

# United States of America

## SUSTAINABLE DEVELOPMENT GOAL 7: ENERGY INDICATORS (2017)

Renewable energy (% of TFEC)	9.9	Access to electricity (% of population)	100.0
Energy efficiency (MJ per \$1 of GDP)	5.1	Access to clean cooking (% of population)	>95
Public flows renewables (2017 USD M)	n.a.	Per capita renewable capacity (W/person)	n.a.

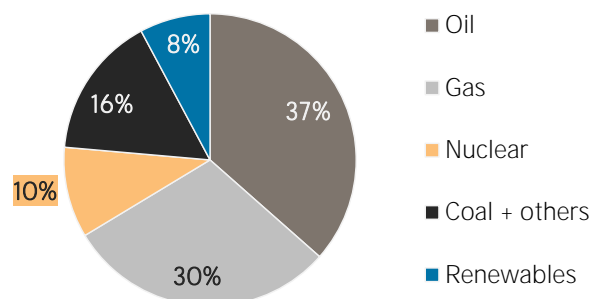
## TOTAL PRIMARY ENERGY SUPPLY (TPES)

TPES	2012	2017
Non-renewable (TJ)	82 716 367	83 265 938
Renewable (TJ)	5 983 878	7 059 509
Total (TJ)	88 700 245	90 325 447
Renewable share (%)	7	8

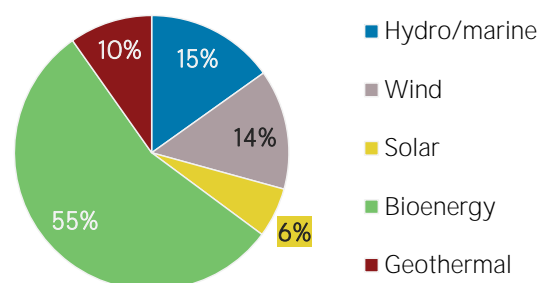
Growth in TPES	2012-17	2016-17
Non-renewable (%)	+0.7	+0.2
Renewable (%)	+18.0	+2.1
Total (%)	+1.8	+0.3

Primary energy trade	2012	2017
Imports (TJ)	25 683 092	25 039 353
Exports (TJ)	10 756 890	17 690 266
Net trade (TJ)	-14 926 202	-7 349 087
Imports (% of supply)	29	28
Exports (% of production)	14	21
Energy self-sufficiency (%)	85	92
Net trade (USD million)	- 295 381	- 64 937
Net trade (% of GDP)	-1.8	-0.3

## Total primary energy supply in 2017



## Renewable energy supply in 2017



## RENEWABLE ENERGY CONSUMPTION

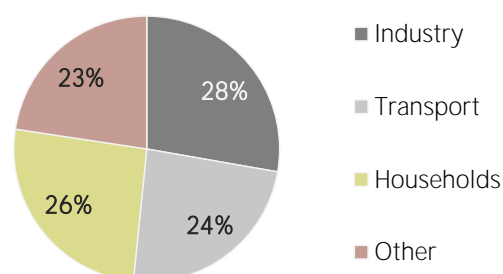
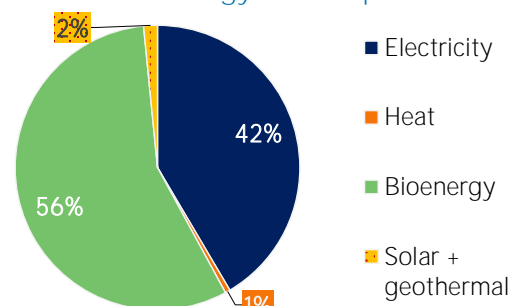
Consumption by source	2012	2017
Electricity (TJ)	1 701 507	2 345 005
Heat (TJ)	24 468	32 039
Bioenergy (TJ)	2 827 718	3 183 008
Solar + geothermal (TJ)	96 106	88 558
<b>Total (TJ)</b>	<b>4 649 798</b>	<b>5 648 610</b>
Electricity share (%)	37	42

Consumption growth	2012-17	2016-17
Renewable electricity (%)	+37.8	+2.3
Other renewables (%)	+12.1	+1.3
<b>Total (%)</b>	<b>+21.5</b>	<b>+1.7</b>

