Renewable energy highlights

18 July 2022

HEADLINE FIGURES

7 468 TWh

Amount of electricity generated from renewables in 2020

7.4%

Increase in renewable generation compared to 2019

6.1%

compound annual growth rate (CAGR) in electricity generation from renewables since 2016

22%

Increase in solar power generation compared to 2019

12%

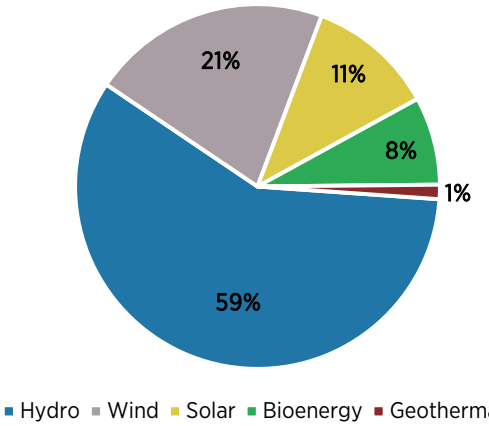
Increase in wind power generation compared to 2019

USD 17 bn

Amount of public investment in renewables in 2020

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

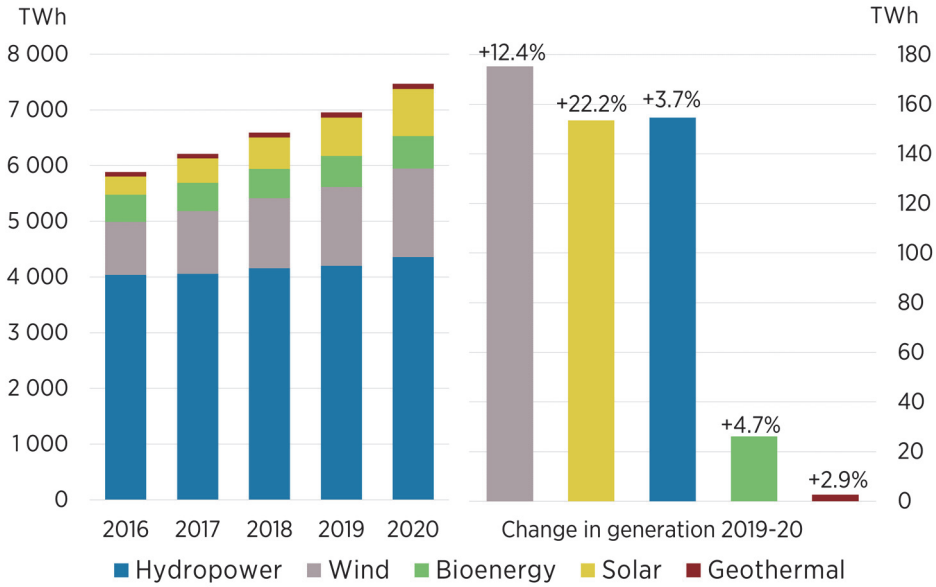
Renewable electricity generation by energy source



In 2020, the total amount of electricity generated from renewables was 7 468 TWh. Renewable hydro accounted for about 59% of this (4 356 TWh), followed by wind energy (1 589 TWh), solar energy (844 TWh), bioenergy (584 TWh), geothermal energy (95 TWh) and marine energy (1 TWh).

Bioenergy generation was divided as follows: 406 TWh (70%) from solid biofuels; 97 TWh (16%) from biogas; 73 TWh (13%) from renewable municipal waste; and 8 TWh (1%) from liquid biofuels.

Growth in renewable electricity generation



Renewable electricity generation in 2020 was 512 TWh higher than in 2019, an increase of 7.4%. Generation growth was higher than in 2019, mostly due to a sharp increase in Europe and North America.

Solar and wind generation in 2020 increased by 22% and 12% respectively. Together, these two sources of energy continue to dominate growth in renewable generation, accounting for 73% of growth since 2016. Renewable hydropower generation growth tripled in 2020 (+155 TWh compared to +48 TWh in 2019).

Renewable electricity generation by region

As in other recent years, Asia accounted for most growth in renewable electricity generation, with an increase of 236 TWh in 2020. 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%), Eurasia (5%), Africa (2%), Oceania (1%) and Central America and the Caribbean (<1%).

In 2020, renewable hydro generation grew in most regions but contracted by 9 TWh in Middle East and by 2 TWh in Oceania. Asia with 75 TWh increase accounted for most of the growth in global generation. Most growth in wind generation occurred in Asia and North America (+64 TWh and +50 TWh respectively), followed closely by Europe (+47 TWh). Asia also accounted for most of the increase in solar generation (+78 TWh out of the global increase of +154 TWh).

Generation in 2020 (TWh)	Hydro	Wind	Bioenergy	Solar	Geothermal	Marine	Total
Africa	136	11	3	17	5		172
Asia	1 873	556	212	448	29	<1	3 119
Central America + Caribbean	29	6	8	4	5		51
Eurasia	303	26	5	12	10	<1	358
Europe	572	488	207	168	13	<1	1 448
Middle East	29	2	<1	14			45
North America	701	397	73	138	23	<1	1 332
Oceania	41	23	4	22	9	<1	98
South America	672	80	72	22	<1		846
World total	4 356	1 589	584	844	95	1	7 468

Revisions to renewable generating capacity

IRENA's latest statistics include some minor revisions to the 2021 renewable generating capacity reported in March 2022. Total renewable generating capacity in 2021 has been revised upwards by 4 GW to 3 068 GW. This is due to the inclusion of officially validated statistics for some large countries, which has resulted in higher figures for solar capacity (+5 GW). Wind capacity at the end of 2021 has been revised downwards slightly (-1 GW).

Renewable share of total electricity generation

IRENA's electricity data shows a 27.7% renewable share of generation in 2020. The generation share increased by 1.8 percentage points compared to the 2019 figure of 25.9%. This increase in the generation share was the highest ever recorded.

Public investment in renewables

Public investment in renewable energy continued to decline in 2020, with a total investment of USD 17 billion (at 2020 prices and exchange rates), compared to figures of USD 18 billion and USD 22 billion in 2019 and 2018 respectively. This decline has occurred across all technologies except solar (+ USD 0.8 billion) and geothermal (+ USD 0.2 billion).

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 subset of the data shows that international support for investment in renewables in developing countries also declined and was only USD 12.2 billion in 2020, compared to a figure of USD 12.5 billion in 2019 (at 2020 prices and exchange rates).