

Table ERC.1 Energy Production by Source

Source: International Energy Agency

	Energy Production								Total Electricity Generated		
	From All Sources			From Non-Renewable Energy Sources (a)					Other Sources (1000 Metric TOE) (b)	(1000 Metric TOE) (b)	Percent Change Since 1987
	(1000 Metric TOE) (b)	Percent Change Since 1987	Per Capita (kg oil equivalent)	Solid Fuels (1000 Metric TOE) (b)	Liquid Fuels (1000 Metric TOE) (b)	Gaseous Fuels (1000 Metric TOE) (b)	Nuclear Fuels (1000 Metric TOE) (b)	Percent Change Since 1987			
WORLD	9,664,837	17	1,660	2,274,208	3,530,469	1,916,758	624,162	X	1,199,591	32	
ASIA (EXCL. MIDDLE EAST)	2,321,274	28	705	938,270	389,545	248,231	119,586	X	313,682	80	
Armenia	537	(57)	151	0	0	0	417	0	518	(60)	
Azerbaijan	14,027	(42)	1,836	0	9,066	4,829	0	0	1,445	(27)	
Bangladesh	21,894	27	179	0	7	5,794	0	0	1,020	112	
Bhutan	X	X	X	X	X	X	X	X	X	X	
Cambodia	X	X	X	X	X	X	X	X	X	X	
China	1,097,160	36	882	686,410	160,741	21,134	3,757	0	97,565	128	
Georgia	694	(59)	136	2	135	2	0	0	617	(51)	
India	404,503	35	419	147,233	37,586	17,815	2,632	0	39,853	112	
Indonesia	221,549	52	1,089	33,888	77,291	63,043	0	0	6,436	236	
Japan	106,895	48	848	2,356	795	2,009	83,148	83	88,536	44	
Kazakhstan	64,784	(30)	3,957	32,009	25,568	6,574	0	0	4,472	(41)	
Korea, Dem People's Rep	20,461	(38)	890	17,564	0	0	0	X	2,923	(32)	
Korea, Rep	24,037	10	526	2,030	0	0	20,089	0	20,987	230	
Kyrgyzstan	1,408	(36)	305	320	85	34	0	0	1,084	35	
Lao People's Dem Rep	X	X	X	X	X	X	X	X	X	X	
Malaysia	73,979	78	3,526	153	38,039	33,096	0	0	4,977	241	
Mongolia	X	X	X	X	X	X	X	X	X	X	
Myanmar	12,249	14	279	9	400	1,428	0	0	362	81	
Nepal	6,559	25	294	0	0	0	0	0	105	120	
Pakistan	42,048	39	292	1,413	2,918	13,434	90	0	5,085	106	
Philippines	16,616	14	233	446	16	5	0	0	3,424	76	
Singapore	61	X	18	0	0	0	0	0	2,313	126	
Sri Lanka	4,345	9	238	0	0	0	0	0	442	90	
Tajikistan	1,253	(38)	211	4	26	34	0	0	1,204	(12)	
Thailand	46,166	124	773	6,785	5,707	12,406	0	0	8,020	225	
Turkmenistan	18,739	(76)	4,427	0	4,723	14,016	0	0	808	(29)	
Uzbekistan	49,054	33	2,113	1,037	7,798	39,722	0	0	3,961	(16)	
Viet Nam	43,525	108	570	6,550	9,875	3,311	0	0	1,647	216	
EUROPE	2,221,880	(10)	3,051	416,434	648,575	720,694	300,479	X	352,135	1	
Albania	912	(69)	291	16	357	15	0	0	482	27	
Austria	8,007	0	989	294	1,018	1,215	0	0	4,777	12	
Belarus	3,275	0	316	553	1,831	204	0	0	2,241	(30)	
Belgium	12,933	(8)	1,277	219	0	0	12,355	219	6,713	25	
Bosnia and Herzegovina	626	143	178	348	0	0	0	0	189	(84)	
Bulgaria	9,981	(1)	1,189	4,895	28	28	4,633	0	3,574	(4)	
Croatia	4,011	122	894	29	1,800	1,402	0	0	833	3	
Czech Rep	30,989	(30)	3,008	26,955	439	163	3,256	550	5,523	3	
