

Renewable energy highlights

8 August 2021

HEADLINE FIGURES

6 963 TWh

Amount of electricity generated from renewables in 2019

5.5%

Increase in renewable generation compared to 2018

1 447 TWh

Increase in electricity generation from renewables since 2015

23%

Increase in solar power generation compared to 2018

12%

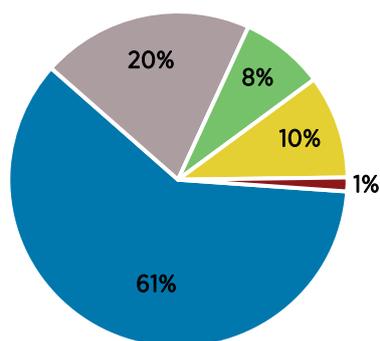
Increase in wind power generation compared to 2018

USD 17 bn

Amount of public investment in renewables in 2019

IRENA's renewable energy statistics can be downloaded from www.irena.org/statistics

Renewable electricity generation by energy source

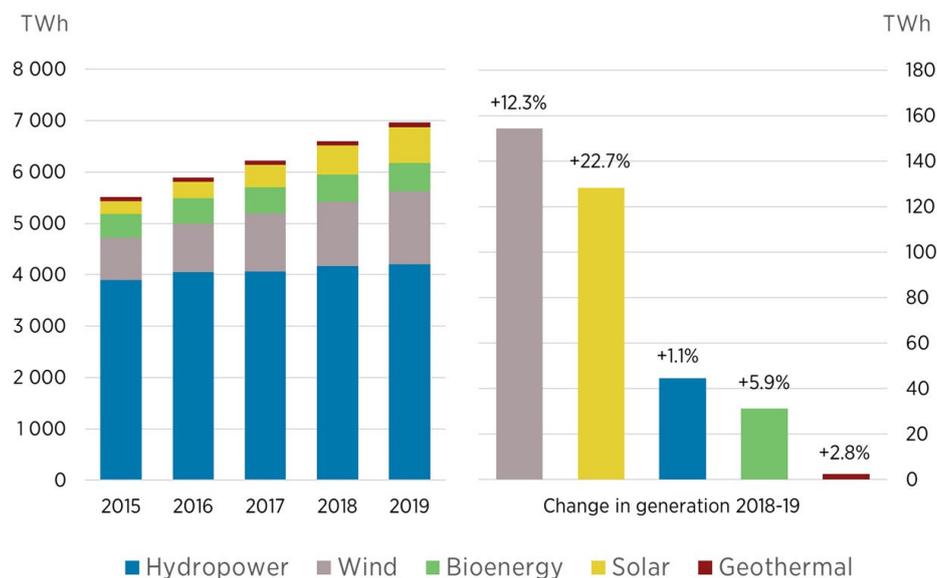


In 2019, the total amount of electricity generated from renewables was 6 963 TWh. Renewable hydro accounted for about 61% of this (4 207 TWh), followed by wind energy (1 412 TWh), solar energy (693 TWh), bioenergy (558 TWh), geothermal energy (92 TWh) and marine energy (1 TWh).

■ Hydro ■ Wind ■ Bioenergy ■ Solar ■ Geothermal

Bioenergy generation was divided as follows: 389 TWh (69%) from solid biofuels; 92 TWh (20%) from biogas; 69 TWh (10%) from renewable municipal waste; and 8 TWh (1%) from liquid biofuels.

Growth in renewable electricity generation



Renewable electricity generation in 2019 was 361 TWh higher than in 2018, an increase of 5.5%. Generation growth was slightly lower than in 2018, due to an upward revision of the data for 2018. Solar and wind generation continued to grow strongly, although growth in solar was slightly lower than in 2018. Bioenergy generation also increased by a lot more than in previous years (+31 TWh).

Solar and wind generation in 2019 increased by 23% and 12% respectively. Together, these two sources of energy continue to dominate growth in renewable generation, accounting for 71% of growth since 2015.

Renewable electricity generation by region

As in other recent years, Asia accounted for most growth in renewable electricity generation, with an increase of 245 TWh in 2019. Asia's share of global renewable generation also continued to increase, reaching 42%. Europe and North America have shares of 19% and 18% respectively, followed by South America (11%) and Eurasia (5%).

In 2019, renewable hydro generation contracted in most regions, but expanded by almost 90 TWh in Asia, accounting for all of the growth in global generation. Most growth in wind generation occurred in Europe and Asia (+58 TWh and +51 TWh respectively), followed by North America (+25 TWh). Asia also accounted for most of the increase in solar generation (+77 TWh out of the global increase of +128 TWh).

Generation in 2019 (TWh)	Hydro	Wind	Bioenergy	Solar	Geothermal	Marine	Total
Africa	140	10	3	13	5		171
Asia	1 812	491	194	370	28	<1	2 895
Central America + Caribbean	23	6	8	3	4		45
Eurasia	298	22	4	10	9	<1	343
Europe	534	441	201	145	13	<1	1 334
Middle East	22	2	<1	12			35
North America	693	348	77	109	24	<1	1 251
Oceania	43	20	4	15	8	<1	91
South America	642	73	67	16	0	<1	797
World total	4 207	1 412	559	693	92	1	6 963

Revisions to renewable generating capacity

IRENA's latest statistics include some minor revisions to the 2020 renewable generating capacity reported in March 2021. Total renewable generating capacity in 2020 has been revised upwards by 3 GW to 2 802 GW. This is due to the inclusion of officially validated statistics for some large countries, which has resulted in higher figures for hydropower and solar capacity (+1 GW hydropower and +2 GW solar capacity). Wind capacity at the end of 2020 has also been revised downwards slightly.

Renewable share of total electricity generation

IRENA's electricity data shows a 26.0% renewable share of generation in 2019. The generation share increased by 1.1 percentage points compared to the 2018 figure of 24.9%. This increase in the generation share was the highest ever recorded.

Public investment in renewables

Public investment in renewable energy continued to decline in 2019, with a total investment of USD 17 billion (at 2019 prices and exchange rates), compared to figures of USD 22 billion and USD 34 billion in 2018 and 2017 respectively. This decline has occurred across all technologies.

IRENA, along with the OECD-DAC, is responsible for reporting progress on SDG Indicator 7.a.1 on international financial flows to developing countries in support of clean and renewable energy. This sub-set of the data shows that international support for investment in renewables in developing countries also declined and was only USD 14.0 billion in 2018, compared to a figure of USD 21.9 billion in 2017.