



🌱 **Renewable energy**

44 Other renewables consumption

45 Biofuels production

**Appendices**

A1 Solar – Generation

A2 Wind – Generation

A3 Geothermal, biomass and other – Generation

A4 Geothermal – Cumulative installed geothermal power capacity

A5 Solar – Cumulative installed photovoltaic (PV) power

A6 Solar PV generation capacity

A7 Wind – Cumulative installed wind turbine capacity

A8 Wind generation capacity

A large, stylized number '67' is formed by a green and yellow satellite-style map of the world. The '6' is on the left and the '7' is on the right, both rendered in a circular, semi-transparent style that allows the map to be seen through them. The map uses shades of green and yellow to represent land and water respectively.

June 2018 | **BP Statistical Review  
of World Energy**

**67<sup>th</sup> edition**



## Biofuels production

Thousand tonnes oil equivalent	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	Growth rate per annum		Share 2017
												2017	2006-16	
US	14709	20934	23761	28044	31184	29808	31057	32890	33849	35986	<b>36936</b>	2.9%	12.9%	43.9%
Canada	502	543	761	787	899	1004	1059	1188	1142	1197	<b>1239</b>	3.8%	21.4%	1.5%
Mexico	5	5	5	10	13	9	7	7	5	14	<b>14</b>	-	-	♦
<b>Total North America</b>	<b>15216</b>	<b>21481</b>	<b>24527</b>	<b>28841</b>	<b>32095</b>	<b>30821</b>	<b>32124</b>	<b>34086</b>	<b>34996</b>	<b>37197</b>	<b>38190</b>	<b>3.0%</b>	<b>13.1%</b>	<b>45.4%</b>
Argentina	173	635	1055	1670	2234	2295	2014	2644	2038	2828	<b>3131</b>	11.0%	57.3%	3.7%
Brazil	12427	15486	15277	16866	14403	14739	17114	18005	19332	18168	<b>18465</b>	1.9%	6.6%	22.0%
Colombia	155	158	320	455	572	627	650	676	693	626	<b>617</b>	-1.1%	15.8%	0.7%
Other S. & Cent. America	606	806	634	232	313	304	359	382	385	409	<b>456</b>	11.8%	-2.3%	0.5%
<b>Total S. &amp; Cent. America</b>	<b>13360</b>	<b>17085</b>	<b>17285</b>	<b>19223</b>	<b>17522</b>	<b>17965</b>	<b>20136</b>	<b>21707</b>	<b>22448</b>	<b>22030</b>	<b>22669</b>	<b>3.2%</b>	<b>7.9%</b>	<b>26.9%</b>
Austria	222	269	373	391	390	390	374	329	381	419	<b>391</b>	-6.5%	14.4%	0.5%
Belgium	146	282	486	523	525	536	526	666	482	477	<b>471</b>	-1.0%	35.8%	0.6%
Finland	54	101	231	301	208	263	330	367	432	109	<b>219</b>	101.9%	24.2%	0.3%
France	1153	2064	2408	2353	1935	2145	2306	2573	2559	2405	<b>2224</b>	-7.3%	13.4%	2.6%
Germany	3243	2805	2834	3022	2967	3031	2770	3460	3191	3228	<b>3293</b>	2.3%	2.2%	3.9%
Italy	448	623	772	678	486	298	454	575	572	600	<b>595</b>	-0.5%	0.1%	0.7%
Netherlands	82	78	242	391	674	1276	1495	1980	1816	1477	<b>1658</b>	12.6%	51.4%	2.0%
Poland	103	290	408	439	414	652	697	750	940	928	<b>920</b>	-0.6%	19.7%	1.1%
Portugal	162	149	226	284	330	276	274	301	321	298	<b>315</b>	5.9%	15.5%	0.4%
Spain	378	384	1001	1312	851	620	749	1030	1122	1200	<b>1541</b>	28.7%	16.0%	1.8%
Sweden	150	183	254	339	400	491	635	789	222	211	<b>185</b>	-12.0%	8.7%	0.2%
United Kingdom	374	289	220	304	322	303	517	403	310	554	<b>617</b>	11.8%	9.3%	0.7%
Other Europe	504	956	1153	1153	1259	1413	1449	1494	1679	1745	<b>1738</b>	-0.1%	15.7%	2.1%
<b>Total Europe</b>	<b>7019</b>	<b>8473</b>	<b>10609</b>	<b>11490</b>	<b>10761</b>	<b>11692</b>	<b>12578</b>	<b>14717</b>	<b>14025</b>	<b>13652</b>	<b>14167</b>	<b>4.1%</b>	<b>10.0%</b>	<b>16.8%</b>
Total CIS	2	7	36	34	28	29	23	25	19	19	<b>19</b>	-	-	♦
Total Middle East	-	-	-	5	5	5	5	5	5	5	<b>5</b>	-	-	♦
<b>Total Africa</b>	<b>6</b>	<b>11</b>	<b>18</b>	<b>8</b>	<b>8</b>	<b>23</b>	<b>32</b>	<b>40</b>	<b>40</b>	<b>40</b>	<b>40</b>	-	<b>15.8%</b>	<b>♦</b>
Australia	75	111	174	222	223	241	210	163	162	183	<b>144</b>	-21.1%	13.4%	0.2%
China	982	1194	1224	1584	1970	2103	2346	2609	2653	1811	<b>2147</b>	18.8%	6.9%	2.6%
India	100	154	61	123	192	168	198	198	438	544	<b>435</b>	-19.9%	22.0%	0.5%
Indonesia	217	530	469	723	1110	1397	1750	3110	1314	2238	<b>2326</b>	4.2%	48.1%	2.8%
South Korea	78	146	358	511	309	283	321	337	385	386	<b>406</b>	5.3%	25.1%	0.5%
Thailand	148	525	656	700	765	1054	1330	1490	1603	1610	<b>1846</b>	15.0%	33.9%	2.2%
Other Asia Pacific	227	390	478	443	692	1067	1363	1522	1777	1767	<b>1727</b>	-2.0%	28.5%	2.1%
<b>Total Asia Pacific</b>	<b>1827</b>	<b>3051</b>	<b>3419</b>	<b>4306</b>	<b>5262</b>	<b>6313</b>	<b>7518</b>	<b>9429</b>	<b>8333</b>	<b>8540</b>	<b>9031</b>	<b>6.0%</b>	<b>20.1%</b>	<b>10.7%</b>
<b>Total World</b>	<b>37429</b>	<b>50109</b>	<b>55894</b>	<b>63906</b>	<b>65680</b>	<b>66848</b>	<b>72415</b>	<b>80009</b>	<b>79866</b>	<b>81483</b>	<b>84121</b>	<b>3.5%</b>	<b>11.4%</b>	<b>100.0%</b>
of which: OECD	22297	30020	35413	40832	43107	42773	44936	49000	49235	51054	<b>52552</b>	3.2%	12.2%	62.5%
Non-OECD	15133	20090	20481	23074	22573	24074	27478	31009	30630	30429	<b>31569</b>	4.0%	10.1%	37.5%
European Union	6944	8332	10460	11387	10569	11581	12492	14632	13906	13532	<b>14044</b>	4.1%	10.0%	16.7%