Denmark	20,260	152	3,855	14	11,587	6,956	0	14	3,809	50	
Estonia	3,421	X	2,364	2,795	367	0	0	367	793	(49)	
Finland	15,039	41	2,925	2,627	64	0	5,445	20	5,949	30	
France	127,520	33	2,181	4,432	2,198	2,126	103,065	323	42,904	33	
Germany	139,678	(30)	1,702	70,224	3,461	16,074	44,406	56	47,127	3	
Greece	9,645	20	913	7,709	476	45	0	0	3,723	44	
Hungary	12,747	(24)	1,255	3,299	1,992	3,355	3,640	0	3,044	19	
Iceland	1,481	20	5,414	0	0	0	0	0	480	33	
Ireland	2,871	(5)	785	740	0	1,906	0	0	1,694	56	
Italy	29,311	23	511	12	6,175	15,775	0	0	21,200	24	
Latvia	1,636	343	665	78	0	0	0	0	387	(24)	
Lithuania	3,970	62	1,072	18	213	0	3,196	0	1,237	(37)	
Macedonia, FYR	1,700	70	856	1,423	0	0	0	0	578	88	
Moldova, Rep	98	362	22	0	0	0	0	0	453	(69)	
Netherlands	65,298	5	4,182	0	3,040	60,574	628	0	7,453	27	
Norway	212,653	145	48,378	259	160,788	41,007	0	0	9,501	6	
Poland	99,474	(21)	2,571	92,033	366	3,203	0	1,461	12,119	(2)	
Portugal	2,317	19	235	0	0	0	0	0	2,934	70	
Romania	31,013	(41)	1,375	6,229	6,579	11,905	1,407	0	4,915	(23)	
Russian Federation	927,261	(25)	6,280	101,118	305,520	461,124	28,774	80	71,644	(20)	
Slovakia	4,688	(14)	873	1,146	65	225	2,814	0	2,092	5	
Slovenia	2,870	0	1,438	1,052	1	9	1,308	0	1,132	5	
Spain	31,316	12	791	9,796	378	163	14,411	42	15,975	40	
Sweden	33,067	12	3,734	252	0	0	18,224	0	12,850	2	
Switzerland	10,993	12	1,516	0	0	0	6,640	0	5,299	5	
Ukraine	81,175	(45)	1,590	39,590	4,588	15,204	20,701	0	15,293	(37)	
United Kingdom	268,119	11	4,580	29,611	134,242	77,457	25,577	867	29,572	14	
Yugoslavia	11,481	543	1,080	8,668	1,000	557	0	0	3,467	230	
MIDDLE EAST & N. AFRICA	1,497,312	55	3,952	13,938	1,241,839	223,169	X	X	50,805	84	
Afghanistan	X	X	X	X	X	X	X	X	X	X	
Algeria	125,576	37	4,272	0	61,670	63,381	0	0	1,865	70	
Egypt	57,997	9	896	0	44,640	11,070	0	0	4,958	52	
Iran, Islamic Rep	224,935	68	3,480	567	184,550	38,398	0	0	8,238	107	
Iraq	62,088	(45)	2,931	0	58,311	3,701	0	0	2,542	31	
Israel	601	66	103	42	26	13	0	0	3,018	101	
Jordan	193	698	31	0	0	189	0	0	539	80	
Kuwait	116,087	52	67,022	0	111,633	4,455	0	0	2,330	50	
Lebanon	207	31	66	0	0	0	0	0	732	85	
Libyan Arab Jamahiriya	78,942	43	15,151	0	73,067	5,750	0	0	1,563	17	
Morocco	836	3	31	211	242	23	0	231	1,129	64	
Oman	51,620	64	22,391	0	46,921	4,699	0	0	629	116	
Saudi Arabia	487,095	96	25,006	0	449,511	37,584	0	0	8,927	105	
Syrian Arab Rep	32,794	154	2,194	0	29,860	2,066	0	0	1,544	125	
Tunisia	6,655	2	723	0	4,013	1,466	0	0	686	75	
Turkey	27,556	11	435	13,118	3,525	208	0	0	8,883	133	
United Arab Emirates	153,555	68	66,553	0	123,003	30,552	0	0	1,769	51	
Yemen	19,105	X	1,173	0	19,028	0	0	0	203	102	

