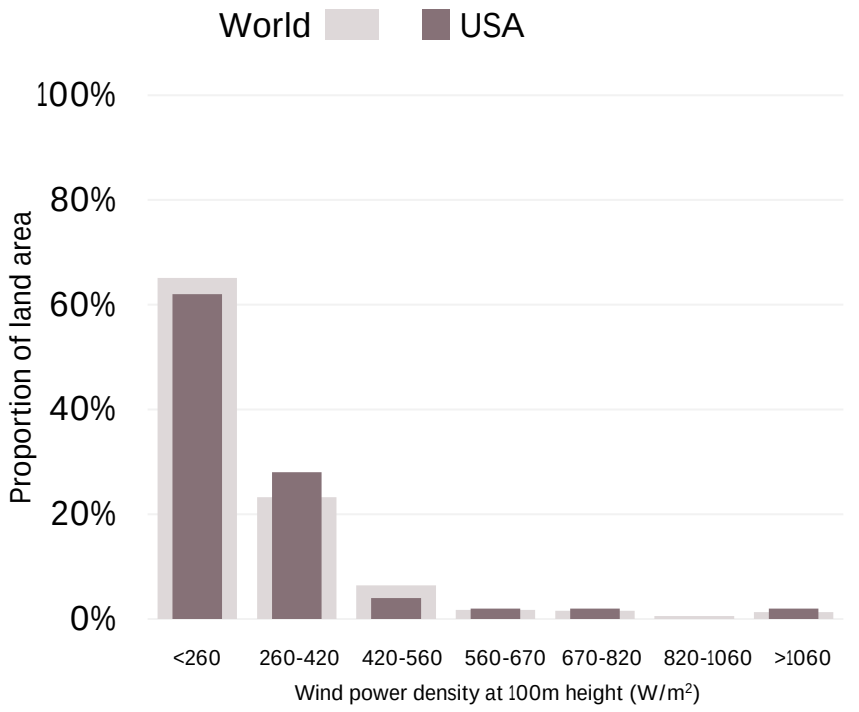
Calculated by dividing power sector emissions by elec. + heat gen.

RENEWABLE RESOURCE POTENTIAL

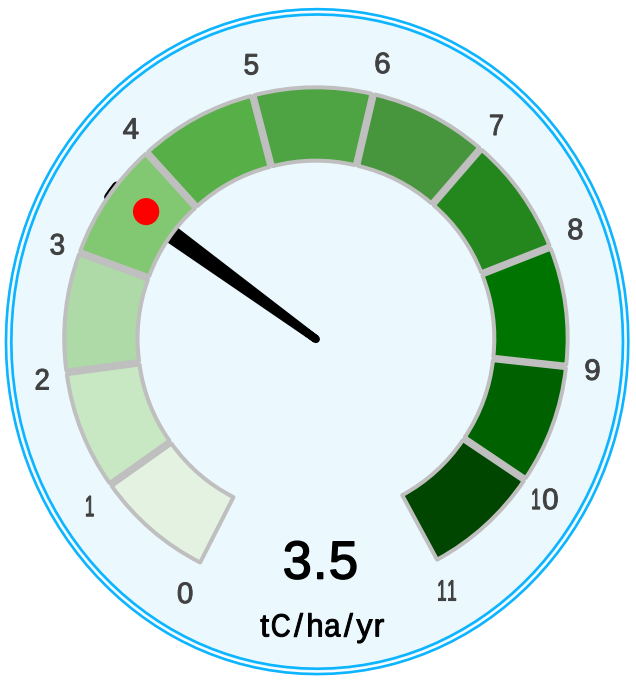
Distribution of solar potential



Distribution of wind potential



Biomass potential: net primary production



= Global average of 3-4 tC/ha/yr

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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