

Thailand

Sustainable Development Goal 7.2: Energy Indicators (2016)

Renewable energy (% of TFEC)	21.8	Access to electricity (% of population)	100.0
Energy efficiency (MJ per \$1 of GDP)	5.4	Access to clean cooking (% of population)	78

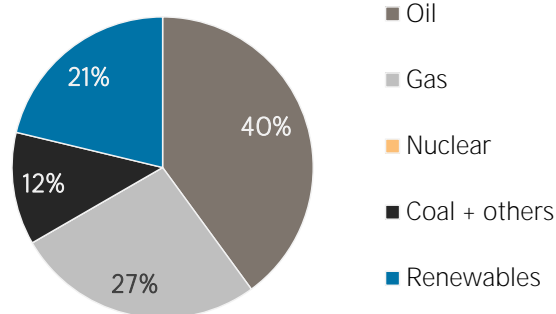
TOTAL PRIMARY ENERGY SUPPLY (TPES)

TPES	2011	2016
Non-renewable (TJ)	3 974 237	4 562 339
Renewable (TJ)	958 685	1 230 793
Total (TJ)	4 932 923	5 793 132
Renewable share (%)	19	21

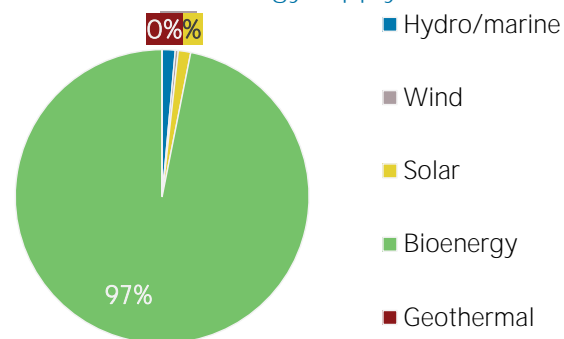
Growth in TPES	2011-16	2015-16
Non-renewable (%)	+14.8	+0.3
Renewable (%)	+28.4	+13.3
Total (%)	+17.4	+2.8

Primary energy trade	2011	2016
Imports (TJ)	2 686 107	3 302 534
Exports (TJ)	492 019	542 816
Net trade (TJ)	-2 194 088	-2 759 718
Imports (% of supply)	54	57
Exports (% of production)	17	17
Energy self-sufficiency (%)	58	57
Net trade (USD million)	- 30 625	- 18 362
Net trade (% of GDP)	-8.3	-4.5

Total primary energy supply in 2016



Renewable energy supply in 2016



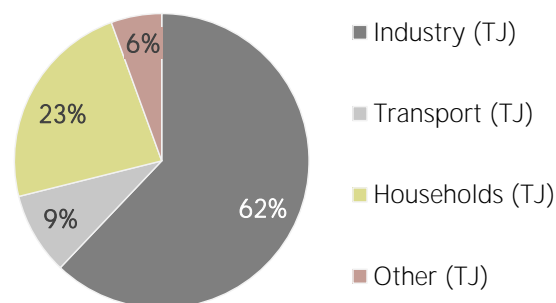
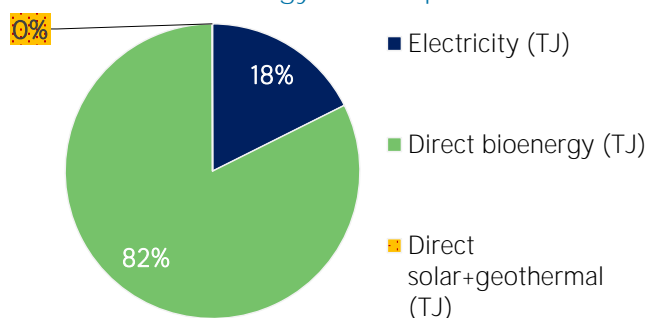
RENEWABLE ENERGY CONSUMPTION

Consumption by source	2011	2016
Electricity (TJ)	70 825	131 742
Direct bioenergy (TJ)	417 870	615 325
Direct solar+geothermal (TJ)	84	281
Total (TJ)	488 779	747 348
Electricity share (%)	14	18

Consumption growth	2011-16	2015-16
Renewable electricity (%)	+86.0	-3.2
Other renewables (%)	+47.3	+40.3
Total (%)	+52.9	+30.0

Consumption by sector	2011	2016
Industry (TJ)	153 260	463 993
Transport (TJ)	29 641	67 500
Households (TJ)	280 991	174 314
Other (TJ)	24 888	41 540
Renewable share of TFEC	22.8	21.8