Notes: Negative values are shown in parentheses. "0" is either zero or less than one-half the unit measure. "(0)" indicates a value less than zero and greater than negative one-half.

a. See ERC.4 for data on renewable energy. b. TOE is Tons of oil equivalent. See technical notes for more information on TOE.

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	From All Sources			From Non-Renewable Energy Sources (a)						(1000 Metric TOE) (b)	Percent Change Since 1987			
	(1000 Metric TOE) (b)	Percent Change Since 1987	Per Capita (kg oil equivalent)	Solid Fuels (1000 Metric TOE) (b)	Liquid Fuels (1000 Metric TOE) (b)	Gaseous Fuels (1000 Metric TOE) (b)	Nuclear Fuels (1000 Metric TOE) (b)	Other Sources (1000 Metric TOE) (b)						
SUB-SAHARAN AFRICA	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Angola	41,430	89	3,537	0	35,700	465	0	0	0	0	0	95	37	
Benin	1,897	8	337	0	67	0	0	0	0	0	0	4	92	
Botswana	X	X	X	X	X	X	X	X	X	X	X	X	X	
Burkina Faso	X	X	X	X	X	X	X	X	X	X	X	X	X	
Burundi	X	X	X	X	X	X	X	X	X	X	X	X	X	
Cameroon	11,250	(7)	808	0	6,357	0	0	0	0	0	0	269	25	
Central African Rep	X	X	X	X	X	X	X	X	X	X	X	X	X	
Chad	X	X	X	X	X	X	X	X	X	X	X	X	X	
Congo	13,540	89	4,998	0	12,638	3	0	0	0	0	0	37	53	
Congo, Dem Rep	14,364	29	299	56	1,315	0	0	0	0	0	0	517	11	
Côte d'Ivoire	4,908	31	349	0	803	0	0	0	0	0	0	276	55	
Equatorial Guinea	X	X	X	X	X	X	X	X	X	X	X	X	X	
Eritrea	X	X	X	X	X	X	X	X	X	X	X	X	X	
Ethiopia	16,316	27	280	0	0	0	0	0	0	0	0	115	50	
Gabon	19,786	129	17,403	0	18,794	68	0	0	0	0	0	87	13	
Gambia	X	X	X	X	X	X	X	X	X	X	X	X	X	
Ghana	5,843	48	313	0	361	0	0	0	0	0	0	529	26	
Guinea	X	X	X	X	X	X	X	X	X	X	X	X	X	
Guinea-Bissau	X	X	X	X	X	X	X	X	X	X	X	X	X	
Kenya	11,651	20	410	0	0	0	0	0	0	0	0	364	60	
Lesotho	X	X	X	X	X	X	X	X	X	X	X	X	X	
Liberia	X	X	X	X	X	X	X	X	X	X	X	X	X	
Madagascar	X	X	X	X	X	X	X	X	X	X	X	X	X	
Malawi	X	X	X	X	X	X	X	X	X	X	X	X	X	
Mali	X	X	X	X	X	X	X	X	X	X	X	X	X	
Mauritania	X	X	X	X	X	X	X	X	X	X	X	X	X	
Mozambique	6,994	(1)	379	0	0	0	0	0	0	0	0	86	199	
Namibia	X	X	X	X	X	X	X	X	X	X	X	X	X	
Niger	X	X	X	X	X	X	X	X	X	X	X	X	X	
Nigeria	191,034	55	1,839	86	117,249	4,429	0	0	0	0	0	1,305	35	
Rwanda	X	X	X	X	X	X	X	X	X	X	X	X	X	
Senegal	1,654	32	189	0	0	20	0	0	0	0	0	108	52	
Sierra Leone	X	X	X	X	X	X	X	X	X	X	X	X	X	
Somalia	X	X	X	X	X	X	X	X	X	X	X	X	X	
South Africa	142,139	27	3,667	124,678	401	1,543	3,296	0	0	0	0	17,866	38	
Sudan	9,881	18	356	0	259	0	0	0	0	0	0	169	43	
Tanzania, United Rep	13,529	23	431	3	0	0	0	0	0	0	0	166	52	
Togo	X	X	X	X	X	X	X	X	X	X	X	X	X	
Uganda	X	X	X	X	X	X	X	X	X	X	X	X	X	
Zambia	5,556	16	647	106	0	0	0	0	0	0	0	689	(8)	
Zimbabwe	8,152	9	727	2,712	0	0	0	0	0	0	0	628	15	
NORTH AMERICA	2,046,512	11	6,776	604,959	516,778	579,512	195,194	0	0	0	0	365,125	32	
Canada	362,701	44	11,986	43,032	120,156	137,397	21,536	0	0	0	0	49,453	16	
United States	1,683,811	6	6,196	561,928	396,622	442,115	173,658	0	0	0	0	315,672	35	
C. AMERICA & CARIBBEAN	259,862	18	1,575	4,970	181,633	35,102	2,725	X	X	X	X	20,028	64	
Belize	X	X	X	X	X	X	X	X	X	X	X	X	X	
Costa Rica	1,157	14	309	0	0	0	0	0	0	0	0	482	79	
Cuba	7,255	48	655	0	1,685	18	0	0	0	0	0	1,211	4	
Dominican Rep	1,423	(0)	176	0	0	0	0	0	0	0	0	631	57	
El Salvador	2,649	34	448	0	0	0	0	0	0	0	0	313	90	
Guatemala	4,433	47	421	0	1,080	0	0	0	0	0	0	421	148	
Haiti	1,298	4	166	0	0	0	0	0	0	0	0	54	27	
Honduras	2,003	28	335	0	0	0	0	0	0	0	0	283	81	
Jamaica	595	133	237	0	0	0	0	0	0	0	0	538	237	
Mexico	223,132	16	2,367	4,970	172,149	28,255	2,725	0	0	0	0	15,054	68	
Nicaragua	1,529	23	327	0	0	0	0	0	0	0	0	164	47	
Panama	808	37	297	0	0	0	0	0	0	0	0	357	47	
Trinidad and Tobago	13,579	17	10,635	0	6,719	6,828	0	0	0	0	0	429	43	
SOUTH AMERICA	529,055	58	1,600	26,396	320,514	73,038	2,883	X	X	X	X	53,576	55	
Argentina	80,134	90	2,246	148	44,801	28,059	2,057	0	0	0	0	6,187	46	
Bolivia	5,953	33	766	0	1,876	3,003	0	0	0	0	0	295	99	
Brazil	120,236	23	734	2,162	45,988	5,288	826	0	0	0	0	26,428	51	
Chile	8,168	18	558	709	520	1,619	0	0	0	0	0	2,923	117	
Colombia	67,524	70	1,686	19,934	34,164	5,339	0	0	0	0	0	3,966	47	
Ecuador	22,792	118	1,909	0	21,072	0	0	0	0	0	0	825	78	
Guyana	X	X	X	X	X	X	X	X	X	X	X	X	X	
Paraguay	6,960	90	1,368	0	0	0	0	0	0	0	0	4,353	172	
Peru	12,225	(14)	502	29	5,946	768	0	0	0	0	0	1,544	28	
Suriname	X	X	X	X	X	X	X	X	X	X	X	X	X	
Uruguay	1,086	(14)	332	0	0	0	0	0	0	0	0	615	(6)	
Venezuela	203,979	77	8,955	3,414	166,146	28,962	0	0	0	0	0	6,438	38	
OCEANIA	213,325	38	7,282	140,939	31,034	30,254	0	X	X	X	X	18,861	36	
Australia	199,167	37	10,864	138,967	27,885	25,550	0	0	0	0	0	15,700	39	
Fiji	X	X	X	X	X	X	X	X	X	X	X	X	X	
New Zealand	14,158	44	3,764	1,972	3,149	4,704	0	0	0	0	0	3,161	25	
Papua New Guinea	X	X	X	X	X	X	X	X	X	X	X	X	X	
Solomon Islands	X	X	X	X	X	X	X	X	X	X	X	X	X	
DEVELOPED	4,881,847	(0)	3,774	1,322,778	1,245,011	1,399,236	582,534	X	X	X	X	859,650	17	
DEVELOPING	4,712,931	44	1,042	950,711	2,277,537	517,294	41,628	X	X	X	X	337,357	99	

