ENERGY PROFILE

China

SUSTAINABLE DEVELOPMENT GOAL 7: ENERGY INDICATORS (2017)

Renewable energy (% of TFEC)	12.8	Access to electricity (% of population)	100.0
Energy efficiency (MJ per $1 of GDP)	6.1	Access to clean cooking (% of population)	63
Public flows renewables (2017 USD M)	354.1	Per capita renewable capacity (W/person)	436.9

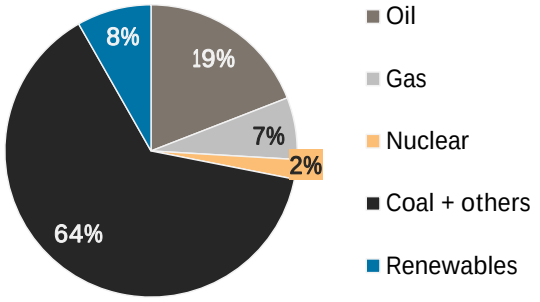
TOTAL PRIMARY ENERGY SUPPLY (TPES)

TPES	2012	2017
Non-renewable (TJ)	108 646 039	113 952 502
Renewable (TJ)	7 404 718	10 233 996
Total (TJ)	116 050 757	124 186 498
Renewable share (%)	6	8

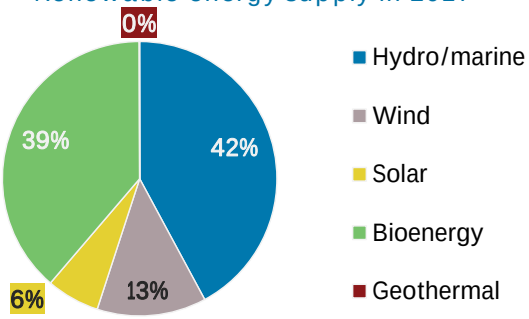
Growth in TPES	2012-17	2016-17
Non-renewable (%)	+4.9	+4.2
Renewable (%)	+38.2	+7.8
Total (%)	+7.0	+4.5

Primary energy trade	2012	2017
Imports (TJ)	20 015 253	28 315 641
Exports (TJ)	1 658 688	3 205 358
Net trade (TJ)	-18 356 565	-25 110 283
Imports (% of supply)	17	23
Exports (% of production)	2	3
Energy self-sufficiency (%)	86	80
Net trade (USD million)	- 282 049	- 214 234
Net trade (% of GDP)	-3.3	-1.7

Total primary energy supply in 2017



Renewable energy supply in 2017



RENEWABLE ENERGY CONSUMPTION

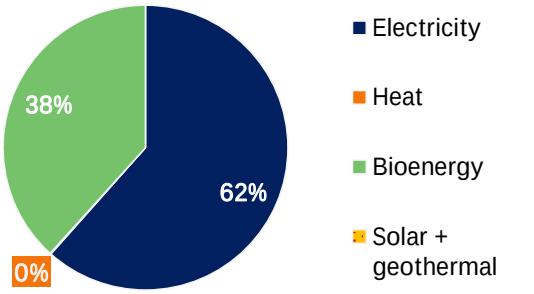
Consumption by source	2012	2017
Electricity (TJ)	3 244 983	5 457 643
Heat (TJ)	10 094	10 744
Bioenergy (TJ)	3 326 312	3 396 083
Solar + geothermal (TJ)	0	0
Total (TJ)	**6 581 389**	**8 864 470**
Electricity share (%)	49	62

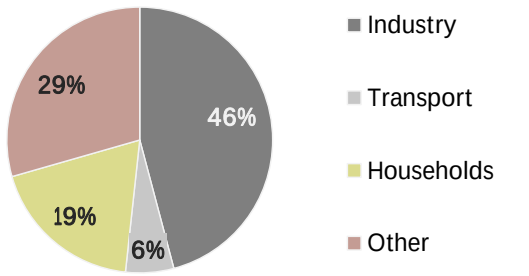
Consumption growth	2012-17	2016-17
Renewable electricity (%)	+68.2	+10.5
Other renewables (%)	+2.1	+3.4
Total (%)	**+34.7**	**+7.7**