♦ Less than 0.05%.

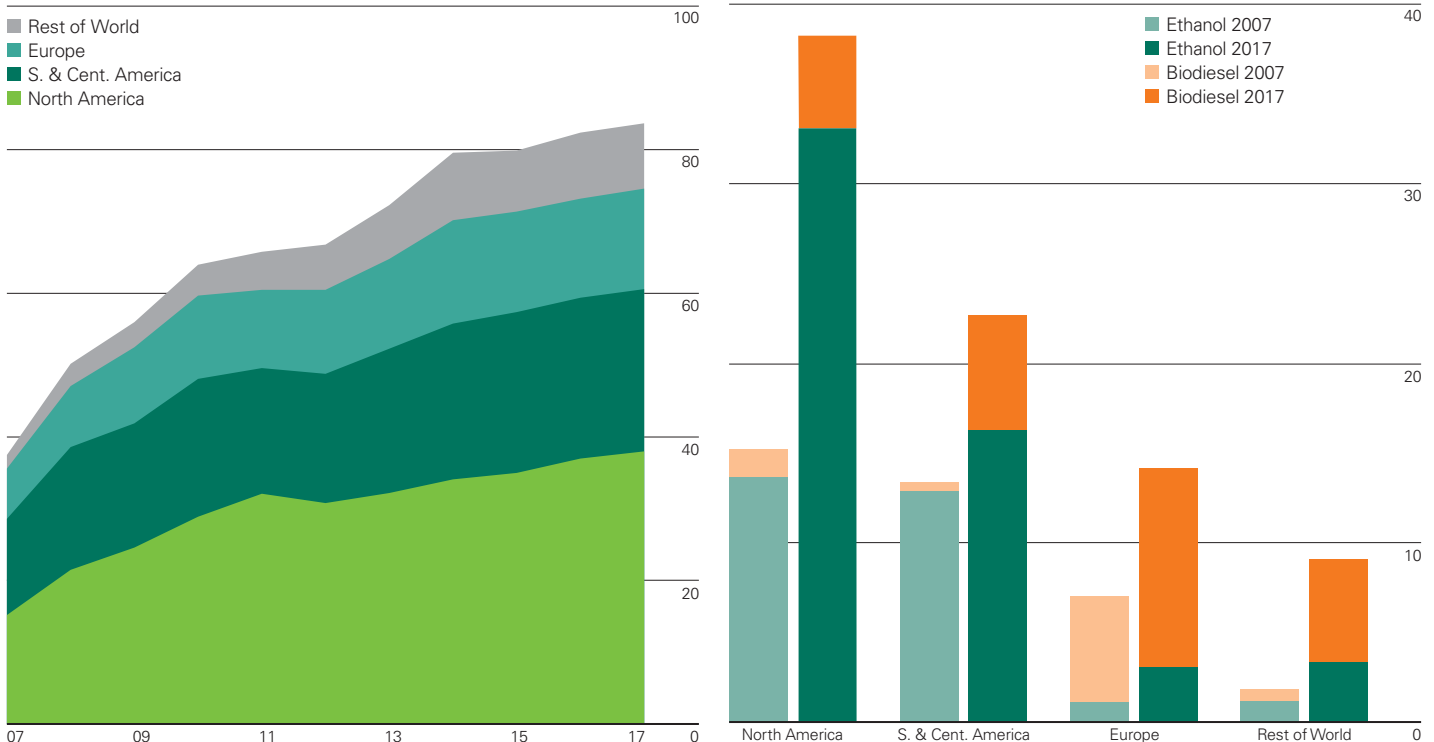
Notes: Consumption of fuel ethanol and biodiesel is included in oil consumption tables.

