

Chapter 15

Energy and Materials

Data Table 15.1

Energy Production and Consumption, 1985–95

Source: United Nations Statistical Division

	Commercial Energy Production										Total Energy Consumption			
	Total		Solid Fuels		Liquid Fuels		Gaseous Fuels		Primary Electricity		Commercial Energy		Traditional Fuels	
	(peta-joules) 1995	Percent Change Since 1985	(peta-joules) 1995	Percent Change Since 1985	(peta-joules) 1995	Percent Change Since 1985	(peta-joules) 1995	Percent Change Since 1985	(peta-joules) 1995	Percent Change Since 1985	(peta-joules) 1995	Percent Change Since 1985	(peta-joules) 1995	Percent Change Since 1985
WORLD	364,891	25	102,356	15	138,531	18	88,699	46	35,305	47	347,262	19	24,941	41
AFRICA	22,667	35	4,480	12	14,364	31	3,499	117	324	46	8,976	15	5,227	26
Algeria	4,997	55	1	326	2,565	24	2,431	109	1	(57)	1,352	134	21	30
Angola	1,121	129	0	0	1,109	131	7	56	5	4	26	(15)	59	50
Benin	4	(68)	0	0	4	(68)	0	0	0	0	7	3	55	34
Botswana	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Burkina Faso	0	0	0	0	0	0	0	0	0	0	14	123	94	31
Burundi	1	220	0	(100)	0	0	0	0	0	(100)	3	38	48	9
Cameroon	222	(43)	0	(100)	213	(45)	0	0	10	20	56	15	222	136
Central African Rep	0	(100)	0	0	0	0	0	0	0	(100)	4	63	32	12
Chad	0	X	0	0	0	0	0	0	0	0	1	(67)	39	30
Congo, Dem Rep	72	(21)	3	(15)	48	(31)	0	0	21	19	44	(28)	448	59
Congo, Rep	385	57	0	0	383	57	0	(100)	2	141	23	92	24	34
Côte d'Ivoire	19	(60)	0	0	15	(65)	0	0	4	(18)	98	34	117	38
Egypt	2,530	23	0	0	1,961	4	530	279	39	34	1,348	57	50	27
Equatorial Guinea	10	138,789	0	0	10	0	0	0	0	(100)	2	121	4	(8)
Eritrea	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Ethiopia	7	56	0	0	0	0	0	0	7	204	43	64	449	29
Gabon	799	119	0	0	764	112	764	38,642	3	25	61	167	29	36
Gambia, The	0	0	0	0	0	0	0	0	0	0	3	24	11	30
Ghana	22	93	0	0	0	(100)	0	0	22	104	67	51	246	63
Guinea	1	70	0	0	0	0	0	0	1	70	16	15	41	15
Guinea-Bissau	0	0	0	0	0	0	0	0	0	0	3	50	4	(3)
Kenya	22	21	0	0	0	0	0	0	22	21	111	82	388	17
Lesotho	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Liberia	1	(23)	0	0	0	0	0	0	1	6	5	(53)	52	36
Libya	3,130	38	0	0	2,884	37	246	43	0	0	519	54	5	(4)
Madagascar	1	8	0	0	0	0	0	0	1	8	17	13	105	66
Malawi	3	74	0	0	0	0	0	0	3	75	12	38	103	(22)
Mali	1	88	0	0	0	0	0	0	1	107	7	15	60	32
Mauritania	0	(100)	0	0	0	0	0	0	0	(100)	40	347	0	(100)
Mauritius	0	(100)	0	0	0	0	0	0	0	(100)	21	134	13	(26)
Morocco	22	(23)	19	(16)	0	(100)	1	(70)	2	16	339	63	17	36
Mozambique	1	(36)	1	(3)	0	0	0	0	0	(100)	16	8	170	21
Namibia	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Niger	5	14	5	14	0	0	0	0	0	0	15	16	54	50
Nigeria	4,054	26	1	(75)	3,857	24	174	59	22	180	465	8	1,005	17
Rwanda	1	65	0	0	0	0	0	(100)	1	69	7	22	53	(3)
Senegal	0	0	0	0	0	0	0	0	0	0	38	21	46	9
Sierra Leone	0	0	0	0	0	0	0	0	0	0	5	(40)	31	21
Somalia	X	X	X	X	X	X	X	X	X	X	X	X	X	X
South Africa [a]	4,931	27	4,379	14	373	0	72	0	108	137	3,659	(16)	151	13
Sudan	3	(10)	0	0	0	0	0	0	3	62	49	4	237	27
Swaziland	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Tanzania	6	157	0	(100)	0	0	0	0	5	125	34	24	341	29
Togo	0	(100)	0	0	0	0	0	0	0	(100)	9	191	21	257
Tunisia	185	(24)	0	0	179	(21)	6	(65)	0	(100)	205	35	33	23
Uganda	3	31	0	0	0	0	0	0	3	29	16	65	149	38
Zambia	37	(24)	9	(29)	0	0	0	0	28	(22)	50	(10)	135	29
Zimbabwe	71	(31)	62	(32)	0	0	0	0	9	(19)	128	(7)	74	7
EUROPE	94,496	X	20,963	X	25,902	X	33,329	X	14,302	X	105,553	X	1,725	X
Albania	39	(66)	2	(94)	22	(56)	0	(100)	15	24	31	(68)	4	(75)
Austria	255	4	14	(64)	45	(8)	57	22	139	25	1,010	18	32	108
Belarus, Rep	120	X	30	X	81	X	9	X	0	X	946	X	8	X
Belgium	462	(16)	7	(96)	0	0	0	(100)	455	20	2,035	10	20	232
Bosnia and Herzegovina	15	X	10	X	0	X	0	X	5	X	31	X	X	X
Bulgaria	423	10	224	(2)	2	(55)	2	192	196	30	909	(20)	8	(54)
Croatia, Rep	113	X	3	X	16	X	75	X	19	X	276	X	9	X
Czech Rep	1,208	X	1,040	X	5	X	8	X	155	X	1,492	X	8	X
Denmark	598	260	0	0	384	217	210	368	4	68	738	(7)	29	635
Estonia, Rep	109	X	109	X	0	X	0	X	0	X	205	X	5	X
Finland	341	21	85	198	0	0	0	0	256	1	1,078	25	64	111
France [b]	4,866	42	230	(57)	123	(11)	130	(40)	4,383	72	9,045	16	98	(4)
Germany	5,860	X	3,303	X	122	X	669	X	1,766	X	13,511	X	100	X
Greece	349	29	314	56	19	(66)	2	(40)	14	39	1,008	50	15	(32)
Hungary	537	(23)	132	(50)	93	(22)	159	(35)	153	115	988	(16)	19	(35)
Iceland	27	30	0	0	0	0	0	0	27	30	51	22	0	0
Ireland	156	24	47	47	0	0	105	16	4	34	442	52	1	123
Italy	1,258	29	4	(70)	219	117	760	41	274	(15)	6,906	20	128	135
Latvia, Rep	14	X	3	X	0	X	0	X	11	X	156	X	34	X
Lithuania, Rep	137	X	1	X	5	X	0	X	131	X	358	X	21	X
Macedonia, FYR	85	X	82	X	0	X	0	X	3	X	122	X	8	X
Moldova, Rep	1	X	0	X	0	X	0	X	1	X	176	X	X	X
Netherlands	3,006	(2)	0	(100)	148	(14)	2,812	(1)	45	11	3,367	17	14	1,054
Norway	7,569	145	8	(45)	5,911	266	1,309	20	441	20	905	17	11	32
Poland, Rep	3,971	(23)	3,799	(23)	12	20	146	(10)	14	(0)	4,005	(18)	42	25
Portugal	35	(24)	3	(57)	0	0	0	0	32	(18)	716	100	6	1
Romania	1,270	(46)	313	(42)	292	(35)	605	(55)	60	40	1,776	(36)	506	865
Russian Federation	44,314	X	7,120	X	12,772	X	22,699	X	1,723	X	29,444	X	281	X
Slovak Rep	194	X	29	X	3	X	10	X	153	X	667	X	4	X
Slovenia, Rep	94	X	30	X	0	X	1	X	64	X	222	X	2	X
Spain	1,142	(0)	399	(35)	33	(67)	18	68	692	65	3,667	39	28	31
Sweden	1,013	13	10	2,962	0	(100)	0	0	1,003	12	1,717	10	54	(51)
Switzerland	401	16	0	0	0	0	0	(100)	401	16	928	10	23	194
Ukraine	3,485	X	2,038	X	172	X	650	X	625	X	6,955	X	26	X
United Kingdom	10,671	8	1,328	(41)	5,181	(3)	2,866	72	993	48	9,080	16	105	3,981
Yugoslavia, Fed Rep	352	X	245	X	38	X	29	X	40	X	410	X	9	X