Consumption by sector	2012	2017
Industry (TJ)	2 978 495	4 066 134
Transport (TJ)	316 481	518 581
Households (TJ)	1 000 629	1 670 027
Other (TJ)	2 285 784	2 609 728

Renewable share of TFEC	12.8

Renewable energy consumption in 2017





ELECTRICITY CAPACITY AND GENERATION

Capacity in 2019	MW	%
Non-renewable	**1 253 043**	**62**
Renewable	**758 626**	**38**
Hydro/marine	326 118	16
Solar	205 493	10
Wind	210 478	10
Bioenergy	16 537	1
Geothermal	0	0
Total	**2 011 669**	**100**

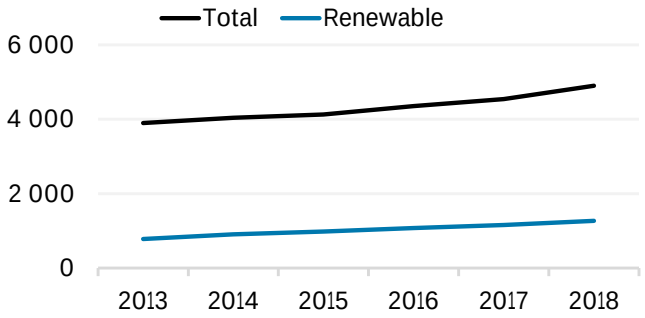
Capacity change (%)	2014-19	2018-19
Non-renewable	**+ 31**	**+ 3.9**
Renewable	**+ 83**	**+ 9.1**
Hydro/marine	+ 15	+ 1.2
Solar	+ 624	+ 17.2
Wind	+ 117	+ 14.0
Bioenergy	+ 149	+ 24.9
Geothermal	- 100	- 100.0
Total	**+ 47**	**+ 5.8**

Net capacity change in 2019 (MW)

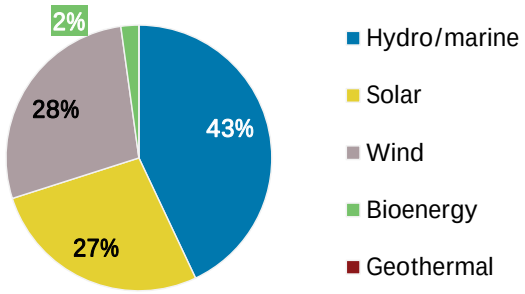
Non-renewable + 47 548	Hydro and marine + 3 842
Solar + 30 206	Wind + 25 814
Bioenergy + 3 302	Geothermal - 26

Generation in 2018	GWh	%
Non-renewable	**5 185 499**	**74**
Renewable	**1 811 174**	**26**
Hydro and marine	1 199 207	17
Solar	178 071	3
Wind	366 452	5
Bioenergy	67 301	1
Geothermal	144	0
Total	**6 996 673**	**100**

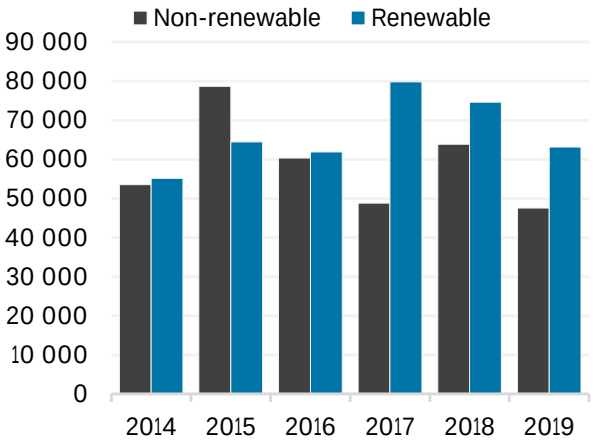
Per capita electricity generation (kWh)