Growth rates are adjusted for leap years.

Source: Includes data from F.O. Lichts; Strategie grains; US Energy Information Administration (March 2018).

## World biofuels production

Million tonnes oil equivalent



World biofuels production increased by 3.5% in 2017, well below the 10-year average of 11.4%, but the fastest for three years. The US provided the largest increment (950 thousand tonnes of oil equivalent, or ktoe). By fuel type, global ethanol production grew at a similar rate of 3.3%, and contributing over 60% to total biofuels growth. Biodiesel production rose by 4%, driven mainly by growth in Argentina, Brazil and Spain.







# Renewable energy – geothermal

## Cumulative installed geothermal power capacity\*

Megawatts	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	Growth rate per annum		Share 2017
												2017	2006-16	
Australia	†	†	1	1	1	1	2	2	2	2	<b>2</b>	–	30.2%	♦
Austria	1	1	1	1	1	1	1	1	1	1	<b>1</b>	–	1.6%	♦
Chile	–	–	–	–	–	–	–	–	–	–	<b>48</b>	n/a	n/a	0.3%
China	26	26	27	27	27	27	27	27	27	27	<b>27</b>	–	0.4%	0.2%
Costa Rica	166	166	166	166	208	208	208	208	208	208	<b>208</b>	–	2.3%	1.5%
El Salvador	204	204	204	204	204	204	204	204	204	204	<b>204</b>	–	3.1%	1.4%
Ethiopia	7	7	7	7	7	7	7	7	7	7	<b>7</b>	–	–	0.1%
France	15	16	16	16	16	16	17	17	17	19	<b>19</b>	–	2.4%	0.1%
Germany	3	3	8	8	8	19	30	33	33	39	<b>39</b>	–	69.4%	0.3%
Guadeloupe	15	15	15	15	15	15	15	12	15	15	<b>15</b>	–	-0.3%	0.1%
Guatemala	54	54	52	52	52	52	48	48	48	48	<b>48</b>	–	-1.2%	0.3%
Honduras	–	–	–	–	–	–	–	–	–	–	<b>35</b>	n/a	n/a	0.2%
Hungary	–	–	–	–	–	–	–	–	–	–	<b>3</b>	n/a	n/a	♦
Iceland	485	573	573	573	663	663	663	663	663	663	<b>708</b>	6.8%	4.6%	4.9%
Indonesia	980	1052	1189	1193	1209	1344	1345	1405	1435	1640	<b>1860</b>	13.4%	6.8%	13.0%
Italy	811	811	843	883	883	875	876	916	916	916	<b>916</b>	–	1.2%	6.4%
Japan	532	532	536	536	536	536	537	539	544	544	<b>549</b>	0.9%	0.2%	3.8%
Kenya	170	174	174	209	212	217	253	450	605	676	<b>676</b>	–	15.0%	4.7%
Mexico	960	965	965	965	887	812	823	813	874	894	<b>919</b>	2.8%	-0.7%	6.4%
New Zealand	443	585	625	723	723	723	805	971	978	978	<b>978</b>	–	8.7%	6.8%
Nicaragua	88	88	88	88	88	160	160	160	160	160	<b>160</b>	–	7.5%	1.1%
Papua New Guinea	56	56	56	56	56	56	56	56	56	56	<b>56</b>	–	10.3%	0.4%
Philippines	1958	1958	1953	1966	1783	1848	1868	1918	1917	1916	<b>1928</b>	0.6%	-0.3%	13.5%
Portugal	29	29	29	29	29	29	29	29	29	29	<b>33</b>	13.8%	6.1%	0.2%
Russia	82	82	82	82	82	82	82	82	82	82	<b>82</b>	–	0.4%	0.6%
Thailand	†	†	†	†	†	†	†	†	†	†	<b>†</b>	–	–	♦
Turkey	23	30	77	94	114	162	311	405	624	821	<b>1064</b>	29.6%	43.0%	7.4%
US	3233	3243	3421	3498	3500	3724	3765	3757	3812	3805	<b>3719</b>	-2.3%	1.8%	26.0%
<b>Total World</b>	<b>10341</b>	<b>10670</b>	<b>11109</b>	<b>11393</b>	<b>11305</b>	<b>11782</b>	<b>12134</b>	<b>12725</b>	<b>13258</b>	<b>13751</b>	<b>14305</b>	<b>4.0%</b>	<b>3.3%</b>	<b>100.0%</b>

\*End of year.  
†Less than 0.05.  
♦Less than 0.05%.  
n/a not available.