	Commercial Energy Production										Total Energy Consumption			
	Total		Solid Fuels		Liquid Fuels		Gaseous Fuels		Primary Electricity		Commercial Energy		Traditional Fuels	
	(peta-joules)	Percent Change Since 1985	(peta-joules)	Percent Change Since 1985	(peta-joules)	Percent Change Since 1985	(peta-joules)	Percent Change Since 1985	(peta-joules)	Percent Change Since 1985	(peta-joules)	Percent Change Since 1985	(peta-joules)	Percent Change Since 1985
NORTH AMERICA	89,924	24	27,632	31	20,969	(14)	30,174	54	11,147	51	101,679	34	3,910	249
Canada	14,537	46	1,656	11	4,547	29	6,137	92	2,196	25	9,404	25	57	(13)
United States	75,387	21	25,976	33	16,422	(21)	24,037	47	8,951	59	92,275	35	3,853	265
CENTRAL AMERICA	8,992	10	182	(11)	6,807	4	1,450	15	554	148	7,474	39	765	(1)
Belize	0	0	0	0	0	0	0	0	0	0	6	124	4	0
Costa Rica	30	201	0	0	0	0	0	0	30	201	96	180	12	(66)
Cuba	46	25	0	0	44	21	2	684	0	(100)	378	(7)	107	(35)
Dominican Rep	7	88	0	0	0	0	0	0	7	88	162	107	22	(31)
El Salvador	27	38	0	0	0	0	0	0	27	(9)	93	114	73	5
Guatemala	25	146	0	0	17	121	0	0	8	228	86	79	137	72
Haiti	1	(6)	0	0	0	0	0	0	1	7	9	(11)	61	20
Honduras	9	186	0	0	0	0	0	0	9	186	58	106	57	13
Jamaica	0	(100)	0	0	0	0	0	0	0	(100)	124	81	11	104
Mexico	8,288	10	182	(11)	6,470	6	1,206	13	430	180	5,473	35	257	15
Nicaragua	20	70	0	0	0	0	0	0	20	70	54	38	41	23
Panama	9	30	0	0	0	0	0	0	9	30	80	68	18	6
Trinidad and Tobago	514	(10)	0	0	273	(28)	240	25	0	0	283	22	3	30
SOUTH AMERICA	17,937	68	988	112	11,890	58	3,275	100	1,784	65	11,923	61	2,730	(4)
Argentina	2,797	66	8	(19)	1,535	49	1,062	109	192	40	2,256	55	93	(19)
Bolivia	216	59	0	0	69	48	142	66	6	942	126	118	18	14
Brazil	2,742	30	96	(39)	1,511	29	193	90	941	39	4,249	55	1,952	(12)
Chile	200	2	36	(5)	28	(67)	70	87	66	77	644	114	97	56
Colombia	2,242	163	708	178	1,247	227	164	10	123	57	941	49	270	41
Ecuador	882	43	0	0	847	41	10	165	24	79	262	49	46	(29)
Guyana	0	(100)	0	0	0	0	0	0	0	(100)	13	(33)	7	5
Paraguay	150	925	0	0	0	0	0	0	150	3,217	63	168	66	32
Peru	326	(28)	4	12	265	(33)	7	(71)	50	49	379	31	125	49
Suriname	16	159	0	0	12	348	0	0	5	51	25	8	0	(100)
Uruguay	27	16	0	0	0	0	0	0	27	104	92	99	31	10
Venezuela	8,338	81	136	11,225	136	(96)	1,626	124	200	160	2,861	72	23	21
ASIA	122,438	X	42,385	X	57,248	X	15,848	X	6,957	X	106,770	X	10,308	X
Afghanistan, Islamic State	8	(93)	0	(100)	X	(100)	7	(94)	1	(64)	20	(61)	59	40
Armenia, Rep	10	X	0	X	0	X	0	X	10	X	68	X	0	X
Azerbaijan	619	X	0	X	392	X	392	X	6	X	510	X	0	X
Bangladesh	272	148	0	0	0	(100)	270	161	1	(62)	349	109	336	29
Bhutan	6	20,733	0	0	0	0	0	0	6	20,733	3	201	13	44
Cambodia	0	(100)	0	0	0	0	0	0	0	(100)	7	18	66	43
China	36,263	49	28,457	56	6,281	20	699	39	826	148	34,310	62	2,112	20
Georgia	27	X	1	X	8	X	0	X	17	X	146	X	1	X
India	9,113	70	6,663	80	1,398	12	718	391	334	40	10,513	88	3,065	29
Indonesia	7,817	103	1,058	1,759	4,213	49	2,444	161	103	247	3,214	196	1,532	19
Iran, Islamic Rep	9,470	82	29	(21)	7,734	68	1,680	202	17	3,811	103	30	0	(0)
Iraq	1,706	(42)	0	0	1,581	(45)	123	293	2	(9)	1,078	247	1	18
Israel	1	(56)	0	0	0	(100)	1	(47)	0	0	538	62	0	(100)
Japan	3,887	47	152	(64)	30	30	91	(4)	3,614	71	18,711	30	105	1,123
Jordan	0	0	0	0	0	0	0	0	0	0	158	55	0	(100)
Kazakhstan, Rep	3,190	X	2,095	X	864	X	201	X	30	X	2,767	X	3	X
Korea, Dem People's Rep	2,621	62	2,538	67	0	0	0	0	83	(18)	2,868	58	42	9
Korea, Rep	857	36	108	(75)	0	0	0	0	750	283	5,451	158	44	(48)
Kuwait	4,766	86	0	0	4,412	88	354	68	0	0	639	72	0	0
Kyrgyz Rep	59	X	15	X	4	X	1	X	40	X	110	X	0	X
Lao People's Dem Rep	3	(4)	0	0	0	0	0	0	3	(17)	5	46	44	36
Lebanon	3	42	0	0	0	0	0	0	3	42	167	56	5	12
Malaysia	2,613	111	3	0	1,450	58	1,132	270	27	99	1,448	209	98	28
Mongolia	72	(1)	72	(1)	X	0	0	0	0	0	98	(4)	4	(70)
Myanmar	84	(18)	2	15	2	(97)	57	57	6	66	115	43	212	24
Nepal	4	232	0	0	0	0	0	0	4	232	23	127	234	64
Oman	1,876	68	0	0	1,784	71	92	23	0	0	168	44	0	0
Pakistan	850	85	60	36	116	116	586	86	88	84	1,357	91	335	44
Philippines	269	12	26	4	6	(64)	0	0	237	20	860	72	396	23
Saudi Arabia	19,363	151	0	0	17,789	151	1,574	147	0	0	3,331	56	0	0
Singapore	0	0	0	0	0	0	0	0	0	0	840	175	0	0
Sri Lanka	16	86	0	0	0	0	0	0	16	86	93	89	97	19
Syrian Arab Rep	1,295	224	0	0	1,196	209	90	1,400	9	22	532	70	0	(100)
Tajikistan, Rep	56	X	1	X	3	X	1	X	51	X	114	X	0	X
Thailand	869	212	339	498	154	65	352	205	24	81	2,145	237	1,061	92
Turkey	788	15	503	(8)	147	66	6	135	131	201	2,131	63	83	(58)
Turkmenistan, Rep	1,296	X	0	X	209	X	1,086	X	0	X	416	X	0	X
United Arab Emirates	5,755	91	0	0	4,642	77	1,113	185	0	0	1,212	156	0	0
Uzbekistan, Rep	2,184	X	37	X	419	X	1,703	X	26	X	1,768	X	X	X
Vietnam	607	263	218	40	322	0	0	0	66	865	382	89	311	43
Yemen	712	0	0	0	712	0	0	0	0	0	183	0	3	0
OCEANIA	8,436	60	5,725	79	1,351	16	1,124	49	237	22	4,888	46	234	26
Australia	7,650	55	5,642	80	1,008	(10)	942	54	58	(25)	4,126	44	157	37
Fiji	2	90	0	0	0	0	0	0	2	90	11	32	12	25
New Zealand	506	43	83	47	70	54	179	28	173	55	610	41	0	(100)
Papua New Guinea	277	18,220	0	0	272	0	3	0	2	32	36	17	60	6
Solomon Islands	0	0	0	0	0	0	0	0	0	0	2	(5)	3	(0)