Consumption by sector	2012	2017
Industry (TJ)	1 571 775	1 567 552
Transport (TJ)	1 095 846	1 347 894
Households (TJ)	991 518	1 455 937
Other (TJ)	990 660	1 277 226

Renewable share of TFEC	9.9
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## Renewable energy consumption in 2017

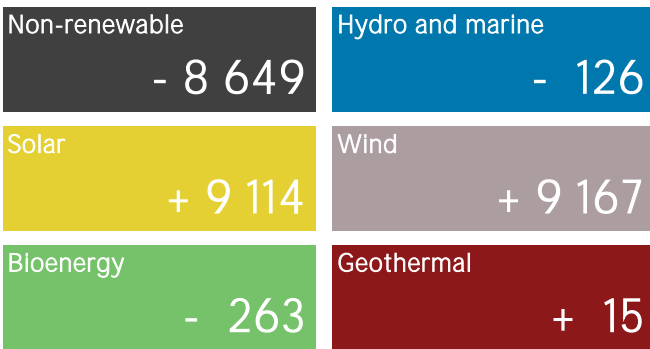


## ELECTRICITY CAPACITY AND GENERATION

Capacity in 2019	MW	%
<b>Non-renewable</b>	<b>863 995</b>	<b>77</b>
<b>Renewable</b>	<b>264 504</b>	<b>23</b>
Hydro/marine	83 617	7
Solar	62 298	6
Wind	103 584	9
Bioenergy	12 450	1
Geothermal	2 555	0
<b>Total</b>	<b>1 128 500</b>	<b>100</b>

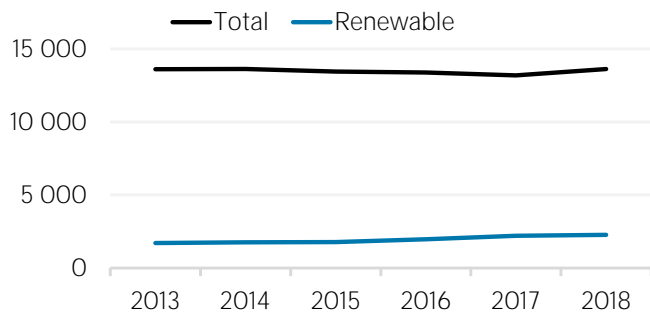
Capacity change (%)	2014-19	2018-19
<b>Non-renewable</b>	<b>- 3</b>	<b>- 1.0</b>
<b>Renewable</b>	<b>+ 47</b>	<b>+ 7.3</b>
Hydro/marine	+ 0	- 0.1
Solar	+ 253	+ 17.1
Wind	+ 61	+ 9.7
Bioenergy	+ 0	- 2.1
Geothermal	+ 2	+ 0.6
<b>Total</b>	<b>+ 5</b>	<b>+ 0.8</b>

### Net capacity change in 2019 (MW)

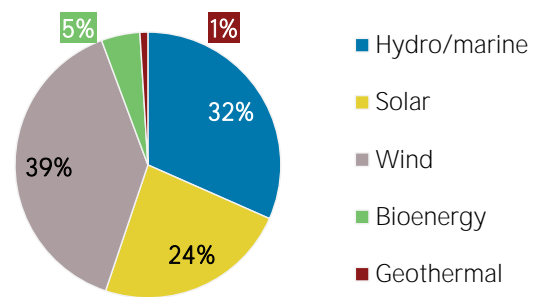


Generation in 2018	GWh	%
<b>Non-renewable</b>	<b>3 712 178</b>	<b>83</b>
<b>Renewable</b>	<b>743 177</b>	<b>17</b>
Hydro and marine	295 501	7
Solar	85 184	2
Wind	275 834	6
Bioenergy	67 885	2
Geothermal	18 773	0
<b>Total</b>	<b>4 455 355</b>	<b>100</b>

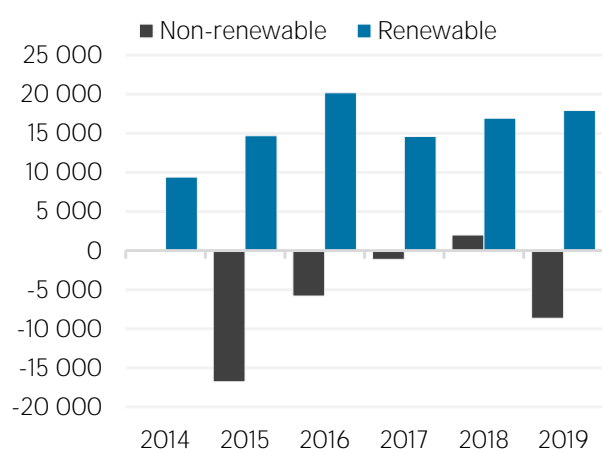
### Per capita electricity generation (kWh)