Sources: ThinkGeoEnergy, International Geothermal Association, IRENA, and national sources.

# Renewable energy – solar

## Cumulative installed photovoltaic (PV) power\*

Megawatts	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	Growth rate per annum		Share 2017
												2017	2006-16	
US	455	753	1188	2040	3959	7328	12079	18317	25674	40400	<b>51000</b>	26.2%	63.6%	12.8%
Canada	26	33	95	281	558	827	1272	1904	2579	2688	<b>2900</b>	7.9%	63.2%	0.7%
Mexico	21	22	25	31	40	52	112	179	246	389	<b>539</b>	38.6%	34.6%	0.1%
<b>Total North America</b>	<b>502</b>	<b>808</b>	<b>1308</b>	<b>2352</b>	<b>4557</b>	<b>8207</b>	<b>13463</b>	<b>20400</b>	<b>28499</b>	<b>43477</b>	<b>54439</b>	<b>25.2%</b>	<b>62.7%</b>	<b>13.6%</b>
Brazil	–	–	–	1	1	2	5	15	23	80	<b>1097</b>	1271.3%	n/a	0.3%
Chile	–	–	–	–	–	2	15	242	576	1603	<b>2110</b>	31.7%	n/a	0.5%
Honduras	3	3	4	4	4	5	5	5	393	414	<b>451</b>	8.9%	64.4%	0.1%
Other S. & Cent. America	27	36	60	113	164	318	425	569	841	1062	<b>1458</b>	37.4%	48.8%	0.4%
<b>Total S. &amp; Cent. America</b>	<b>30</b>	<b>40</b>	<b>63</b>	<b>118</b>	<b>170</b>	<b>327</b>	<b>450</b>	<b>831</b>	<b>1833</b>	<b>3158</b>	<b>5117</b>	<b>62.0%</b>	<b>63.7%</b>	<b>1.3%</b>
Austria	29	32	53	95	187	263	626	785	937	1097	<b>1250</b>	13.9%	45.4%	0.3%
Belgium	24	109	648	1066	2105	2800	3058	3153	3250	3516	<b>3800</b>	8.1%	111.1%	1.0%
Bulgaria	†	†	2	25	154	1013	1020	1026	1029	1028	<b>1028</b>	0.0%	n/a	0.3%
Czech Republic	4	40	465	1727	1913	2022	2064	2068	2075	2068	<b>2061</b>	–0.3%	114.6%	0.5%
Denmark	3	3	5	7	17	408	563	606	787	850	<b>910</b>	7.1%	75.9%	0.2%
Finland	2	3	5	7	8	8	8	11	15	35	<b>50</b>	42.9%	33.1%	–
France	76	180	371	1209	2973	4094	4748	5702	6605	7125	<b>8000</b>	12.3%	68.8%	2.0%
Germany	4170	6120	10566	18006	25916	34077	36710	37900	39224	40716	<b>42394</b>	4.1%	30.2%	10.6%
Greece	9	12	46	202	612	1536	2579	2596	2604	2604	<b>2604</b>	0.0%	86.9%	0.7%
Hungary	–	1	1	2	4	12	35	77	168	220	<b>300</b>	36.4%	n/a	0.1%
Italy	100	496	1277	3605	13141	16796	18198	18606	18915	19291	<b>19700</b>	2.1%	81.4%	4.9%
Netherlands	49	53	64	85	143	363	723	1123	1560	2047	<b>2900</b>	41.7%	45.5%	0.7%
Norway	8	8	9	9	10	10	11	13	15	27	<b>45</b>	66.7%	12.9%	0.0%
Portugal	15	56	99	134	175	244	299	416	465	520	<b>577</b>	11.0%	62.7%	0.1%
Romania	–	–	–	†	1	41	761	1293	1326	1372	<b>1378</b>	0.4%	n/a	0.3%
Slovakia	–	–	–	19	496	513	533	533	533	533	<b>533</b>	0.0%	n/a	0.1%
Spain	778	3829	3848	4330	4792	5104	5354	5376	5425	5453	<b>5600</b>	2.7%	41.7%	1.4%
Sweden	6	8	9	11	15	23	42	78	126	210	<b>303</b>	44.3%	45.3%	0.1%
Switzerland	36	48	74	111	211	437	756	1061	1394	1640	<b>1900</b>	15.9%	49.2%	0.5%
Turkey	3	4	5	6	7	12	18	58	266	800	<b>3400</b>	325.0%	74.8%	0.9%