Notes: a. Data are for the South Africa Customs Union (Botswana, Lesotho, Namibia, South Africa, and Swaziland). b. Includes Monaco.

Data Table 15.2

Electricity Production and Trade, 1985–95

Source: United Nations Statistical Division

	Electricity Production (million kilowatt-hours)										Trade (million kilowatt-hours)			
	Total		Thermal		Hydroelectric		Geothermal		Nuclear		Import		Export	
	1995	Percent Change Since 1985	1995	Percent Change Since 1985	1995	Percent Change Since 1985	1995	Percent Change Since 1985	1995	Percent Change Since 1985	1995	Percent Change Since 1985	1995	Percent Change Since 1985
WORLD	13,097,664	34	8,249,317	32	2,532,516	27	48,040	69	2,267,791	56	422,117	95	427,947	99
AFRICA	364,764	51	297,459	56	57,345	24	360	7	9,600	145	5,307	19	5,157	22
Algeria	19,714	61	19,521	68	193	(70)	0	0	0	0	218	80	491	211
Angola	1,870	4	485	7	1,385	4	0	0	0	0	0	0	0	0
Benin	6	20	6	20	0	0	0	0	0	0	263	53	0	0
Botswana	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Burkina Faso	220	79	145	18	75	X	0	0	0	0	0	0	0	0
Burundi	120	1,900	2	0	118	2,850	0	0	0	0	29	(55)	0	0
Cameroon	2,746	14	84	(11)	2,662	15	0	0	0	0	0	0	0	0
Central African Rep	102	31	21	24	81	33	0	0	0	0	0	0	0	0
Chad	89	75	89	75	0	0	0	0	0	0	0	0	0	0
Congo, Dem Rep	5,920	17	18	(87)	5,902	20	0	0	0	0	58	729	1,080	764
Congo, Rep	435	87	3	50	432	87	0	0	0	0	112	104	0	0
Côte d'Ivoire	1,913	(5)	808	22	1,105	(19)	0	0	0	0	0	0	0	0
Egypt	48,864	61	38,054	71	10,810	33	0	0	0	0	0	0	0	0
Equatorial Guinea	20	(9)	18	(10)	2	0	0	0	0	0	0	0	0	0
Eritrea	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Ethiopia	1,328	67	103	(34)	1,155	80	70	X	0	0	0	0	0	0
Gabon	940	9	215	11	725	9	0	0	0	0	0	0	0	0
Gambia, The	74	72	74	72	0	0	0	0	0	0	0	0	0	0
Ghana	6,159	100	42	(48)	6,117	104	0	0	0	0	4	X	228	(16)
Guinea	543	11	352	8	191	17	0	0	0	0	0	0	0	0
Guinea-Bissau	43	207	43	207	0	0	0	0	0	0	0	0	0	0
Kenya	3,747	50	334	(30)	3,123	86	290	(14)	0	0	172	(20)	0	0
Lesotho	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Liberia	486	(36)	308	(39)	178	(32)	0	0	0	0	0	0	0	0
Libya	18,000	52	18,000	52	0	0	0	0	0	0	0	0	0	0
Madagascar	611	22	258	6	353	37	0	0	0	0	0	0	0	0
Malawi	803	64	19	19	784	65	0	0	0	0	0	0	0	0
Mali	290	73	65	91	225	68	0	0	0	0	0	0	0	0
Mauritania	152	41	124	61	28	(10)	0	0	0	0	0	0	0	0
Mauritius	1,120	115	985	143	135	17	0	0	0	0	0	0	0	0
Morocco	11,724	67	11,119	70	605	26	0	0	0	0	1,000	X	0	0
Mozambique	563	(60)	513	25	50	(95)	0	0	0	0	601	162	X	(100)
Namibia	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Niger	175	14	175	14	0	0	0	0	0	0	195	51	0	0
Nigeria	14,810	50	8,810	14	6,000	175	0	0	0	0	0	0	0	(100)
Rwanda	164	(2)	4	33	160	(2)	0	0	0	0	14	(30)	3	0
Senegal	774	2	774	2	0	0	0	0	0	0	0	0	0	0
Sierra Leone	241	37	241	37	0	0	0	0	0	0	0	0	0	0
Somalia	272	23	272	23	0	0	0	0	0	0	0	0	0	0
South Africa {a}	190,515	56	180,085	53	830	8	0	0	9,600	145	60	(40)	1,600	617
Sudan	1,331	28	386	(26)	945	83	0	0	0	0	0	0	0	0
Swaziland	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Tanzania	1,738	100	228	(10)	1,510	145	0	0	0	0	0	0	0	0
Togo	93	174	87	190	6	50	0	0	0	0	315	48	0	0
Tunisia	7,589	89	7,550	93	39	(64)	0	0	0	0	171	389	140	2,233
Uganda	792	21	7	(22)	785	22	0	0	0	0	0	0	115	(13)
Zambia	7,790	(22)	40	8	7,750	(22)	0	0	0	0	20	0	1,500	(52)
Zimbabwe	8,275	65	5,900	206	2,375	(23)	0	0	0	0	2,075	(32)	0	0
EUROPE	4,060,888	X	2,272,438	X	719,627	X	6,815	X	1,062,008	X	263,292	X	276,239	X
Albania	4,414	16	210	(54)	4,204	25	0	0	0	0	139	X	74	(88)
Austria	56,587	29	18,110	40	38,477	24	0	0	0	7,287	20	9,757	26	0
Belarus, Rep	24,918	X	24,898	X	20	X	0	X	0	X	10,066	X	2,907	X
Belgium	74,428	32	31,834	49	1,230	220	8	0	b	41,356	20	9,398	71	5,326
Bosnia and Herzegovina	2,203	X	783	X	1,420	X	0	X	0	X	387	X	182	X
Bulgaria	41,789	0	19,263	(27)	5,265	135	0	0	17,261	31	1,961	(67)	2,121	28
Croatia, Rep	8,863	X	7,137	X	1,726	X	0	X	0	X	5,382	X	886	X
Czech Rep	60,847	X	45,494	X	1,726	X	0	X	b	13,627	X	3,100	X	5,900
Denmark	36,790	27	35,583	23	33	0	1,174	1,763	0	0	4,012	27	4,806	78
Estonia, Rep	7,607	X	7,604	X	3	X	0	X	0	X	245	X	1,005	X
Finland	63,885	28	31,744	73	12,925	5	0	0	19,216	1	7,253	29	279	(70)
France {c}	493,177	51	39,456	(24)	75,922	25	568	X	377,231	77	2,860	(48)	72,701	152
Germany	534,902	X	356,224	X	24,217	X	370	X	154,091	X	39,735	X	34,911	X
Greece	41,551	50	37,735	51	3,782	35	34	X	0	0	1,390	47	593	184
Hungary	34,017	27	19,827	(2)	164	6	0	0	14,026	116	3,181	(75)	776	(60)
Iceland	4,981	23	9	125	4,682	22	290	53	0	0	0	0	0	0
Ireland	17,878	52	16,875	55	968	17	35	X	0	0	20	X	35	X
Italy	241,111	32	195,754	49	41,907	2	3,450	29	0	(100)	38,662	54	1,235	(14)
Latvia, Rep	3,979	X	1,042	X	2,937	X	0	X	0	0	2,647	X	391	X
Lithuania, Rep	13,898	X	1,325	X	751	X	0	X	11,822	X	5,270	X	7,948	X
Macedonia, FYR	6,114	X	5,313	X	801	X	0	X	0	X	221	d	X	54
Moldova, Rep	8,392	X	8,112	X	280	X	0	X	0	X	5,600	X	5,100	X
Netherlands	80,832	28	76,408	29	88	X	318	X	b	4,018	8	11,979	159	586
Norway	123,136	20	692	100	122,436	20	8	X	0	0	2,201	(46)	8,563	85
Poland, Rep	139,006	1	135,141	1	3,851	(1)	14	X	0	0	4,356	(20)	7,157	(5)
Portugal	33,263	75	24,751	200	8,454	(21)	58	1,350	0	0	2,655	(25)	1,741	36
Romania	59,266	(17)	42,573	(29)	16,693	40	0	0	0	0	755	(77)	456	X
Russian Federation	860,026	X	583,208	X	177,256	X	30	X	99,532	X	18,377	X	37,982	X
Slovak Rep	25,240	X	8,100	X	4,640	X	0	X	12,500	X	1,280	X	2,105	X
Slovenia, Rep	12,648	X	4,629	X	3,240	X	0	X	4,779	X	740	X	2,392	X
Spain	166,380	32	86,356	30	24,569	(21)	0	0	55,455	98	7,633	94	3,147	(37)
Sweden	147,035	8	9,972	43	67,029	(6)	99	X	b	69,935	19	7,720	49	9,421
Switzerland	63,080	17	2,225	156	35,954	13	6	X	24,895	17	19,419	34	26,690	15
Ukraine	194,000	X	128,270	X	12,430	X	0	X	53,300	X	15,500	X	18,300	X
United Kingdom	334,454	(63)	238,302	(71)	6,836	67	352	X	e	88,964	48	16,336	X	23
Yugoslavia, Fed Rep	37,176	X	7,550	X	11,220	X	0	X	0	X	0	X	0	X

