Renewable energy highlights

1 July 2016

HEADLINE FIGURES

5 294 TWh

Amount of electricity generated from renewables in 2014

5%

Increase in renewable generation compared to 2013

1 100 TWh

Increase in electricity generation from renewables since 2010

39%

Increase in solar power generation compared to 2013

100

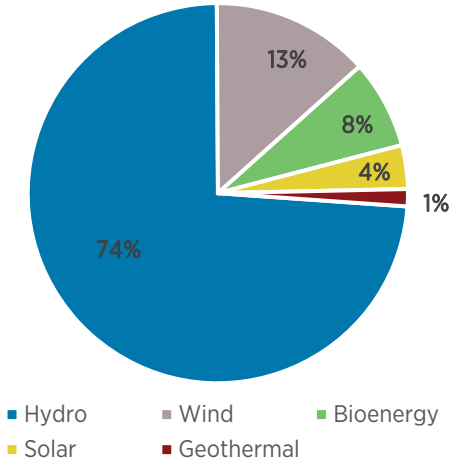
Renewable energy balances available for 2013 and 2014

USD 22 bn

Amount of public investment in renewables in 2014

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

Renewable electricity generation by energy source

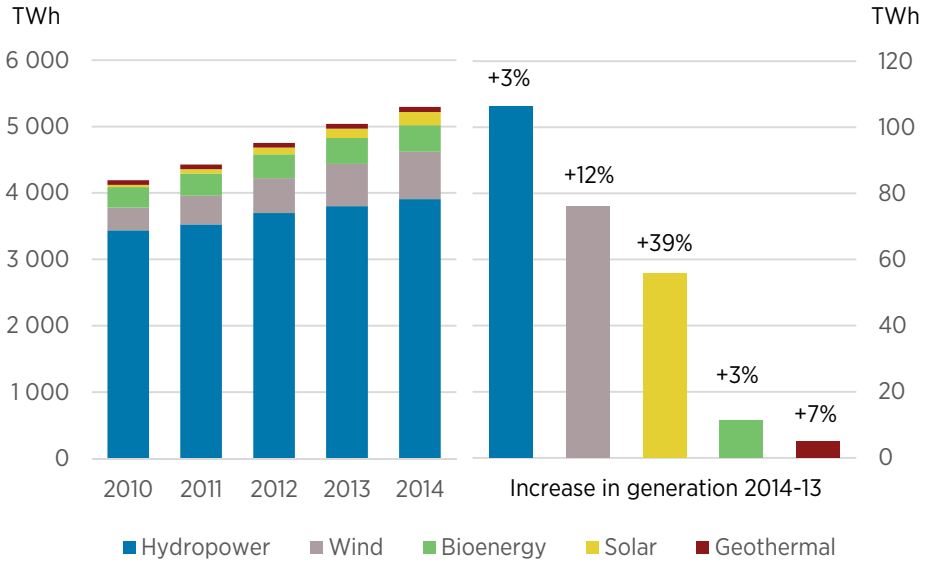


The total amount of electricity generated from renewables in 2014 amounted to 5 294 TWh. Hydro accounted for almost three-quarters (3 907 TWh), followed by wind (714 TWh), bioenergy (399 TWh), solar energy (197 TWh) and geothermal energy (77 TWh).

Large-scale plants of over 10 MW dominate hydro generation (85%) while solar panels and onshore wind turbines account for most solar and wind generation (95%).

The generation of bioenergy was divided as follows: 274 TWh (70%) from solid biofuels; 80 TWh (20%) from biogas; 40 TWh (10%) from renewable municipal waste; and 5 TWh from liquid biofuels.

Growth in renewable electricity generation



Renewable electricity generation in 2014 was 255 TWh higher than in 2013, an increase of 5%. The longer-term growth trend of about 6% has seen renewable generation increase by 1 100 TWh since 2010. Electricity generation from wind and solar performed particularly strongly in 2014, with growth of 12% and 39% respectively, continuing the double-digit growth seen in previous years.

Renewable electricity generation by region

In 2014, Asia dominated renewable electricity generation with a share of 35%. Europe and North America each accounted for about 20%, followed by South America (14%) and Eurasia (5%).

As illustrated in the table below, the source of renewables used to generate electricity varies considerably between regions. Hydroelectricity is by far the most important source of renewable electricity in Africa, Eurasia, the Middle East and South America. It also accounts for 80% of renewable generation in Asia, although wind and solar energy are increasingly prominent. Hydroelectricity is less dominant in Europe and North America, where wind, bioenergy and solar energy account for relatively high shares of total renewable electricity production. Oceania also shows a broad mix of renewables and there has been rapid growth in solar and wind energy generation recently in many islands in the Pacific and Caribbean.

Generation in 2014 (TWh)	Hydro	Wind	Bioenergy	Solar	Geothermal	Total
Africa	118	5	2	2	3	131
Asia	1 520	198	85	62	23	1 888
Central America + Caribbean	24	3	4	<1	4	35
Eurasia	239	9	1	<1	3	252
Europe	595	258	170	99	11	1 133
Middle East	26	<1	<1	<1	<1	28
North America	683	213	77	27	25	1 024
Oceania	44	13	4	5	8	74
South America	658	16	55	1	<1	730
World total	**3 907**	**714**	**399**	**197**	**77**	**5 294**

Revisions to renewable generating capacity

IRENA's latest statistics include revised figures for renewable generating capacity. Previously, these included some unofficial estimates that reflected the completion of construction rather than commissioning (i.e. grid connection) of facilities. The revised capacity figure for 2015 is now 1 965 GW (instead of the previous 1 985 GW), with most of the downward revisions occurring in China and the United States of America. With recent improvements in data collection, future capacity estimates are expected to be closer to the final statistics collected from countries. On the basis of these new figures, net capacity additions in 2015 have actually been revised upwards to 156 GW or an increase of 8.6% (compared to 152 GW and 8.3% presented previously).

Renewable energy balances and public investment data

Renewable energy balances present a complete picture of renewable energy production and consumption. In addition to the generation of electricity from renewables, they include the direct use of solar and geothermal heat and biofuels for heating and transport. IRENA's latest statistics present balances for 100 countries and areas for 2013 and 2014, showing the final consumption of renewables by energy source, type of energy use (electricity, heat, direct use) and end-use sector (industry, transport, residential, commercial and public services, other). IRENA will continue to work with countries to help improve this dataset, with a focus on non-OECD countries.

Statistics on investments in renewable energies from selected public financial institutions are also presented for the period 2009-14. These have been collected from 18 major multi-lateral, bilateral and national development financial institutions with investment in renewable energy of over USD 500 million in at least one year. The data show that public investment in renewable energy amounted to about USD 22 billion in 2014, slightly higher than the average over previous years (USD 19 billion). Wind energy and hydroelectricity accounted for the majority of this investment (USD 7.6 billion and USD 5.6 billion respectively), followed by solar energy (USD 3.0 billion), bioenergy (USD 1.5 billion) and geothermal energy (USD 1.2 billion). The remaining USD 3.0 billion was invested in other ventures not related to one specific type of renewable energy.