Notes: Negative values are shown in parentheses. "0" is either zero or less than one-half the unit measure. "(0)" indicates a value less than zero and greater than negative one-half.

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Source: International Energy Agency (IEA), Energy Balances of Organisation for Economic Co-operation and Development (OECD) Countries, 1960–1997, on diskette (OECD, Paris, 1999), and Energy Balances of Non-OECD Countries, 1971–1997, on diskette (OECD, Paris, 1999).

We present all energy data in a common unit of 1,000 metric tons of oil equivalent (toe) to facilitate comparisons of energy sourcing, consumption, substitution, and conservation. A toe is defined as 41.868 gigajoules.

Energy production from all sources is the amount of energy from all sources produced by each country in the year specified. In addition to solid, liquid, and gaseous fuels and nuclear electricity, the total also includes hydropower, geothermal, solar, wind, tidal, wave, combustible renewables and waste, and indigenous heat production from heat pumps. Per capita shows the amount produced per person for that country.

Energy production from solid fuels is the energy produced from all types of primary coal (i.e., hard coal or lignite). Peat is also included in this category.

Energy production from liquid fuels is the energy produced from liquid fuels such as crude oil or natural gas liquids.

Energy production from gaseous fuels is the amount of energy produced from natural gas.

Energy production from nuclear fuels shows the primary heat equivalent of the electricity produced by nuclear power plants. Heat-to-electricity conversion efficiency is assumed to be 33 percent.

Total electricity generated is the toe equivalent of the electrical energy produced by thermal, nuclear, geothermal, hydropower (excluding pumped storage production—see notes to Data Table ERC.4), and other power plants. Electricity generated is not a primary energy source and should not be mistakenly added to the energy production from primary sources presented in this table. These data were converted from gigawatt-hours to toe using a conversion rate of 1 Gwh = 86 toe.