	Electricity Production (million kilowatt-hours)										Trade (million kilowatt-hours)			
	Total		Thermal		Hydroelectric		Geothermal		Nuclear		Import		Export	
	1995	Percent Change Since 1985	1995	Percent Change Since 1985	1995	Percent Change Since 1985	1995	Percent Change Since 1985	1995	Percent Change Since 1985	1995	Percent Change Since 1985	1995	Percent Change Since 1985
NORTH AMERICA	3,882,428	28	2,459,494	24	639,115	8	18,111	58	765,708	72	52,751	9	51,596	8
Canada	537,114	17	113,939	20	330,834	9	35	X f	92,306	53	7,428	176	43,321	1
United States	3,345,314	30	2,345,555	24	308,281	8	18,076	58 g	673,402	76	45,323	(1)	8,275	67
CENTRAL AMERICA	225,827	57	166,488	57	44,987	27	8,943	(93)	5,409	X	1,576	259	2,287	1,199
Belize	148	108	148	108	0	0	0	0	0	0	0	0	0	0
Costa Rica	4,840	71	752	1,175	3,620	31	468	X	0	0	179	X	151	202
Cuba	11,189	(8)	11,081	(9)	108	100	0	0	0	0	0	0	0	0
Dominican Rep	6,506	54	4,513	41	1,993	92	0	0	0	0	0	0	0	0
El Salvador	3,405	91	810	575	2,045	119	550	(25)	0	0	30	X	65	X
Guatemala	3,229	84	1,060	(2)	2,169	220	0	0	0	0	0	0	0	0
Haiti	407	9	242	110	165	(37)	0	0	0	0	0	0	0	0
Honduras	2,742	157	340	79	2,402	175	0	0	0	0	4	(98)	0 h	(100)
Jamaica	5,829	155	5,709	158	120	56	0	0	0	0	0	0	0	0
Mexico	150,820	61	108,750	66	29,255	11	7,406	351	5,409	X	1,081	1,401	1,862	1,533
Nicaragua	1,713	62	864	75	330	25	519	72	0	0	73	(63)	87	770
Panama	3,519	44	1,101	111	2,418	25	0	0	0	0	209	X	122	X
Trinidad and Tobago	4,229	40	4,229	40	0	0	0	0	0	0	0	0	0	0
SOUTH AMERICA	572,465	61	98,772	34	462,874	70	0	0	10,819	18	38,228	1,270	38,598	296,808
Argentina	67,169	48	30,769	63	28,100	36	0	0	8,300	44	2,342	X	220	3,567
Bolivia	3,020	100	1,298	(4)	1,722	976	0	0	0	0	13	550	3	X
Brazil	275,399	43	19,018	73	253,862	42	0	0	2,519	(25)	35,352	1,171	0	(100)
Chile	29,906	113	11,498	212	18,408	78	0	0	0	0	0 h	0	0	0
Colombia	45,303	50	11,043	30	34,260	57	0	0	0	0	316	6,220	0	0
Ecuador	8,349	76	4,601	351	3,748	0	0	0	0	0	0	0	0	0
Guyana	318	(18)	313	(19)	5	0	0	0	0	0	16	X	0	0
Paraguay	41,630	3,204	27	575	41,603	3,212	0	0	0	0	1	(50)	37,939	X
Peru	16,759	38	2,977	6	13,782	48	0	0	0	0	0	0	0	0
Suriname	1,614	24	335	(12)	1,279	39	0	0	0	0	0	0	0	0
Uruguay	7,650	99	150	(1)	7,500	104	0	0	0	0	188	X	302	X
Venezuela	74,886	56	19,281	(28)	55,605	160	0	0	0	0	0 d	0	0	(100)
ASIA	3,778,298	X	2,788,739	X	563,596	X	11,716	X	414,247	X	60,963	X	54,070	X
Afghanistan, Islamic State	625	(41)	209	(26)	416	(47)	0	0	0	0	120	X	0	0
Armenia, Rep	5,561	X	3,338	(X)	1,919	X	0	X	304	X	13	X	3 h	X
Azerbaijan	17,000	X	15,400	X	1,600	X	0	X	0	X	450	X	250	X
Bangladesh	11,689	140	11,317	174	372	(50)	0	0	0	0	0	0	0	0
Bhutan	1,717	8,076	7	(46)	1,710	21,275	0	0	0	0	4	(56)	1,717	X
Cambodia	194	177	120	200	74	147	0	0	0	0	0	0	0	0
China	1,007,726	(75)	804,316	(80)	190,577	106	0	0	12,833	X	2,000	80	4,200	10,400
Georgia	6,800	X	2,090	X	4,710	X	0	X b	0	X	950	X	180	X
India	414,622	114	335,900	145	71,665	40	57	X	7,000	41	1,675	10,369	130	21
Indonesia	68,804	130	56,572	140	10,418	69	1,814	764	0	0	0	0	0	0
Iran, Islamic Rep	81,330	118	73,800	139	7,530	18	0	0	0	0	0	0	0	0
Iraq	29,000	38	28,430	39	570	(7)	0	0	0	0	0	0	0	0
Israel	29,100	85	29,068	85	32	X	0	0	0	0	0	0	310	4
Japan	989,965	47	604,207	43	91,301	4	3,203	119 i	291,254	83	0	0	0	0
Jordan	5,616	125	5,598	124	18	X	0	0	0	0	0	0	0 d	(100)
Kazakhstan, Rep	66,659	X	58,328	X	8,331	X	0	X	0	X	19,539	X	12,702	X
Korea, Dem People's Rep	36,000	(25)	13,000	(35)	23,000	(18)	0	0	0	0	0	0	0	0
Korea, Rep	205,102	227	132,595	213	5,478	50	0	0	67,029	300	0	0	0	0
Kuwait	24,126	54	24,126	54	0	0	0	0	0	0	0	0	0	0
Kyrgyz Rep	12,349	X	1,231	X	11,118	X	0	X	0	X	6,987	X	8,355	X
Lao People's Dem Rep	908	(14)	43	(14)	865	(14)	0	0	0	0	27	35	640	(11)
Lebanon	5,573	44	4,841	48	732	25	0	0	0	0	50 h	(100)	0	0
Malaysia	46,632	211	39,132	249	7,500	99	0	0	0	0	2	(96)	25	X
Mongolia	2,629	(2)	2,629	(2)	0	0	0	0	0	0	381	149	0	0
Myanmar	3,780	78	2,252	102	1,528	52	0	0	0	0	0	0	0	0
Nepal	1,007	177	33	14	974	191	0	0	0	0	110	34	42	282
Oman	8,258	185	8,258	185	0	0	0	0	0	0	0	0	0	0
Pakistan	60,155	118	36,786	146	22,858	87	0	0	511	48	0	0	0	0
Philippines	33,426	46	20,961	69	6,515	17	5,950	20	0	0	0	0	0	0
Saudi Arabia	99,833	208	99,833	208	0	0	0	0	0	0	0	0	0	0
Singapore	22,057	123	22,057	123	0	0	0	0	0	0	0	0	0	(100)
Sri Lanka	4,800	95	286	314	4,514	88	0	0	0	0	0	0	0	0
Syrian Arab Rep	15,300	90	12,790	114	2,510	22	0	0	0	0	0 j	X	0 h	(100)
Tajikistan, Rep	14,760	X	580	X	14,180	X	0	X	0	X	4,800	X	5,600	X
Thailand	83,660	246	76,946	276	6,713	82	1	X	0	0	699	(3)	79	295
Turkey	81,734	145	46,107	117	35,541	195	86	1,333	0	0	0	(100)	696	X
Turkmenistan, Rep	9,800	X	9,796	X	4	X	0	X	0	X	980	X	3,000	X
United Arab Emirates	19,070	64	19,070	64	0	0	0	0	0	0	0	0	0	0
Uzbekistan, Rep	47,200	X	5,085	X	7,100	X	0	X	0	X	14,500	X	14,900	X
Vietnam	14,867	197	1,920	(38)	12,342	550	605	X	0	0	0	0	0	0
Yemen	1,980	X	234	X	0	X	0	X	0	X	0	X	0	X
OCEANIA	212,994	39	165,946	43	44,953	28	2,095	13	0	0	0	0	0	0
Australia	173,404	43	157,164	48	16,240	14	X	(100)	0	0	0	0	0	0
Fiji	544	38	115	13	429	46	0	0	0	0	0	0	0	0
New Zealand	34,375	26	5,017	(23)	27,263	38	2,095	84	0	0	0	0	0	0
Papua New Guinea	1,790	16	1,295	15	495	18	0	0	0	0	0	0	0	0
Solomon Islands	29	0	29	0	0	0	0	0	0	0	0	0	0	0

Notes: a. Data are for the South Africa Customs Union (Botswana, Lesotho, Namibia, South Africa, and Swaziland). b. Refers to wind generation. c. Includes Monaco. d. Data are for 1994. e. Refers to wind and nonspecified combustibles generation. f. Refers to solar, tide, and wave generation. g. Includes solar and wind generation. h. Data are for 1993. i. Refers to solar, tide, wave, and fuel cell generation. j. Data are for 1991.

