BP Statistical Review of World Energy June 2011

bp.com/statisticalreview

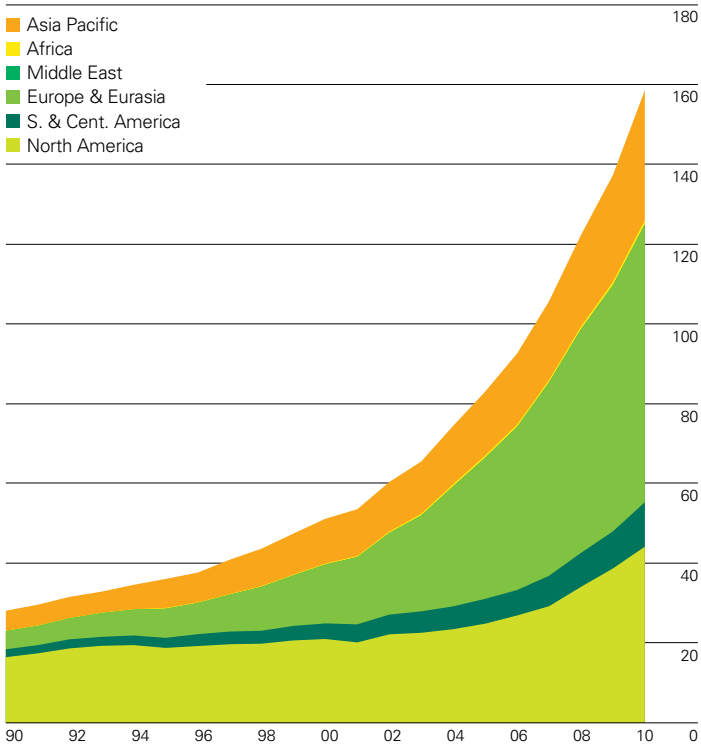
What's inside?

37 Renewable energy

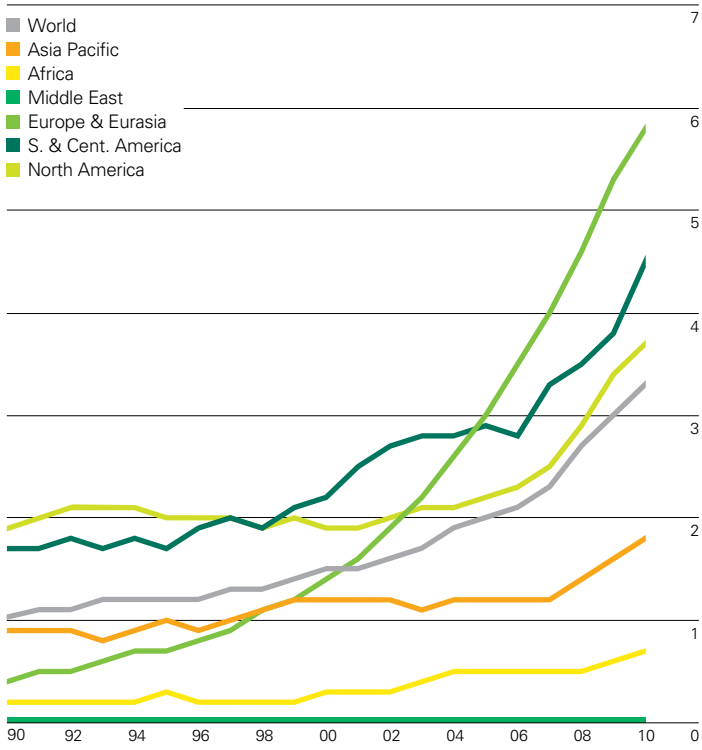
37 Other renewables consumption by region
37 Other renewables share of power generation by region
38 Other renewables consumption
39 Biofuels production
39 World biofuels production

Renewable energy

Other renewables consumption by region
Million tonnes oil equivalent



Other renewables share of power generation by region
Percentage



Renewable energy in power generation grew by 15.5% in 2010 and accounted for 1.3% of global primary energy consumption. Growth remains concentrated in the leading consuming centres: Europe and Eurasia, Asia Pacific, and North America. Renewable forms of energy account for 3.3% of global power generation, with the highest share (5.8%) in Europe and Eurasia.