United Kingdom	18	24	27	95	1000	1754	2937	5528	9535	11899	<b>12760</b>	7.2%	96.2%	3.2%
Other Europe	26	30	39	56	310	644	1204	1452	1719	2023	<b>2551</b>	26.1%	54.6%	0.6%
<b>Total Europe</b>	<b>5356</b>	<b>11056</b>	<b>17612</b>	<b>30807</b>	<b>54190</b>	<b>72173</b>	<b>82247</b>	<b>89461</b>	<b>97973</b>	<b>105074</b>	<b>114044</b>	<b>8.5%</b>	<b>41.2%</b>	<b>28.5%</b>
Ukraine	–	–	–	3	188	371	748	819	839	938	<b>1149</b>	22.5%	n/a	0.3%
Other CIS	†	†	†	†	1	1	4	12	88	119	<b>234</b>	97.1%	103.0%	0.1%
<b>Total CIS</b>	<b>†</b>	<b>†</b>	<b>†</b>	<b>3</b>	<b>189</b>	<b>372</b>	<b>752</b>	<b>830</b>	<b>927</b>	<b>1057</b>	<b>1383</b>	<b>30.9%</b>	<b>152.6%</b>	<b>0.3%</b>
Israel	2	3	25	70	190	237	481	681	886	1040	<b>1100</b>	5.8%	100.3%	0.3%
Jordan	–	–	–	–	–	–	–	–	29	296	<b>362</b>	22.6%	n/a	0.1%
Other Middle East	†	1	12	15	19	32	91	127	250	570	<b>984</b>	72.8%	n/a	0.2%
<b>Total Middle East</b>	<b>2</b>	<b>4</b>	<b>37</b>	<b>85</b>	<b>209</b>	<b>269</b>	<b>572</b>	<b>809</b>	<b>1165</b>	<b>1905</b>	<b>2447</b>	<b>28.4%</b>	<b>112.8%</b>	<b>0.6%</b>
Algeria	–	–	–	–	–	–	–	1	49	219	<b>400</b>	82.6%	n/a	0.1%
South Africa	17	18	20	23	67	72	280	1034	1039	1549	<b>1714</b>	10.7%	58.4%	0.4%
Other Africa	55	71	114	203	272	342	408	487	573	737	<b>946</b>	28.4%	32.7%	0.2%
<b>Total Africa</b>	<b>72</b>	<b>89</b>	<b>133</b>	<b>226</b>	<b>339</b>	<b>415</b>	<b>688</b>	<b>1522</b>	<b>1661</b>	<b>2505</b>	<b>3060</b>	<b>22.2%</b>	<b>45.4%</b>	<b>0.8%</b>
Australia	82	105	188	571	1377	2415	3226	4088	5109	5950	<b>7200</b>	21.0%	55.9%	1.8%
China	100	140	300	800	3500	7060	17740	28380	43530	78000	<b>131000</b>	67.9%	99.0%	32.8%
India	4	10	12	37	562	923	1283	3290	5168	9418	<b>19047</b>	102.2%	113.4%	4.8%
Japan	1919	2144	2627	3618	4914	6632	13599	23339	34150	42000	<b>49000</b>	16.7%	37.7%	12.3%
Malaysia	7	9	11	13	14	34	141	206	264	336	<b>386</b>	14.9%	50.9%	0.1%
Pakistan	†	1	4	9	19	46	100	165	230	410	<b>730</b>	78.0%	n/a	0.2%
Philippines	1	1	1	1	1	1	1	22	132	765	<b>885</b>	15.7%	94.3%	0.2%
South Korea	81	357	524	650	729	1024	1555	2481	3493	4400	<b>5600</b>	27.3%	61.7%	1.4%
Taiwan	2	6	10	22	118	223	392	620	842	1210	<b>1733</b>	43.2%	96.6%	0.4%
Thailand	32	33	43	49	242	388	824	1299	1420	2449	<b>2700</b>	10.2%	55.3%	0.7%
Other Asia Pacific	38	52	65	95	122	169	226	347	512	667	<b>842</b>	26.2%	37.3%	0.2%
<b>Total Asia Pacific</b>	<b>2267</b>	<b>2857</b>	<b>3784</b>	<b>5865</b>	<b>11598</b>	<b>18914</b>	<b>39087</b>	<b>64237</b>	<b>94849</b>	<b>145606</b>	<b>219123</b>	<b>50.5%</b>	<b>53.8%</b>	<b>54.8%</b>
<b>Total World</b>	<b>8230</b>	<b>14855</b>	<b>22938</b>	<b>39455</b>	<b>71251</b>	<b>100677</b>	<b>137260</b>	<b>178090</b>	<b>226907</b>	<b>302782</b>	<b>399613</b>	<b>32.0%</b>	<b>48.7%</b>	<b>100.0%</b>