Data Table 15.3

Energy Balances, 1985–95

Source: International Energy Agency

	Industry Sector				Transportation Sector						Commercial and Residential					
	Total		Iron and Steel		Total		Air		Road		Agriculture		Public Services		Residential	
	(% of Total Final Consumption)	(% of Total Final Consumption)	(% of Total Final Consumption)	(% of Total Final Consumption)	(% of Total Final Consumption)	(% of Total Final Consumption)	(% of Total Final Consumption)	(% of Total Final Consumption)	(% of Total Final Consumption)	(% of Total Final Consumption)	(% of Total Final Consumption)	(% of Total Final Consumption)	(% of Total Final Consumption)	(% of Total Final Consumption)	(% of Total Final Consumption)	(% of Total Final Consumption)
1995	1985	1995	1985	1995	1985	1995	1985	1995	1985	1995	1985	1995	1985	1995	1985	
WORLD	37.5	40.7	4.0	4.5	26.5	24.2	3.3	3.0	20.9	18.2	3.2	3.7	18.7	16.5	7.6	8.4
AFRICA	37.5	43.3	6.1	11.6	29.3	32.2	3.9	4.0	24.1	26.2	2.4	2.8	13.2	12.3	2.3	3.2
Algeria	23.1	24.9	4.2	8.6	22.2	39.4	2.3	4.2	16.1	34.3	0.0	0.3	29.2	21.5	0.0	2.3
Angola	26.5	23.9	0.0	0.0	50.6	58.6	27.1	26.2	23.6	32.4	0.0	0.0	18.0	14.0	0.0	0.0
Benin	14.7	7.2	0.0	0.0	58.2	74.8	21.0	10.8	37.2	64.0	0.0	0.0	25.4	14.4	0.7	0.4
Botswana	X	X	X	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	X	X	X
Burundi	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Cameroon	17.5	14.5	0.0	0.0	43.7	53.9	4.8	5.0	38.9	48.9	0.0	0.1	16.3	9.0	0.0	0.5
Central African Rep	X	X	X	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	X	X	X
Congo, Dem Rep	8.7	10.5	0.0	0.0	66.1	70.5	22.6	11.9	43.5	58.6	0.0	0.0	18.6	7.7	0.0	0.0
Congo, Rep	29.1	24.7	0.0	0.0	38.6	43.5	8.8	8.8	29.8	34.6	0.0	0.0	16.7	17.7	0.0	0.0
Côte d'Ivoire	21.6	17.8	0.0	0.0	49.5	49.1	9.0	9.6	38.7	34.8	3.0	4.1	14.2	13.2	6.3	7.3
Egypt	49.7	46.0	2.9	4.0	19.9	24.2	2.8	2.6	17.1	20.0	0.7	3.3	20.6	18.7	0.0	1.0
Equatorial Guinea	X	X	X	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	X	X	X
Ethiopia	24.8	19.3	0.0	0.0	51.9	59.1	20.8	20.6	31.1	36.1	2.3	3.8	6.5	7.8	2.6	3.7
Gabon	29.0	46.3	0.0	0.0	42.5	19.8	13.9	4.2	24.5	15.6	0.0	0.0	12.9	19.2	2.6	0.3
Gambia, The	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Ghana	34.5	29.7	0.0	0.0	44.4	47.2	4.4	3.9	38.4	39.8	1.7	3.8	13.0	10.8	2.0	2.3
Guinea	X	X	X	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	X	X	X
Kenya	26.4	24.3	0.0	0.0	51.6	54.9	16.7	14.8	33.0	37.7	3.1	2.8	11.8	8.9	1.1	4.9
Lesotho	X	X	X	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	X	X	X
Libya	31.9	36.2	0.0	0.0	40.2	39.0	3.6	6.0	36.7	33.0	0.0	0.0	7.5	3.2	0.0	0.0
Madagascar	X	X	X	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	X	X	X
Mali	X	X	X	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	X	X	X
Mauritius	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Morocco	22.9	40.3	0.0	0.0	12.9	27.7	3.9	5.9	6.4	19.4	0.7	5.0	18.7	16.0	2.4	6.5
Mozambique	12.0	15.0	0.0	0.0	16.4	17.2	7.6	7.4	8.8	9.9	3.5	0.0	6.7	5.5	0.1	0.0
Namibia	X	X	X	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	X	X	X
Nigeria	16.0	17.9	0.6	0.6	51.6	56.5	4.9	5.0	46.2	50.1	0.0	0.6	13.5	18.2	2.3	0.7