Renewable energy

Other renewables consumption*

Million tonnes oil equivalent	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	**2010**	Change 2010 over 2009	2010 share of total
US	17.7	16.8	18.7	18.8	19.6	20.6	22.7	24.7	29.5	33.6	**39.1**	16.3%	24.7%
Canada	1.9	2.0	2.2	2.2	2.2	2.4	2.5	2.6	2.8	3.3	**3.3**	0.7%	2.1%
Mexico	1.4	1.4	1.3	1.6	1.7	1.8	1.7	1.9	1.8	1.8	**1.7**	-2.6%	1.1%
Total North America	21.1	20.2	22.2	22.6	23.5	24.9	27.0	29.3	34.1	38.7	**44.2**	14.1%	27.9%
Argentina	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.4	0.4	**0.4**	7.7%	0.3%
Brazil	2.5	2.8	3.1	3.5	3.7	4.2	4.3	5.0	5.5	6.2	**7.9**	26.6%	5.0%
Chile	0.2	0.5	0.4	0.3	0.5	0.4	0.3	0.6	0.7	0.7	**0.8**	11.0%	0.5%
Colombia	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	**0.2**	1.2%	0.1%
Ecuador	–	–	–	–	†	†	†	†	†	†	**0.1**	8.8%	◆
Peru	†	†	†	†	†	0.1	0.1	0.1	0.1	0.1	**0.1**	2.4%	0.1%
Trinidad & Tobago	†	†	†	†	†	†	†	†	†	†	**†**	25.0%	◆
Venezuela	–	–	–	–	–	–	–	–	–	–	**–**	–	–
Other S. & Cent. America	0.9	1.0	1.0	1.1	1.1	1.1	1.2	1.3	1.6	1.7	**1.7**	4.2%	1.1%
Total S. & Cent. America	3.9	4.5	5.0	5.4	5.7	6.2	6.4	7.6	8.5	9.3	**11.1**	19.8%	7.0%
Austria	0.4	0.4	0.4	0.5	0.7	0.9	1.2	1.4	1.4	1.4	**1.4**	1.3%	0.9%
Azerbaijan	–	–	–	–	–	–	–	–	–	†	**†**	-76.2%	◆
Belarus	–	–	–	–	†	†	†	†	†	†	**†**	–	◆
Belgium & Luxembourg	0.2	0.2	0.3	0.3	0.4	0.6	0.8	0.9	1.1	1.3	**1.5**	14.7%	0.9%
Bulgaria	†	–	–	–	†	†	†	†	†	0.1	**0.2**	204.4%	0.1%
Czech Republic	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.3	0.4	0.5	**0.6**	16.9%	0.4%
Denmark	1.3	1.3	1.6	1.8	2.2	2.2	2.1	2.4	2.3	2.3	**2.5**	11.5%	1.6%
Finland	2.0	1.9	2.0	2.1	2.4	2.2	2.5	2.3	2.4	2.0	**2.2**	9.5%	1.4%
France	0.7	0.7	0.8	0.9	1.0	1.1	1.4	1.9	2.3	2.8	**3.4**	21.4%	2.1%
Germany	2.8	3.6	5.0	6.2	8.2	9.6	11.6	15.0	16.5	16.9	**18.6**	10.0%	11.7%
Greece	0.1	0.2	0.2	0.3	0.3	0.3	0.4	0.5	0.6	0.6	**0.6**	2.5%	0.4%