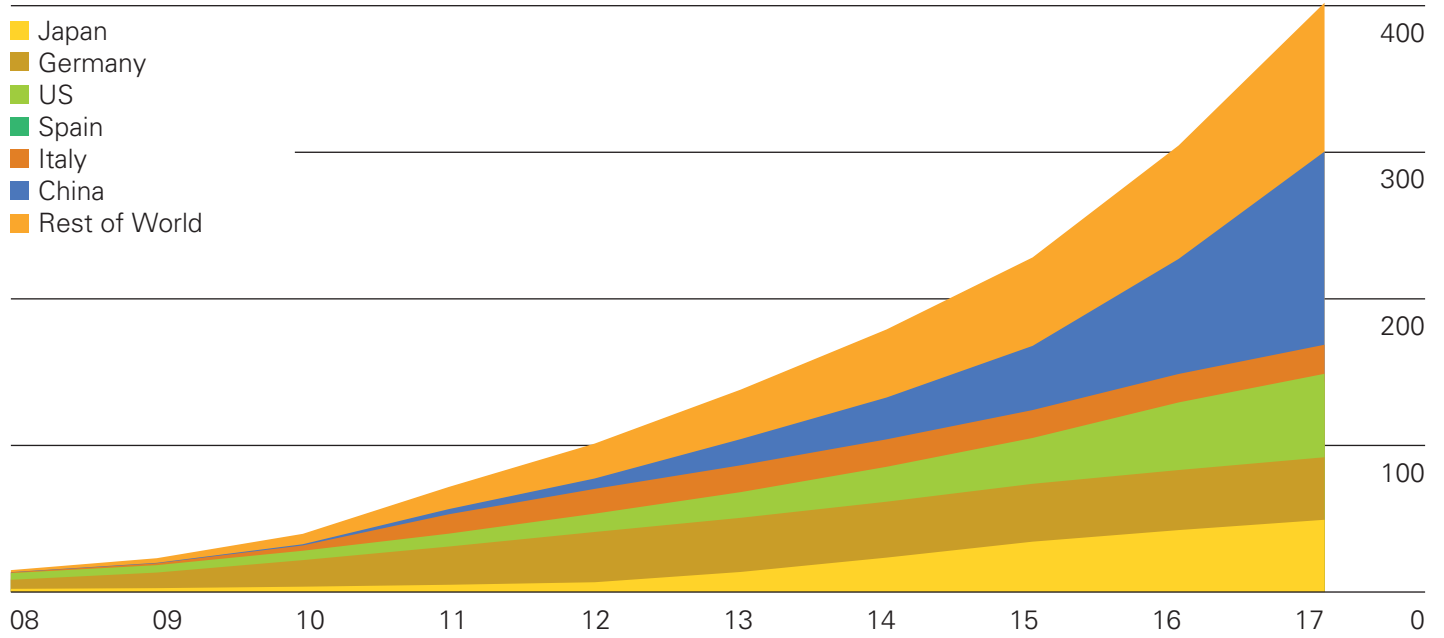
\*End of year.  
†Less than 0.05.  
n/a not available.