Rwanda	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Senegal	29.4	26.0	0.0	0.0	55.0	61.2	20.5	22.5	31.1	31.1	0.2	3.2	11.0	5.6	2.6	1.5
Sierra Leone	X	X	X	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	X	X	X
South Africa	45.8	59.9	13.3	25.7	27.6	24.0	2.0	1.7	23.9	19.9	4.2	3.1	5.5	7.0	3.6	4.8
Sudan	29.6	28.6	0.0	0.0	43.4	45.1	11.5	6.6	30.4	34.4	8.9	12.0	7.0	3.2	2.2	2.6
Swaziland	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Tanzania	15.2	30.6	0.0	0.1	44.4	32.5	6.3	6.1	34.0	19.7	4.6	3.7	28.0	25.3	4.3	3.9
Togo	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Tunisia	33.5	34.1	2.0	3.2	31.3	31.1	5.9	3.9	24.8	21.5	7.3	5.7	15.0	18.4	8.6	7.5
Uganda	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Zambia	57.5	63.4	0.0	0.0	20.1	18.7	3.8	4.1	16.3	13.3	2.9	2.3	4.3	5.4	7.9	6.6
Zimbabwe	52.2	48.9	14.1	17.6	20.3	25.3	2.3	3.1	13.8	15.9	10.2	12.0	5.8	5.1	8.3	6.8
EUROPE	35.6	39.3	7.2	8.4	20.8	20.3	2.7	1.6	15.5	15.8	4.4	3.9	26.9	17.4	6.8	7.4
Albania	16.6	35.6	0.0	5.8	40.5	17.7	0.0	0.0	40.5	17.7	0.5	0.0	23.0	4.1	0.4	0.0
Austria	25.6	31.2	8.2	10.4	28.5	23.1	2.1	1.1	24.6	20.4	4.9	0.5	29.1	33.4	2.0	3.4
Belarus, Rep	35.3	34.4	0.6	0.2	14.5	14.7	2.5	0.0	8.5	9.0	6.5	7.0	31.0	0.0	1.6	0.5
Belgium	37.9	41.3	11.2	14.6	22.7	19.1	2.6	1.8	19.0	16.0	2.9	1.1	24.6	28.0	9.1	8.0
Bosnia and Herzegovina	9.8	0.0	3.9	0.0	61.0	0.0	6.5	0.0	38.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Bulgaria	58.8	51.2	10.9	2.3	5.3	9.7	2.9	2.1	1.8	7.0	3.4	1.3	25.5	11.5	1.7	2.1
Croatia, Rep	39.4	0.0	1.8	0.0	24.0	2.5	1.8	0.0	19.9	0.0	4.0	0.4	19.6	0.0	8.5	0.0
Czech Rep	48.1	56.4	14.9	12.2	13.5	7.9	0.9	0.9	11.5	6.5	4.9	3.5	20.0	17.4	6.0	3.7
Denmark	18.5	18.1	0.7	0.8	30.5	30.7	5.1	5.0	23.2	21.0	6.4	4.6	29.4	31.7	12.4	10.4
Estonia, Rep	33.9	48.2	0.3	0.0	17.5	2.8	0.8	0.0	14.7	0.0	3.6	26.0	35.1	0.0	6.6	0.0
Finland	45.9	44.9	6.2	6.1	18.1	17.5	1.8	1.4	15.4	15.1	3.3	4.2	22.7	24.1	4.2	3.5
France	29.1	33.0	4.9	6.2	29.3	25.3	3.1	2.0	25.0	21.9	1.9	2.2	16.9	15.8	18.7	20.7
Germany	32.0	37.0	5.9	7.8	26.0	19.0	2.5	1.7	22.4	16.1	1.1	1.3	25.5	25.9	10.4	11.9
Greece	24.9	28.8	0.9	1.6	40.8	37.2	8.0	9.6	29.0	24.2	6.3	7.4	19.4	18.1	5.8	2.8
Hungary	23.9	39.1	5.5	9.0	15.8	11.2	1.1	0.7	13.5	8.2	3.6	7.1	36.7	28.1	15.0	9.0
Iceland	24.6	27.5	5.9	6.7	15.7	15.7	4.4	4.9	10.6	9.5	17.8	13.2	31.8	37.5	4.7	3.0
Ireland	26.2	31.7	0.6	0.8	30.3	25.9	6.8	3.2	22.4	21.9	3.1	0.2	23.8	29.3	14.8	8.9
Italy	34.0	35.7	6.0	7.3	31.1	27.0	2.3	1.9	27.8	23.9	2.7	2.3	25.6	28.6	4.0	3.5
Latvia, Rep	18.4	44.1	2.2	0.0	24.4	2.5	0.9	0.0	15.6	0.0	2.8	12.4	46.2	0.0	14.4	0.7
Lithuania, Rep	32.2	38.8	0.1	0.0	24.8	13.4	0.8	3.3	18.0	9.5	4.0	3.4	32.4	0.0	9.9	0.3
Macedonia, FYR	37.1	X	13.5	X	24.9	X	2.5	X	22.1	X	10.4	X	21.8	X	4.9	X
Moldova, Rep	21.8	15.1	0.0	0.0	13.0	15.0	0.4	1.2	9.5	13.8	12.7	5.3	29.6	0.0	19.9	0.2
Netherlands	35.4	37.6	4.9	4.3	21.9	17.8	4.6	2.5	15.8	13.7	7.2	5.0	19.1	23.8	3.9	2.6
Norway	38.0	44.7	6.2	8.9	22.5	19.8	3.0	2.8	15.1	12.8	3.8	1.5	21.1	19.6	10.1	9.9
Poland, Rep	39.1	42.9	9.2	11.7	14.1	9.1	0.9	0.0	12.1	8.4	6.9	3.0	34.3	35.8	0.0	1.8
Portugal	39.3	46.2	1.8	2.6	34.4	28.6	4.5	5.1	28.9	22.1	3.3	4.3	12.7	13.2	6.1	4.8
Romania	57.0	58.4	14.5	13.6	13.0	3.5	0.8	0.0</								