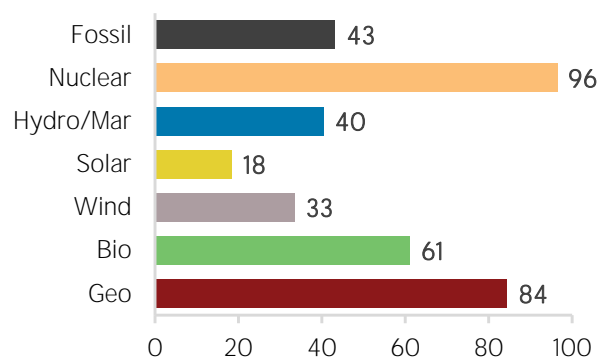
### Renewable capacity in 2019



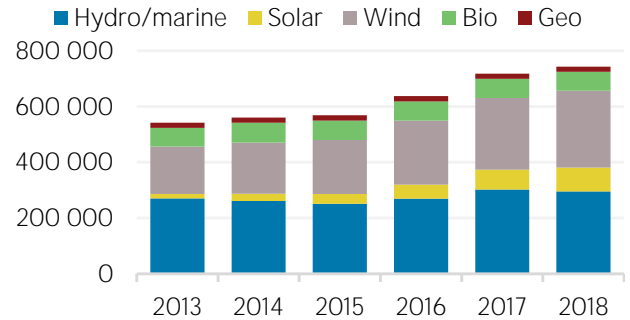
### Net capacity change (MW)



### Capacity utilisation in 2018 (%)



### Renewable generation (GWh)



Most immediate clean energy targets & NDCs

Renewable energy:

- Renewable electricity:
- 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

	year	target	unit
1	2018	North Carolina Commercial Building Code (based on the 2015 IECC with amendments)	2019
2	2018	North Carolina Residential Building Code (based on the 2015 IECC with amendments)	2019
3		California Low Carbon Fuel Standard	2019
4		Cannabis Regulation and Tax Act	2019
5		Colorado Regulation No. 3: Stationary Source Permitting	2019

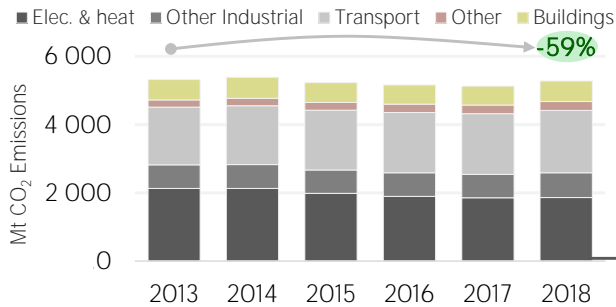
References to sustainable energy in Nationally Determined Contribution (NDC)

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

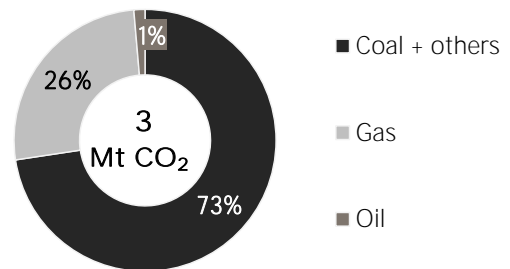
Conditional Unconditional unit

ENERGY AND EMISSIONS

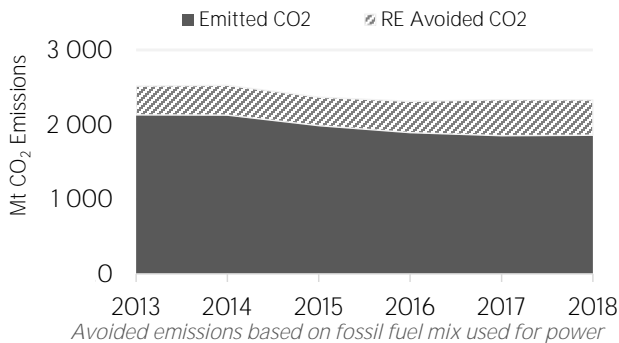
Energy-related CO<sub>2</sub> emissions by sector