Hungary	†	†	†	†	0.2	0.4	0.3	0.3	0.5	0.6	**0.7**	13.3%	0.4%
Republic of Ireland	0.1	0.1	0.1	0.1	0.2	0.3	0.4	0.5	0.6	0.7	**0.7**	-4.0%	0.4%
Italy	1.6	1.9	2.2	2.6	2.9	3.1	3.5	3.8	4.1	4.6	**5.6**	22.3%	3.5%
Kazakhstan	–	–	–	–	–	–	–	–	–	–	**–**	–	–
Lithuania	–	†	†	†	†	†	†	†	†	0.1	**0.1**	35.4%	◆
Netherlands	0.6	0.6	0.8	0.8	1.1	1.6	1.7	1.6	2.8	2.3	**2.2**	-1.4%	1.4%
Norway	0.1	0.1	0.1	0.2	0.2	0.2	0.3	0.3	0.3	0.3	**0.3**	-0.7%	0.2%
Poland	0.1	0.1	0.1	0.1	0.2	0.4	0.5	0.7	1.0	1.4	**1.9**	32.4%	1.2%
Portugal	0.4	0.4	0.5	0.5	0.6	0.8	1.1	1.4	1.8	2.3	**2.8**	21.3%	1.7%
Romania	–	–	†	†	†	†	†	†	†	†	**0.1**	689.5%	◆
Russian Federation	†	†	†	0.1	0.1	0.1	0.1	0.1	0.1	0.1	**0.1**	0.1%	0.1%
Slovakia	†	†	†	†	†	†	†	0.1	0.1	0.1	**0.1**	8.3%	0.1%
Spain	1.5	2.0	2.9	3.6	4.4	5.6	6.2	7.4	9.1	10.9	**12.4**	13.6%	7.8%
Sweden	1.1	1.0	1.1	1.3	2.0	2.1	2.3	2.7	3.0	3.4	**4.3**	26.7%	2.7%
Switzerland	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	**0.3**	3.1%	0.2%
Turkey	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.3	0.5	**1.0**	88.1%	0.6%
Turkmenistan	–	–	–	–	–	–	–	–	–	–	**–**	–	–
Ukraine	†	†	†	†	†	†	†	†	†	†	**†**	–	◆
United Kingdom	1.2	1.4	1.6	1.8	2.2	2.8	3.2	3.5	3.9	4.7	**4.9**	4.5%	3.1%
Uzbekistan	–	–	–	–	–	–	–	–	–	–	**–**	–	–
Other Europe & Eurasia	0.3	0.3	0.4	0.4	0.4	0.5	0.7	0.9	1.1	1.5	**1.2**	-21.5%	0.8%
Total Europe & Eurasia	14.8	16.8	20.5	24.0	30.1	35.3	40.9	48.4	56.0	61.6	**69.6**	12.9%	43.9%
Iran	–	–	–	–	†	†	†	†	†	†	**0.1**	5.0%	◆
Israel	–	†	†	†	†	†	†	†	†	†	**†**	–	◆
Kuwait	–	–	–	–	–	–	–	–	–	–	**–**	–	–
Qatar	–	–	–	–	–	–	–	–	–	–	**–**	–	–
Saudi Arabia	–	–	–	–	–	–	–	–	–	–	**–**	–	–
United Arab Emirates	–	–	–	–	–	–	–	–	–	†	**†**	118.2%	◆
Other Middle East	†	†	†	†	†	†	†	†	†	†	**†**	17.0%	◆
Total Middle East	†	†	†	†	†	†	†	†	†	0.1	**0.1**	8.1%	◆
Algeria	–	–	–	–	–	–	–	–	–	–	**–**	–	–