	Industry Sector				Transportation Sector						Commercial and Residential					
	Total		Iron and Steel		Total		Air		Road		Agriculture		Public Services		Residential	
	(% of Total Final Consumption)		(% of Total Final Consumption)		(% of Total Final Consumption)		(% of Total Final Consumption)		(% of Total Final Consumption)		(% of Total Final Consumption)		(% of Total Final Consumption)		(% of Total Final Consumption)	
	1995	1985	1995	1985	1995	1985	1995	1985	1995	1985	1995	1985	1995	1985	1995	1985
NORTH AMERICA	27.1	30.9	1.6	2.4	37.5	34.0	5.1	4.7	29.9	27.1	1.2	1.4	17.6	16.3	12.5	11.7
Canada	36.5	37.6	3.0	4.1	27.7	26.1	2.5	2.5	20.2	20.0	2.1	1.8	17.0	17.8	13.7	13.6
United States	25.9	30.2	1.4	2.1	38.8	35.0	5.4	4.9	31.1	27.9	1.1	1.3	17.7	16.1	12.3	11.4
CENTRAL AMERICA	39.6	42.4	4.8	4.7	36.3	32.7	2.6	2.2	30.0	21.2	2.7	3.2	16.3	10.3	3.6	2.3
Belize	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Costa Rica	18.5	28.1	0.0	0.0	57.3	48.7	6.8	1.6	24.1	16.8	3.2	0.0	10.8	18.8	7.9	0.8
Cuba	40.2	35.9	0.1	1.2	31.9	34.6	2.6	2.8	13.3	26.0	6.1	8.4	11.3	12.3	2.9	3.1
Dominican Rep	17.9	23.1	0.0	0.0	43.1	50.5	2.4	4.7	21.0	32.0	1.4	1.3	31.9	19.4	0.0	0.0
El Salvador	26.0	23.1	0.0	0.0	52.2	52.6	3.5	5.2	21.2	22.4	0.0	3.2	11.9	15.2	6.0	3.1
Guatemala	24.5	19.5	0.0	0.0	48.9	48.7	2.7	4.4	46.1	44.3	1.9	3.0	12.4	17.6	8.3	6.3
Haiti	18.5	38.5	0.0	0.0	65.4	48.2	8.0	6.2	24.6	19.1	0.0	1.3	5.7	11.3	0.3	0.0
Honduras	31.1	32.3	0.0	0.0	49.6	45.4	1.9	6.6	18.4	15.3	1.6	4.4	10.6	14.5	6.1	2.7
Jamaica	28.9	50.7	0.0	0.0	40.0	31.1	11.1	10.2	19.3	20.8	13.6	1.7	8.5	8.2	7.0	0.2
Mexico	39.4	43.3	5.6	5.5	36.2	31.8	2.5	1.9	33.0	20.2	2.5	2.8	17.5	9.8	3.5	2.3
Nicaragua	20.1	21.8	0.0	0.0	53.1	40.6	2.8	2.9	19.2	17.0	2.8	10.8	9.6	12.7	13.6	13.2
Panama	27.8	29.4	0.0	0.0	47.7	44.8	0.2	0.3	24.5	43.7	0.0	0.0	20.2	22.1	2.0	2.5
Trinidad and Tobago	85.0	65.2	7.4	2.9	11.0	23.6	1.3	2.7	9.7	20.9	0.0	0.0	2.3	5.4	1.3	0.9
SOUTH AMERICA	34.4	36.2	6.9	7.4	38.3	37.6	2.7	2.7	33.6	32.4	4.6	3.8	12.3	12.7	5.6	3.8
Argentina	25.8	30.1	0.3	0.3	36.2	32.8	2.7	2.5	33.5	29.0	6.8	7.7	20.3	23.8	6.4	2.2
Bolivia	24.2	21.1	0.0	5.2	50.6	49.4	6.3	7.7	42.3	40.7	2.6	0.9	18.4	27.4	2.1	0.0
Brazil	37.3	38.7	10.8	11.1	37.8	37.5	2.3	2.6	34.2	31.5	4.8	4.1	10.0	8.7	5.6	4.7
Chile	41.8	41.0	4.2	6.4	39.4	39.0	3.5	2.9	32.8	33.0	1.1	0.0	15.1	15.8	0.0	2.7
Colombia	30.1	31.7	1.9	2.2	40.4	43.0	3.9	3.8	35.5	38.7	2.2	1.8	12.0	12.3	5.1	5.1
Ecuador	17.4	17.2	0.0	0.0	48.6	50.9	4.4	3.8	34.7	33.7	6.5	5.1	14.6	9.6	8.2	1.8
Guyana	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Paraguay	12.1	6.2	0.0	0.0	67.4	70.8	0.2	4.1	66.3	66.7	0.0	0.0	16.1	15.1	3.0	3.9
Peru	18.3	31.5	0.3	0.9	44.1	38.4	4.5	4.2	16.8	31.8	16.9	4.8	16.6	19.8	1.9	3.1
Suriname	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Uruguay	17.1	22.0	0.1	0.1	41.9	36.2	0.9	2.2	19.3	30.9	9.6	12.5	19.0	21.3	8.6	6.5
Venezuela	43.4	42.8	10.0	10.8	35.6	36.5	2.3	1.8	33.3	34.3	1.6	0.1	7.1	9.0	7.7	2.9