Sources: IEA Photovoltaic Power Systems Programme, IRENA, EurObserver, and national sources.



# Solar PV generation capacity

Gigawatts, cumulative installed capacity



Source: includes data from IEA PV Power Systems Programme, Solar Power Europe, EurObserver, and IRENA.

# Renewable energy – wind

## Cumulative installed wind turbine capacity\*

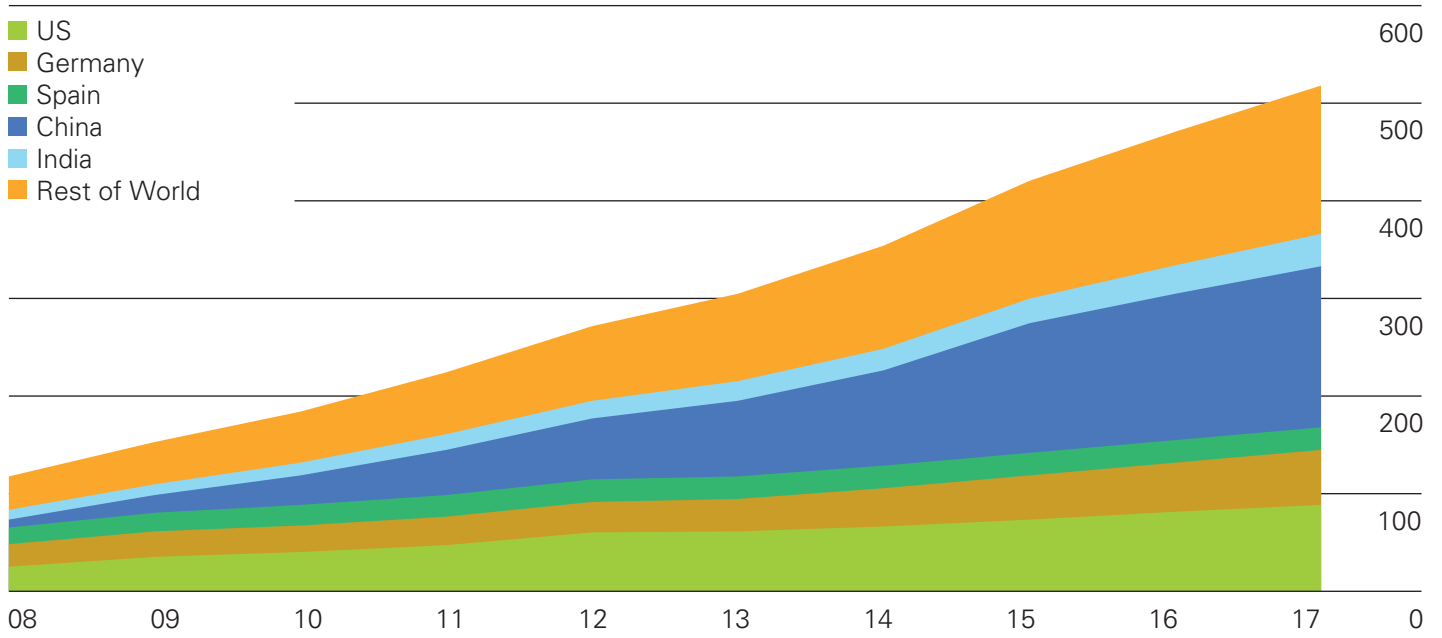
Megawatts	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	Growth rate per annum		Share 2017
												2017	2006-16	
US	16879	25237	35159	40274	47084	60208	61292	66146	72573	81287	<b>87544</b>	7.7%	21.5%	17.0%
Canada	1845	2371	3321	4011	5278	6214	7813	9684	11214	11972	<b>12313</b>	2.8%	23.4%	2.4%
Mexico	86	332	453	769	1123	1512	1988	2510	3271	3735	<b>4213</b>	12.8%	45.8%	0.8%
<b>Total North America</b>	<b>18810</b>	<b>27940</b>	<b>38933</b>	<b>45054</b>	<b>53485</b>	<b>67934</b>	<b>71093</b>	<b>78340</b>	<b>87058</b>	<b>96994</b>	<b>104070</b>	<b>7.3%</b>	<b>22.1%</b>	<b>20.2%</b>
Argentina	28	28	28	28	60	137	192	217	217	217	<b>241</b>	11.0%	22.8%	♦
Brazil	247	398	602	927	1426	1894	2202	4888	7633	10124	<b>12293</b>	21.4%	45.6%	2.4%
Chile	20	20	163	163	184	202	301	731	907	1298	<b>1421</b>	9.4%	91.1%	0.3%
Costa Rica	70	70	120	120	133	148	148	197	278	319	<b>378</b>	18.4%	16.6%	0.1%
Uruguay	–	15	31	41	44	53	59	481	857	1212	<b>1504</b>	24.1%	n/a	0.3%
Other S. & Cent. America	82	84	135	212	352	639	719	965	1366	1540	<b>1579</b>	2.5%	34.9%	0.3%
<b>Total S. &amp; Cent. America</b>	<b>447</b>	<b>615</b>	<b>1078</b>	<b>1490</b>	<b>2198</b>	<b>3072</b>	<b>3622</b>	<b>7479</b>	<b>11259</b>	<b>14710</b>	<b>17415</b>	<b>18.4%</b>	<b>43.0%</b>	<b>3.4%</b>
Austria	983	997	997	1013	1082	1378	1661	2072	2390	2635	<b>2830</b>	7.4%	10.6%	0.5%
Belgium	297	385	605	955	1147	1444	1720	1960	2170	2384	<b>2849</b>	19.5%	26.8%	0.6%
Bulgaria	41	113	335	488	582	643	650	660	660	668	<b>668</b>	–	n/a	0.1%
Denmark	3088	3159	3408	3805	3927	4137	4747	4778	4966	5137	<b>5412</b>	5.4%	5.2%	1.1%
Finland	113	113	117	169	178	268	428	611	984	1511	<b>2023</b>	33.9%	32.7%	0.4%
France	2471	3671	4775	5940	6811	7583	8164	9337	10324	11761	<b>13559</b>	15.3%	22.2%	2.6%
Germany	22116	22794	25732	26903	28712	30979	33477	38614	44580	49586	<b>55876</b>	12.7%	9.2%	10.9%
Greece	846	1022	1171	1298	1640	1753	1809	1978	2136	2370	<b>2541</b>	7.2%	12.2%	0.5%
Hungary	61	134	203	293	331	325	329	329	329	329	<b>329</b>	0.0%	25.9%	0.1%
Ireland	807	1015	1187	1449	1688	1812	2100	2322	2500	2887	<b>3425</b>	18.6%	14.5%	0.7%
Italy	2721	3731	4845	5814	6936	8119	8561	8703	9162	9410	<b>9662</b>	2.7%	16.1%	1.9%
Netherlands	1745	2222	2226	2241	2309	2552	2714	2876	3402	4268	<b>4281</b>	0.3%	10.6%	0.8%
Norway	355	385	390	411	487	683	793	841	822	838	<b>1162</b>	38.7%	9.8%	0.2%
Poland	313	472	849	1231	1667	2547	3441	3885	5149	5796	<b>6446</b>	11.2%	42.3%	1.3%
Portugal	2150	2829	3474	3837	4214	4363	4557	4683	4770	5049	<b>5049</b>	–	11.4%	1.0%
Romania	15	76	129	470	990	1913	2608	2962	2985	3034	<b>3038</b>	0.1%	99.8%	0.6%
Spain	14820	16555	19176	20693	21529	22789	22958	22975	22938	23025	<b>23120</b>	0.4%	7.0%	4.5%
Sweden	789	1024	1537	2141	2904	3750	4474	5524	6128	6594	<b>6820</b>	3.4%	27.7%	1.3%