Egypt	†	†	†	0.1	0.1	0.1	0.1	0.1	0.2	0.2	**0.3**	38.0%	0.2%
South Africa	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	**0.1**	2.7%	◆
Other Africa	0.2	0.2	0.2	0.3	0.4	0.4	0.4	0.4	0.5	0.6	**0.7**	16.6%	0.4%
Total Africa	0.3	0.3	0.4	0.4	0.6	0.6	0.6	0.6	0.7	0.9	**1.1**	21.1%	0.7%
Australia	0.3	0.4	0.4	0.5	0.6	0.6	0.8	1.0	1.4	1.3	**1.5**	11.5%	0.9%
Bangladesh	–	–	–	–	–	–	–	–	–	–	**–**	–	–
China	0.7	0.8	0.8	0.9	1.0	1.0	1.4	1.8	3.5	6.9	**12.1**	74.5%	7.6%
China Hong Kong SAR	–	–	–	–	–	–	†	†	†	†	**†**	–	◆
India	0.7	0.9	0.9	1.0	1.6	1.8	2.6	3.0	3.5	4.6	**5.0**	9.2%	3.2%
Indonesia	1.1	1.4	1.4	1.4	1.5	1.5	1.5	1.6	1.9	2.1	**2.1**	0.1%	1.3%
Japan	4.2	4.3	4.7	5.1	5.3	6.3	6.4	6.7	6.6	5.4	**5.1**	-4.5%	3.2%
Malaysia	–	†	†	†	†	†	†	†	†	†	**†**	28.7%	◆
New Zealand	0.8	0.8	0.8	0.7	0.8	1.0	1.0	1.1	1.3	1.6	**1.8**	17.2%	1.2%
Pakistan	–	–	–	–	–	–	–	–	–	–	**–**	–	–
Philippines	2.6	2.3	2.3	2.1	2.3	2.2	2.4	2.3	2.4	2.4	**2.3**	-3.7%	1.4%
Singapore	–	–	–	–	–	–	–	–	–	–	**–**	–	–
South Korea	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.2	0.3	0.4	**0.5**	13.6%	0.3%
Taiwan	0.4	0.5	0.5	0.6	0.7	0.8	0.8	0.9	0.9	1.0	**1.0**	6.0%	0.6%
Thailand	0.3	0.3	0.4	0.6	0.6	0.7	0.7	0.9	1.1	1.1	**1.1**	◆	0.7%
Vietnam	–	–	–	–	–	–	–	–	–	–	**–**	–	–
Other Asia Pacific	†	†	†	†	†	†	†	†	†	†	**†**	7.6%	◆
Total Asia Pacific	11.2	11.7	12.4	13.1	14.6	16.0	17.8	19.7	22.9	26.7	**32.6**	21.7%	20.5%
Total World	**51.2**	**53.6**	**60.4**	**65.5**	**74.5**	**83.1**	**92.6**	**105.7**	**122.3**	**137.4**	**158.6**	**15.5%**	**100.0%**
of which: OECD	41.4	43.0	49.1	53.2	60.7	68.4	76.3	87.1	100.1	109.5	**123.0**	12.4%	77.5%
Non-OECD	9.8	10.6	11.3	12.3	13.8	14.6	16.3	18.6	22.2	27.9	**35.6**	27.7%	22.5%
European Union	14.1	16.1	19.7	23.2	29.2	34.3	39.5	46.7	54.0	59.3	**66.9**	12.7%	42.1%
Former Soviet Union	†	†	0.1	0.1	0.1	0.2	0.2	0.2	0.3	0.3	**0.3**	13.3%	0.2%

