Renewable energy highlights

1 July 2019

HEADLINE FIGURES

6 191 TWh

Amount of electricity generated from renewables in 2017

5.0%

Increase in renewable generation compared to 2016

1 150 TWh

Increase in electricity generation from renewables since 2013

35%

Increase in solar power generation compared to 2016

19%

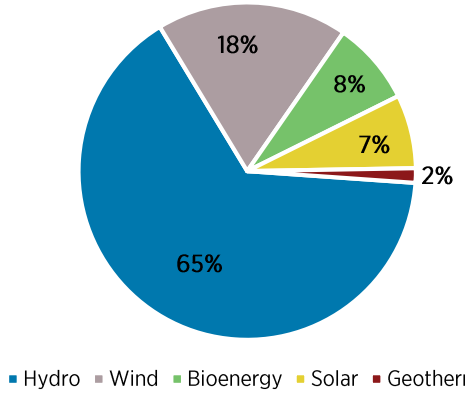
Increase in wind power generation compared to 2016

USD 29 bn

Amount of public investment in renewables in 2017

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

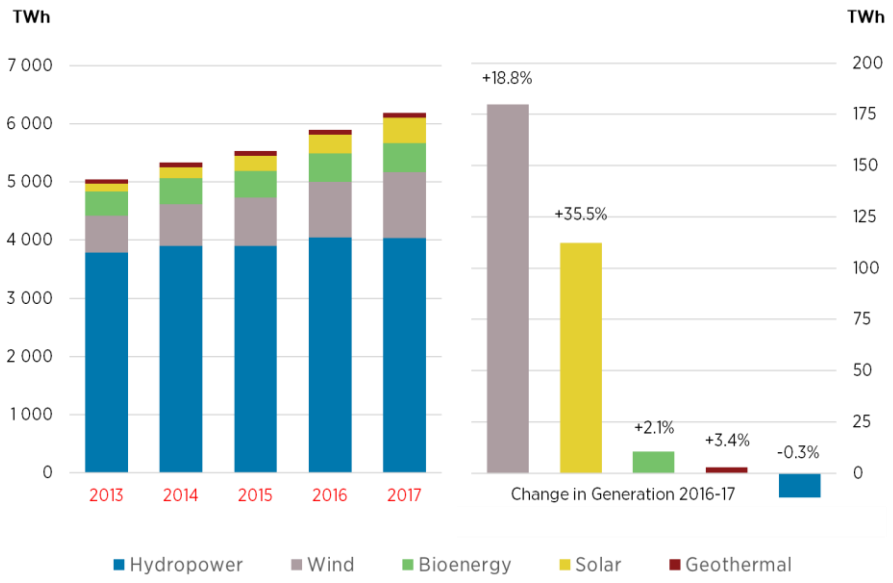
Renewable electricity generation by energy source



In 2017, the total amount of electricity generated from renewables was 6 191 TWh. Renewable hydro accounted for about 65% of this (4 037 TWh), followed by wind energy (1 134 TWh), bioenergy (495 TWh), solar energy (437 TWh), geothermal energy (86 TWh) and marine energy (1 TWh).

Bioenergy generation was divided as follows: 344 TWh (70%) from solid biofuels; 88 TWh (20%) from biogas; 57 TWh (10%) from renewable municipal waste; and 7 TWh from liquid biofuels.

Growth in renewable electricity generation



Renewable electricity generation in 2017 was 293 TWh higher than in 2016, an increase of 5.0%. Generation growth was similar to 2015, with a decline in hydropower generation (mostly in Europe), but continued high growth in solar and wind generation that contributed strongly to overall growth in the sector.

Solar generation in 2017 increased by over 35% and wind generation continued to expand with an increase of almost 20%. Together, these two sources of energy continue to dominate growth in renewable generation, accounting for 70% of growth since 2013.

Renewable electricity generation by region

As in other recent years, Asia accounted for most growth in renewable electricity generation, with an increase of 165 TWh in 2017. Asia's share of global renewable generation also continued to increase, reaching 39%. Europe and North America each have a 20% share, followed by South America (13%) and Eurasia (5%).

In 2017, renewable hydro generation fell significantly in Europe, Eurasia and South America. It expanded slightly in other regions, but global hydro generation declined overall. Asia continued to lead in the expansion of wind and solar generation, accounting for almost half of all global solar generation and equalling Europe in wind generation in 2017.

Generation in 2017 (TWh)	Hydro	Wind	Bioenergy	Solar	Geothermal	Marine	Total
Africa	126	12	3	7	5	<1	153
Asia	1 643	368	149	208	26	<1	2 394
Central America + Caribbean	30	5	5	2	4		46
Eurasia	256	18	2	3	7	<1	287
Europe	521	368	188	122	12	<1	1 211
Middle East	27	1	<1	4	0		32
North America	727	296	78	76	25	<1	1 202
Oceania	43	15	4	8	8	<1	79
South America	664	53	65	6	<1	<1	787
World total	4 037	1 134	495	437	86	1	6 191

Revisions to renewable generating capacity

IRENA's latest statistics include some minor revisions to the 2018 renewable generating capacity reported in March 2019. Total renewable generating capacity in 2018 has been revised upwards by 5 GW to 2 356 GW. Off-grid electricity capacity has also been revised downwards by 0.5 GW (to 8.4 GW), mostly due to a reduction in off-grid bioenergy capacity reported by Malaysia.

Renewable share of total electricity generation

The recently published SDG Energy Indicators report that renewables accounted for 24% of electricity consumption in 2016, with an increase in the share of one percentage point compared to 2015. IRENA's electricity data records a 23.7% renewable share of generation in 2016, with a similar one percentage point increase compared to 2015. In 2017, the generation share increased by 0.7 percentage points to reach 24.4%. Taken together, these figures suggest that the increase in share of renewables in electricity has reverted to it's average for recent years and that its share of electricity consumption in 2017 may slightly above 24.5%.[1]

Renewable energy balances and public investment data

IRENA continues to expand its compilation of renewable energy balances and the 2019 Renewable Energy Statistics present balances for over 130 countries and areas. It also includes a focus on Small Island Developing States, presenting 25 of the balances that IRENA has compiled for these states.

The trend in public investment in renewable energy has been revised upwards (due to improved reporting) and has been adjusted to real (2016) prices. These figures show that total public investment reached an all-time high of USD 29 billion in 2017, which is an increase of USD 3 billion (+11.8%) compared to 2016. 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 reached USD 18.6 billion in 2016.

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1 Both the IRENA and SDG datasets show that the share of renewable electricity consumption and generation has increased by an average of 0.7 percentage points per year since 2010. At the global level, the renewable consumption share is usually slightly higher than the generation share, resulting in the rough estimate of consumption shown above.