Renewable energy consumption in 2016

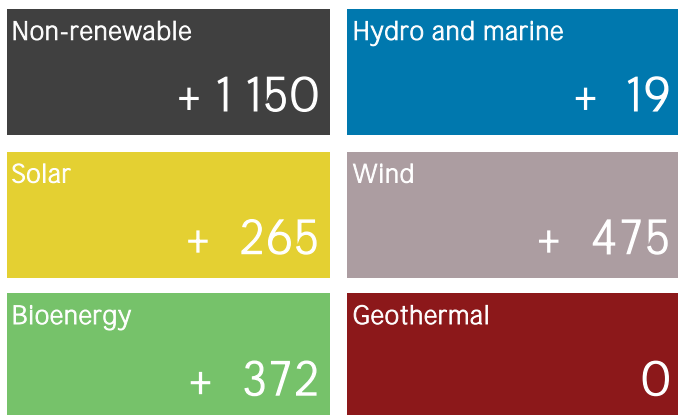


ELECTRICITY CAPACITY AND GENERATION

Capacity in 2018	MW	%
Non-renewable	40 028	78
Renewable	11 374	22
Hydro/marine	3 107	6
Solar	2 967	6
Wind	1 103	2
Bioenergy	4 196	8
Geothermal	0	0
Total	51 402	100

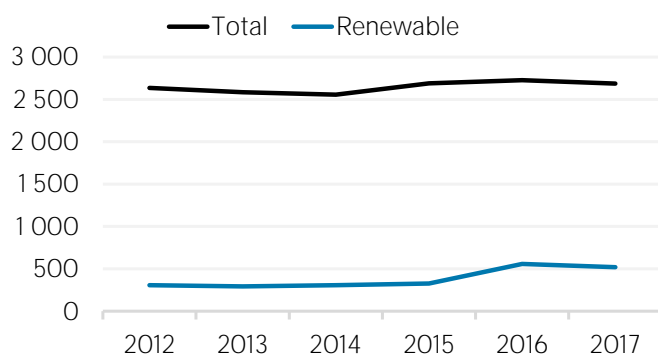
Capacity change (%)	2013-18	2017-18
Non-renewable	+ 48	+ 3.0
Renewable	+ 70	+ 11.0
Hydro/marine	+ 3	+ 0.6
Solar	+ 258	+ 9.8
Wind	+ 395	+ 75.7
Bioenergy	+ 59	+ 9.7
Geothermal	0	0.0
Total	+ 52	+ 4.6

Net capacity change in 2018 (MW)

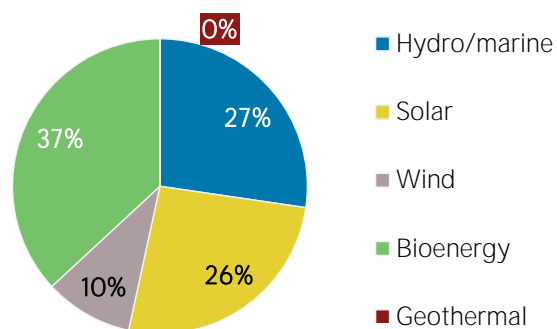


Generation in 2017	GWh	%
Non-renewable	149 982	81
Renewable	36 005	19
Hydro and marine	4 833	3
Solar	4 543	2
Wind	1 109	1
Bioenergy	25 519	14
Geothermal	1	0
Total	185 987	100

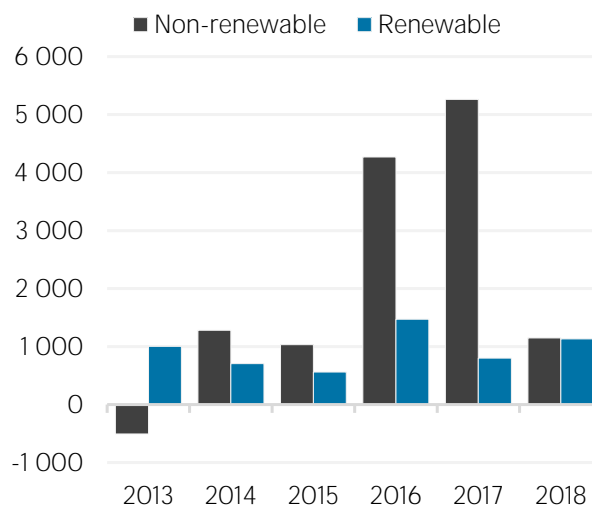
Per capita electricity generation (kWh)