*Based on gross generation from renewable sources including wind, geothermal, solar, biomass and waste, and not accounting for cross-border electricity supply. Converted on the basis of thermal equivalence assuming 38% conversion efficiency in a modern thermal power station.
†Less than 0.05.
◆Less than 0.05%.
Note: Other renewables data expressed in terrawatt-hours is available at *www.bp.com/statisticalreview*.

Biofuels production

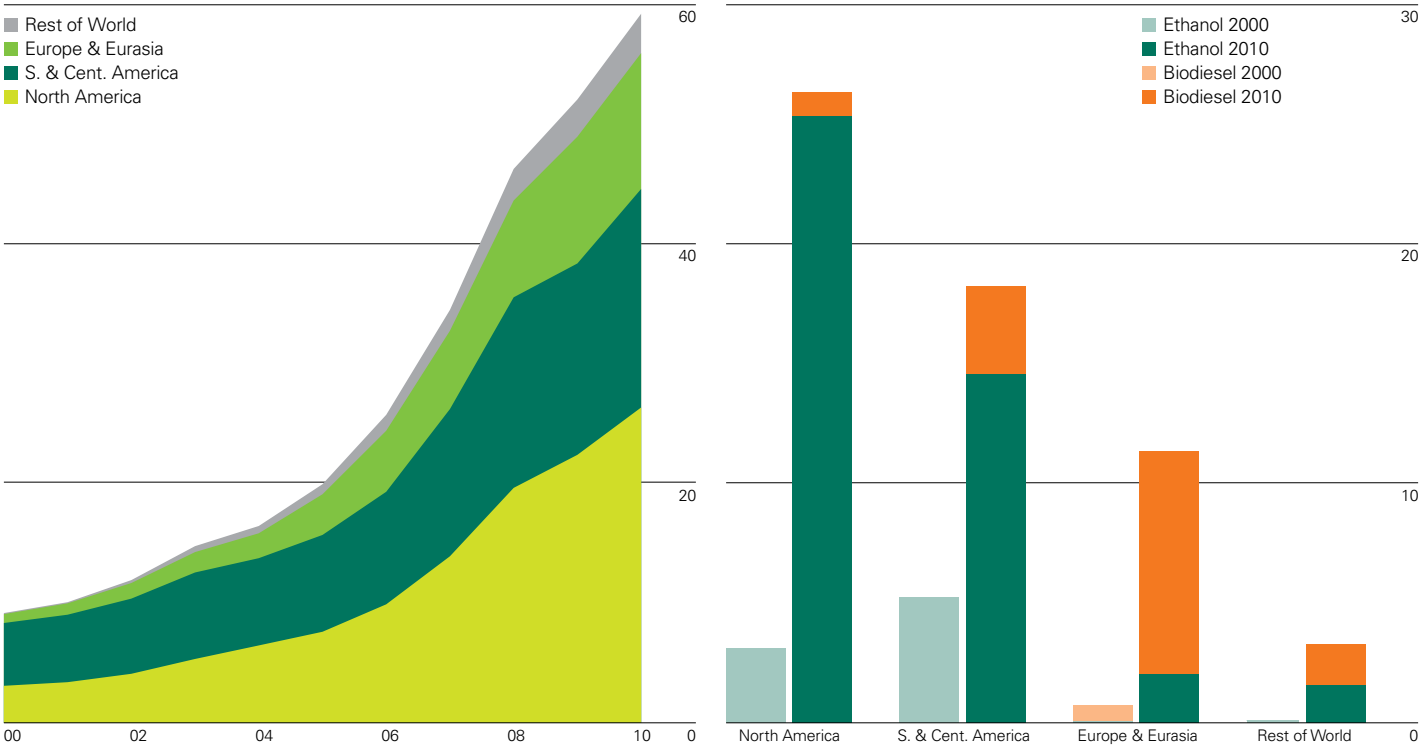
Thousand tonnes oil equivalent	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	**2010**	Change 2010 over 2009	2010 share of total
US	2991	3288	3987	5226	6357	7478	9746	13456	19096	21670	**25351**	17.0%	42.8%
Canada	105	111	113	113	113	133	160	461	536	721	**996**	38.1%	1.7%
Total North America	3096	3399	4100	5339	6470	7612	9906	13922	19637	22399	**26355**	17.7%	44.5%
Argentina	4	9	9	9	9	9	29	228	632	1054	**1687**	60.0%	2.8%
Brazil	5212	5600	6149	7068	7135	7835	8729	11323	14132	13962	**15573**	11.5%	26.3%
Colombia	–	–	–	–	–	14	131	141	239	326	**351**	7.8%	0.6%
Jamaica	–	–	54	74	56	62	147	138	182	196	**196**	–	0.3%
Other S. & Cent. America	31	30	69	78	93	171	369	472	741	457	**457**	–	0.8%
Total S. & Cent. America	5248	5639	6281	7228	7292	8091	9405	12302	15927	15994	**18264**	14.2%	30.8%
Austria	18	18	22	26	48	70	105	220	263	354	**383**	8.3%	0.6%
Belgium	–	–	–	–	–	1	21	140	278	473	**454**	-4.0%	0.8%
France	315	315	337	368	385	439	798	1121	2012	2312	**2312**	–	3.9%
Germany	215	298	473	688	909	1788	2561	3181	2727	2728	**2930**	7.4%	4.9%
Italy	70	123	180	232	272	340	482	443	617	758	**670**	-11.5%	1.1%
Netherlands	–	–	–	–	6	3	22	80	77	241	**283**	17.6%	0.5%
Poland	–	–	–	27	23	84	158	116	279	393	**338**	-14.0%	0.6%
Portugal	–	–	–	–	–	1	79	153	136	202	**275**	36.3%	0.5%
Spain	70	70	134	184	221	288	248	320	356	958	**1179**	23.1%	2.0%
Sweden	–	14	31	32	43	48	54	99	118	173	**212**	22.8%	0.4%
United Kindgom	–	–	3	9	9	39	166	136	196	180	**180**	–	0.3%