Turkey	147	364	792	1320	1729	2261	2760	3630	4503	5751	<b>6516</b>	13.3%	60.7%	1.3%
United Kingdom	2477	3406	4422	5422	6597	9031	11282	13074	14315	16217	<b>19836</b>	22.3%	23.6%	3.9%
Other Europe	394	477	650	829	1144	1556	1762	2101	2425	2690	<b>2872</b>	6.8%	25.3%	0.6%
<b>Total Europe</b>	<b>56749</b>	<b>64943</b>	<b>77020</b>	<b>86722</b>	<b>96603</b>	<b>109885</b>	<b>120995</b>	<b>133915</b>	<b>147638</b>	<b>161940</b>	<b>178314</b>	<b>10.1%</b>	<b>12.8%</b>	<b>34.6%</b>
<b>Total CIS</b>	<b>13</b>	<b>13</b>	<b>15</b>	<b>15</b>	<b>15</b>	<b>15</b>	<b>16</b>	<b>16</b>	<b>25</b>	<b>88</b>	<b>96</b>	<b>8.5%</b>	<b>21.4%</b>	<b>♦</b>
Iran	63	63	92	95	98	106	108	149	153	191	<b>191</b>	–	15.0%	♦
Other Middle East	8	9	9	9	9	9	12	13	130	227	<b>244</b>	7.1%	39.8%	♦
<b>Total Middle East</b>	<b>71</b>	<b>72</b>	<b>101</b>	<b>104</b>	<b>107</b>	<b>115</b>	<b>119</b>	<b>162</b>	<b>284</b>	<b>418</b>	<b>434</b>	<b>3.9%</b>	<b>22.5%</b>	<b>0.1%</b>
Egypt	310	390	435	550	550	550	550	550	750	750	<b>750</b>	–	12.5%	0.1%
Ethiopia	–	–	–	–	81	81	171	171	324	324	<b>324</b>	–	n/a	0.1%
Morocco	124	134	253	253	292	394	532	834	834	934	<b>934</b>	–	30.7%	0.2%
South Africa	3	8	8	10	10	10	257	569	1079	1473	<b>2094</b>	42.2%	84.9%	0.4%
Tunisia	19	19	53	53	53	173	200	233	240	245	<b>245</b>	–	29.1%	0.0%
Other Africa	21	21	22	28	49	51	62	75	126	138	<b>145</b>	5.0%	22.3%	♦
<b>Total Africa</b>	<b>478</b>	<b>573</b>	<b>772</b>	<b>894</b>	<b>1035</b>	<b>1260</b>	<b>1772</b>	<b>2432</b>	<b>3353</b>	<b>3864</b>	<b>4492</b>	<b>16.3%</b>	<b>27.7%</b>	<b>0.9%</b>
Australia	972	1587	1886	2084	2476	2834	3489	4056	4189	4327	<b>4572</b>	5.7%	18.4%	0.9%
China	4200	8388	17599	29633	46355	61597	76731	96819	131598	148983	<b>164061</b>	10.1%	50.0%	31.9%
India	7845	9655	10926	13065	16084	18421	20150	22465	25088	28700	<b>32878</b>	14.6%	16.4%	6.4%
Japan	1527	1756	1997	2294	2419	2673	2722	2840	3038	3230	<b>3399</b>	5.2%	6.0%	0.7%
New Zealand	320	322	497	524	623	623	623	683	683	690	<b>690</b>	–	15.1%	0.1%
Pakistan	–	6	6	6	6	56	106	256	308	591	<b>792</b>	34.0%	n/a	0.2%
Philippines	33	33	33	33	33	33	33	337	427	427	<b>427</b>	–	29.2%	0.1%
South Korea	196	304	351	382	425	488	560	612	869	1034	<b>1215</b>	17.5%	18.9%	0.2%
Taiwan	186	250	374	476	523	571	614	637	647	682	<b>692</b>	1.5%	20.9%	0.1%
Thailand	1	1	5	6	7	112	223	225	234	507	<b>628</b>	23.8%	107.7%	0.1%
Other Asia Pacific	47	54	63	119	123	165	246	344	448	513	<b>624</b>	21.6%	31.8%	0.1%
<b>Total Asia Pacific</b>	<b>15327</b>	<b>22356</b>	<b>33738</b>	<b>48622</b>	<b>69074</b>	<b>87573</b>	<b>105496</b>	<b>129274</b>	<b>167528</b>	<b>189685</b>	<b>209977</b>	<b>10.7%</b>	<b>31.8%</b>	<b>40.8%</b>
<b>Total World</b>	<b>91894</b>	<b>116512</b>	<b>151656</b>	<b>182901</b>	<b>222517</b>	<b>269853</b>	<b>303113</b>	<b>351618</b>	<b>417144</b>	<b>467698</b>	<b>514798</b>	<b>10.1%</b>	<b>20.2%</b>	<b>100.0%</b>

\*End of year.  
♦Less than 0.05%.  
n/a not available.

Sources: IRENA, Global Wind Energy Council, Navigant Consulting and national sources.

# Wind generation capacity

Gigawatts, cumulative installed capacity



Source: includes data from Navigant Consulting, Global Wind Energy Council, and IRENA.