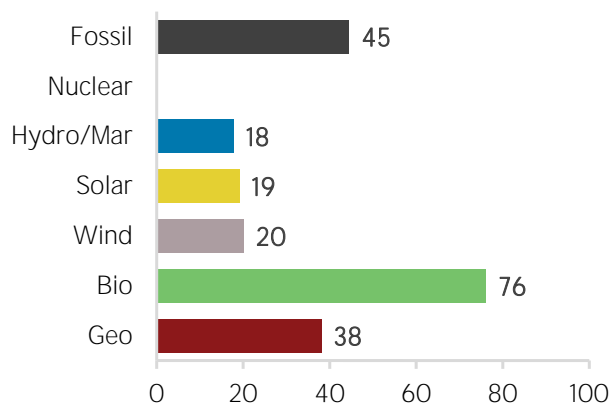
Renewable capacity in 2018



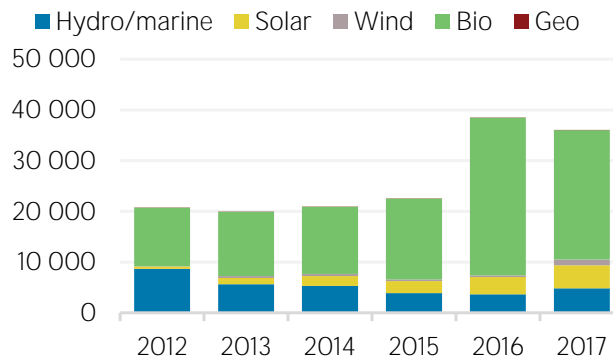
Net capacity change (MW)



Capacity utilisation in 2017 (%)



Renewable generation (GWh)



Most immediate clean energy targets & NDCs

	year	target	unit
Renewable energy:	2036	30	%
Renewable electricity:	2036	15	%
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):

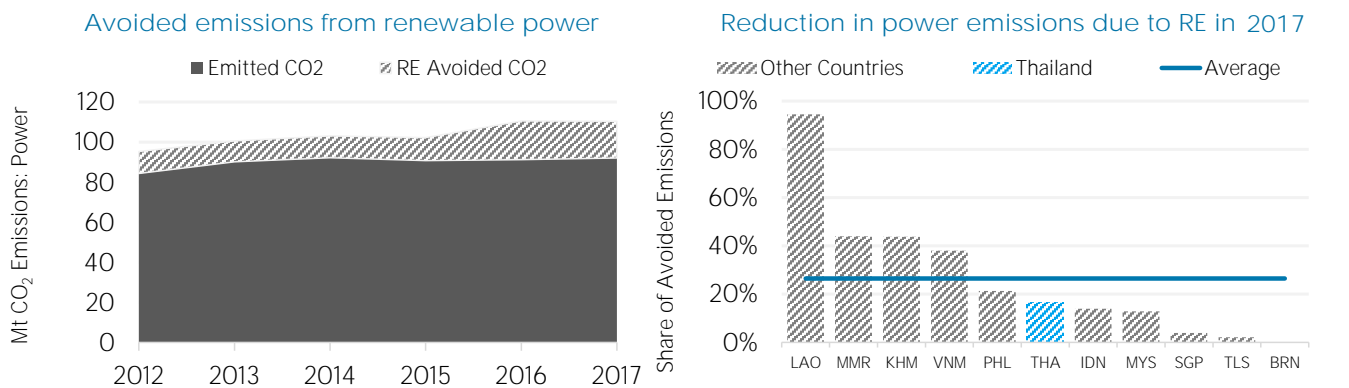
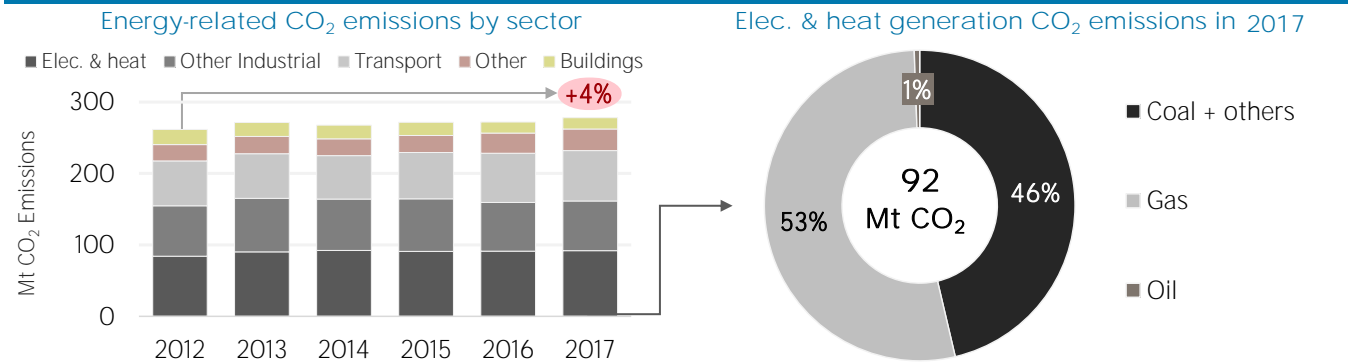
Latest policies, programmes and legislation