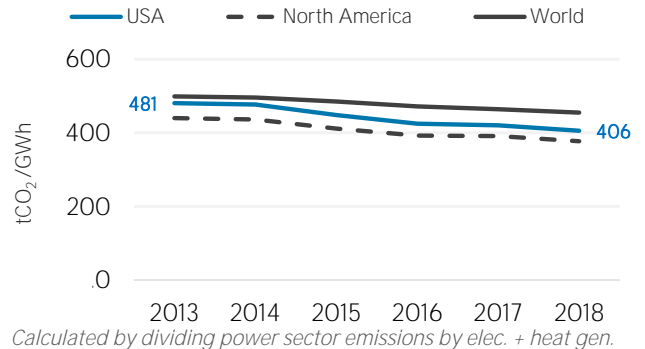
Elec. & heat generation CO<sub>2</sub> emissions in 2018



Avoided emissions from renewable elec. & heat



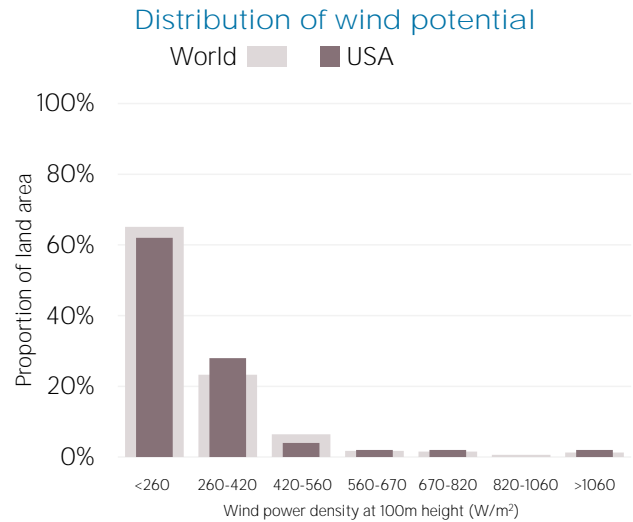
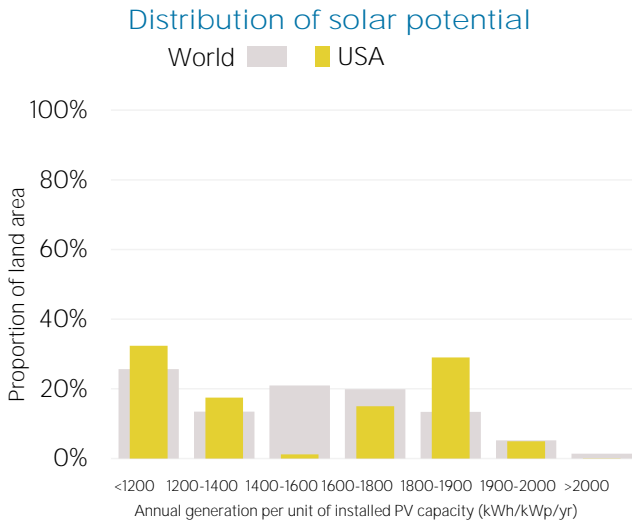
CO<sub>2</sub> emission factor for elec. & heat generation



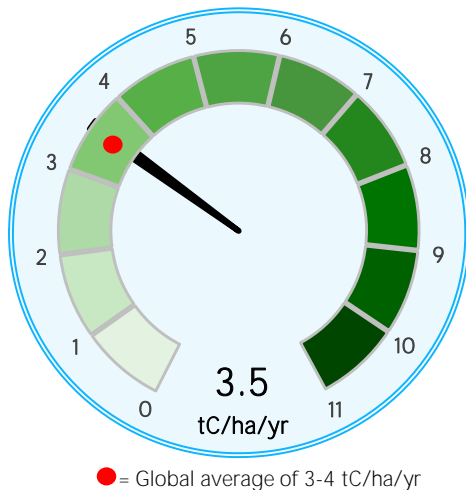
Avoided emissions based on fossil fuel mix used for power

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

## RENEWABLE RESOURCE 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<sup>2</sup>) 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](mailto:statistics@irena.org).



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