Other Europe & Eurasia	57	113	126	138	166	301	406	536	1031	1825	**2135**	17.0%	3.6%
Total Europe & Eurasia	744	951	1305	1704	2081	3401	5103	6546	8091	10597	**11354**	7.1%	19.2%
Total Middle East	–	–	–	–	–	–	–	–	–	–	**–**	–	–
Total Africa	6	6	6	6	6	6	6	6	10	14	**14**	–	◆
Australia	–	–	–	–	4	20	54	70	110	174	**246**	41.8%	0.4%
China	–	4	146	396	492	622	858	1076	1323	1399	**1399**	–	2.4%
India	82	85	91	94	99	114	134	92	148	82	**151**	84.5%	0.3%
Malaysia	–	–	–	–	–	–	48	110	197	250	**97**	-61.2%	0.2%
South Korea	–	–	1	2	4	9	39	74	140	217	**287**	31.9%	0.5%
Thailand	–	–	–	–	3	52	80	138	495	618	**647**	4.6%	1.1%
Other Asia Pacific	–	–	–	–	–	18	109	176	215	353	**448**	26.7%	0.8%
Total Asia Pacific	82	89	238	491	603	833	1323	1736	2628	3094	**3275**	5.9%	5.5%
Total World	**9176**	**10084**	**11930**	**14767**	**16452**	**19944**	**25743**	**34512**	**46294**	**52098**	**59261**	**13.8%**	**100.0%**
of which: OECD	3841	4350	5406	7045	8549	11013	15054	20494	27728	32569	**37130**	14.0%	62.7%
Non-OECD	5336	5734	6523	7723	7903	8930	10688	14018	18566	19528	**22131**	13.3%	37.3%
European Union	744	951	1305	1704	2073	3378	5052	6469	7944	9970	**10447**	4.8%	17.6%
Former Soviet Union	–	–	–	–	11	22	28	49	129	645	**913**	41.5%	1.5%

◆Less than 0.05%.
Note: Consumption of fuel ethanol and biodiesel is included in oil consumption.

Source: Includes data from F.O. Licht; US Energy Information Administration.

World biofuels production

Million tonnes oil equivalent



World biofuels production grew by 13.8% in 2010; biofuels accounted for 0.5% of global primary energy consumption. Growth was driven by North America (+17.7%) and South and Central America (+14.2%); these two regions accounted for three-quarters of global biofuels production. Ethanol accounts for nearly three-quarters of global biofuels production, and is dominant in North America and South and Central America; biodiesel is dominant in Europe and Eurasia.