1 Thailand Alternative Energy Development Plan (AEDP 2015-2036)	2015
2 Feed-in Tariff for Very Small Power Producers (VSPP) (excluding solar PV)	2014
3 Feed-in tariff for distributed solar systems	2013
4 Biodiesel blending mandate	2012
5 Renewable energy Development Plan (REDP) 2008-2022	2009

References to sustainable energy in Nationally Determined Contribution (NDC)

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

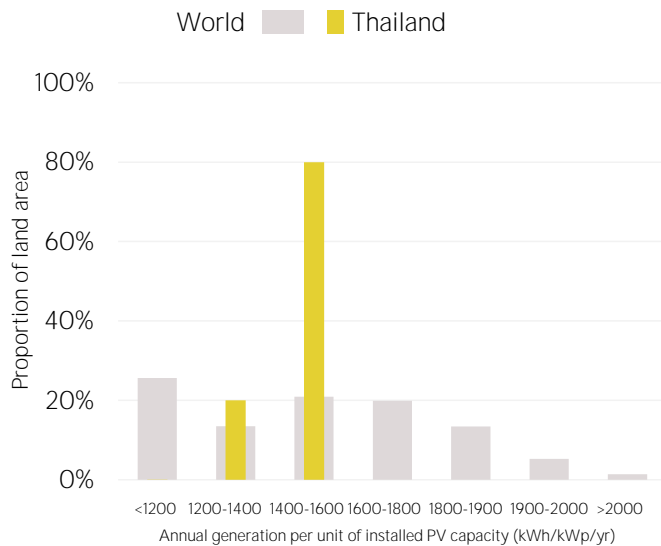
ENERGY AND EMISSIONS



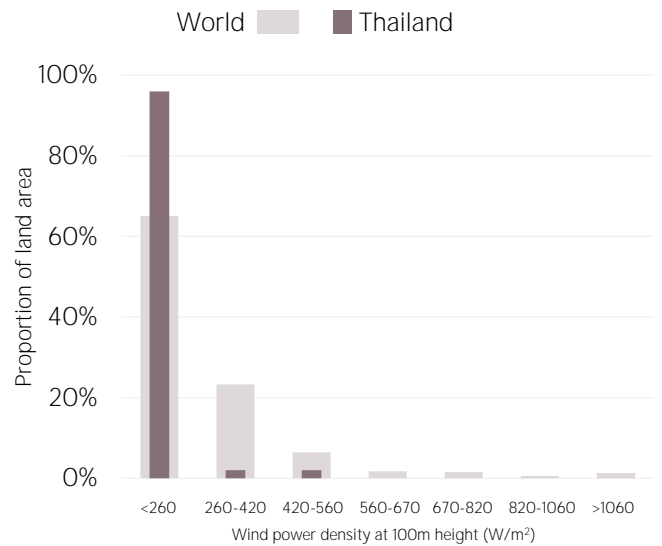
Avoided emissions based on fossil fuel mix used for power

Reduction is RE Avoided divided by sum of avoided and emitted

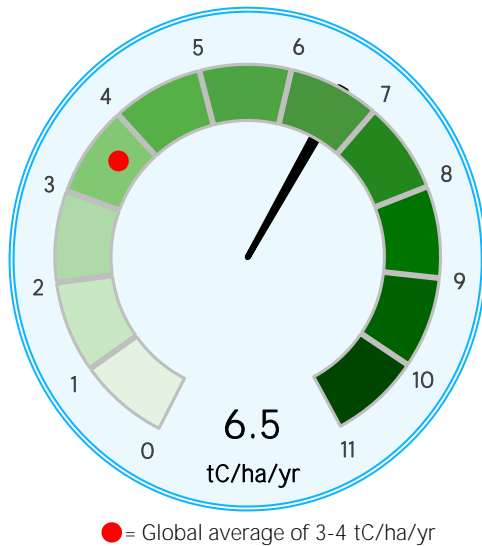
Distribution of solar potential



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.

Last updated on: 26th May, 2020



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