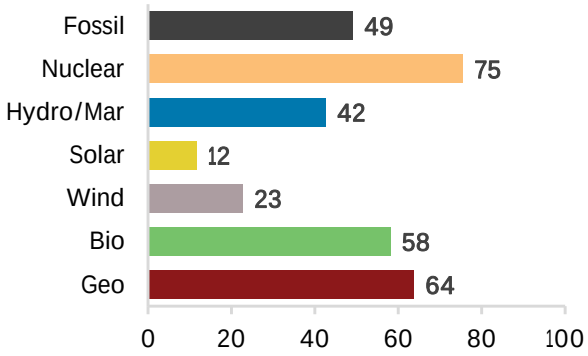
Renewable capacity in 2019



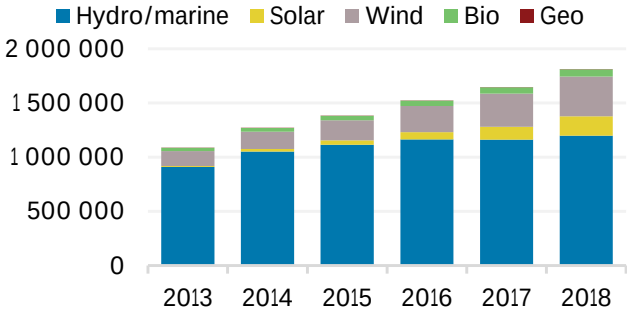
Net capacity change (MW)



Capacity utilisation in 2018 (%)



Renewable generation (GWh)



TARGETS, POLICIES AND MEASURES

Most immediate clean energy targets & NDCs

	year	target	unit
Renewable energy:			
Renewable electricity:	2020	27	%
Renewable capacity:			
Renewable transport:			
Liquid Biofuel blending mandate:			
Other transport targets:			
Renewable heating/cooling:			
Renewable Hydropower	2030	5	%
Off-grid renewable technologies:			
Energy efficiency (Energy):			
Energy efficiency (Electricity):			

Latest policies, programmes and legislation

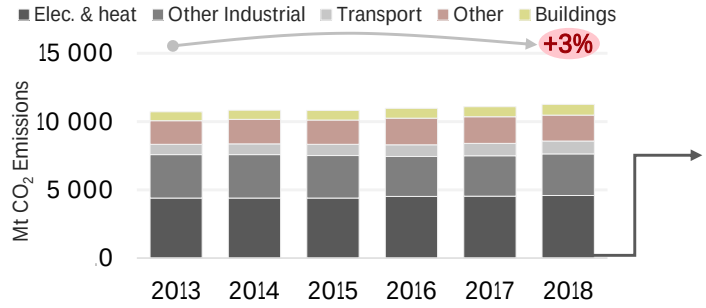
1	Implementation Opinions on Building a Better Development Environment to Support the Healthy Development of Private Enterprises in Energy-saving and Environmental Protection Sector	2020
2	Key Work Plan for Industrial Energy Conservation Supervision in 2020	2020
3	Minimum allowable values of the energy efficiency and energy efficiency grades for room air conditioners	2020
4	Standard for energy consumption of buildings (GB/T 51161-2016)	2019
5	Financial Subsidy Policy for the Promotion and Application of New Energy Vehicles	2019

References to sustainable energy in Nationally Determined Contribution (NDC)

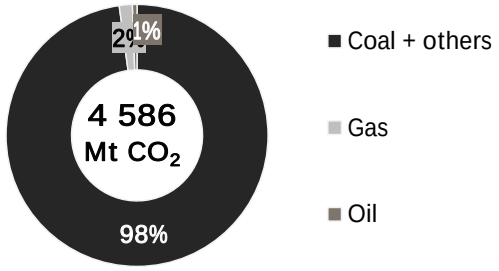
	Conditional	Unconditional	unit
- **Renewable energy**			
- electricity			
- transport			
- heating/cooling			
- Energy efficiency			

ENERGY AND EMISSIONS

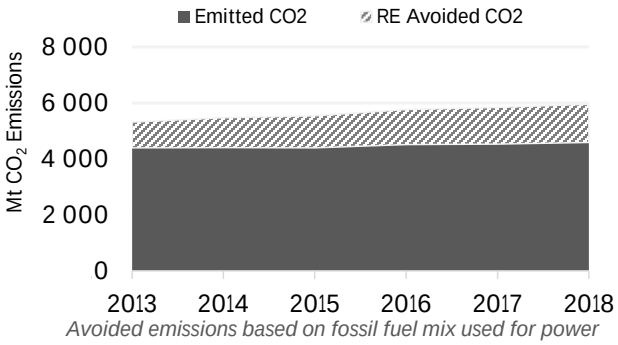
Energy-related CO_2 emissions by sector



Elec. & heat generation CO_2 emissions in 2018

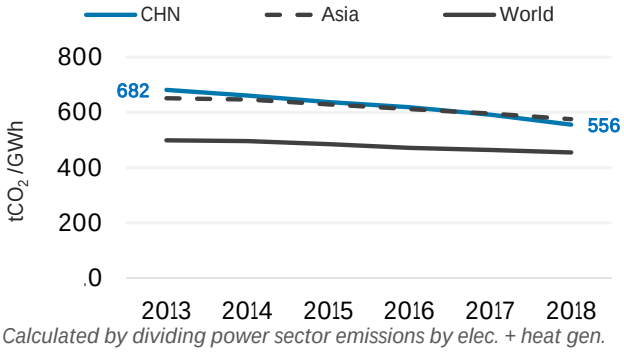


Avoided emissions from renewable elec. & heat



Avoided emissions based on fossil fuel mix used for power

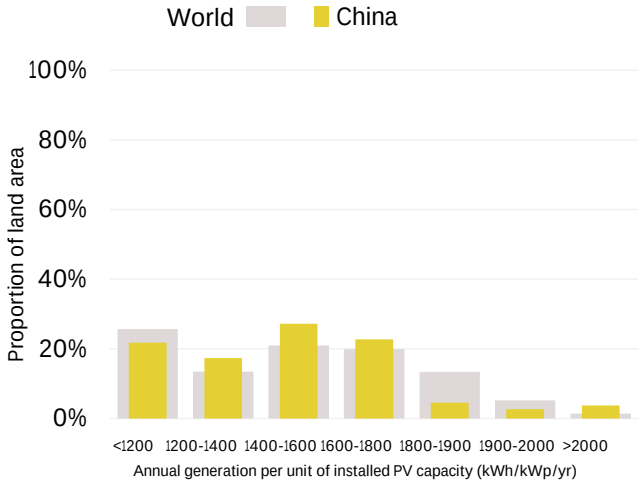
CO_2 emission factor for elec. & heat generation



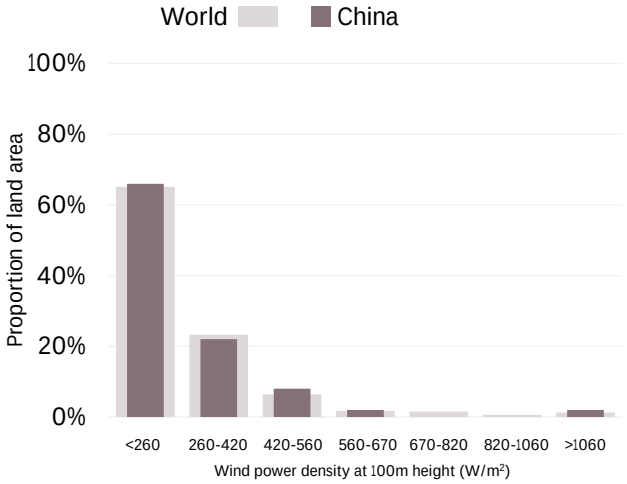
Calculated by dividing power sector emissions by elec. + heat gen.

RENEWABLE RESOURCE POTENTIAL

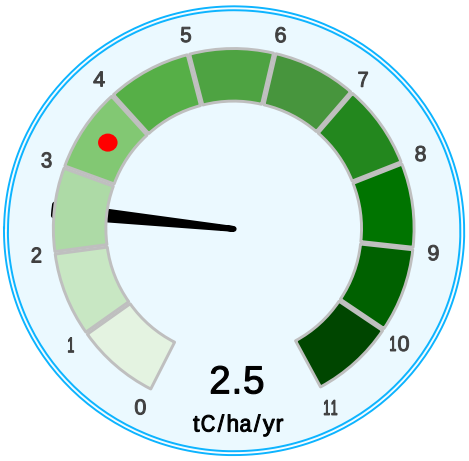
Distribution of solar potential



Distribution of wind potential



Biomass potential: net primary production



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.

IRENA
International Renewable Energy Agency

IRENA Headquarters
Masdar City
P.O. Box 236, Abu Dhabi
United Arab Emirates
www.irena.org