ASIA	49.1	51.8	9.8	11.0	19.8	18.1	2.2	1.8	15.7	13.4	3.6	3.7	14.0	15.7	5.3	4.6
Afghanistan, Islamic State	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Armenia, Rep	29.0	42.2	0.0	0.0	7.7	25.3	3.0	4.6	3.3	20.0	0.4	3.6	10.0	0.0	0.0	2.7
Azerbaijan	32.6	55.9	0.0	0.0	6.6	8.3	4.2	0.0	1.8	0.0	5.6	17.2	3.1	0.0	0.8	0.0
Bangladesh	49.2	49.2	0.4	0.4	18.4	18.1	1.7	2.6	11.9	10.1	7.7	5.8	14.5	18.5	1.5	2.0
Bhutan	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Cambodia	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
China	66.2	61.1	15.2	14.6	8.8	8.2	0.5	0.2	5.9	4.2	4.1	4.9	13.4	18.0	4.9	3.8
Georgia	29.1	51.9	0.0	0.0	2.3	1.3	0.0	0.0	1.0	0.0	5.9	5.3	3.1	0.0	0.0	0.0
India	53.7	57.9	10.6	12.6	24.0	23.2	1.4	1.6	20.7	14.8	5.0	2.5	12.0	10.6	1.4	0.7
Indonesia	34.8	31.2	3.6	2.0	35.0	28.6	3.1	2.1	29.2	25.7	3.2	2.8	20.7	22.3	2.0	1.0
Iran, Islamic Rep	29.5	38.3	0.8	0.6	22.6	14.0	0.9	1.4	21.7	12.6	7.1	0.0	29.6	17.6	5.7	0.0
Iraq	27.2	23.9	0.0	0.0	45.2	50.1	2.2	2.6	43.0	47.5	0.0	0.0	11.8	15.0	0.0	0.0
Israel	23.4	29.6	0.7	0.0	34.9	41.1	6.7	11.7	27.5	28.8	1.1	0.9	15.4	7.7	4.6	4.5
Japan	42.7	47.5	11.2	14.2	25.1	22.1	2.8	1.9	20.5	17.7	3.2	3.1	13.9	13.2	11.7	10.2
Jordan	19.7	22.2	0.0	0.0	40.4	49.1	8.9	11.2	31.5	37.9	2.8	3.7	17.8	17.8	1.8	1.3
Kazakhstan, Rep	43.4	67.8	4.4	0.0	9.2	6.4	1.5	0.0	6.5	0.0	3.7	12.7	2.4	0.0	0.0	0.0
Korea, Dem People's Rep	89.8	85.5	11.7	8.5	6.6	7.6	0.0	0.0	6.6	7.6	0.0	0.0	0.9	0.8	0.0	0.0
Korea, Rep	46.9	40.3	9.5	11.1	22.9	16.6	1.9	2.4	17.7	12.1	2.6	1.6	20.2	34.1	3.8	4.2
Kuwait	27.6	49.2	0.0	0.0	37.9	32.1	6.9	5.4	30.9	26.8	0.0	0.0	31.6	11.3	0.0	0.3
Kyrgyz Rep	25.9	49.7	0.0	0.0	5.9	1.6	4.1	0.0	0.0	0.0	14.7	30.5	9.8	0.0	0.0	0.0
Lao People's Dem Rep	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Lebanon	26.7	2.5	0.0	0.0	45.2	74.6	6.0	6.5	39.2	68.1	0.0	0.0	21.0	6.4	1.6	0.0
Malaysia	40.8	41.1	0.8	0.2	35.2	40.8	5.2	4.6	29.9	36.2	2.0	0.0	8.2	8.5	4.3	4.1
Mongolia	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Myanmar	65.2	61.2	0.0	0.0	26.7	33.9	1.8	2.3	24.9	31.7	0.0	0.0	4.8	2.9	1.6	0.6
Nepal	29.9	28.5	0.0	0.0	30.5	35.5	4.6	8.9	25.4	26.1	2.0	2.9	20.3	21.0	8.0	5.9
Oman	2.8	15.4	0.0	0.0	53.5	39.1	8.4	12.2	45.0	26.8	0.0	0.0	3.8	1.3	0.0	0.0
Pakistan	42.1	44.7	2.1	2.4	30.2	26.9	2.5	3.6	26.6	21.6	3.4	3.4	16.4	13.7	4.1	7.2
Philippines	32.3	40.4	1.3	7.2	42.7	25.0	4.8	5.0	34.7	16.5	1.9	12.4	11.2	17.4	7.9	3.8
Saudi Arabia	17.9	31.8	0.0	0.0	24.7	40.1	5.2	6.6	19.4	33.6	0.3	0.0	8.8	6.7	3.9	3.0
Singapore	33.3	33.5	0.8	0.6	52.1	46.9	30.5	23.0	21.6	24.0	0.0	0.0	3.6	4.5	0.2	5.6
Sri Lanka	14.6	13.3	0.0	0.1	56.0	61.6	8.2	9.8	46.2	49.5	0.6	0.0	15.7	18.6	5.5	2.6
Syrian Arab Rep	21.0	34.4	0.0	0.0	12.3	38.8	1.6	3.3	10.7	35.5	0.0	3.9	10.1	9.9	0.0	0.0
Tajikistan, Rep	21.0	64.0	0.0	0.0	38.3	0.7	0.2	0.0	37.8	0.0	13.9	24.6	5.3	0.0	0.0	0.0
Thailand	32.3	25.0	1.4	1.0	49.5	49.6	7.3	8.9	41.1	37.4	4.3	11.9	6.2	6.5	5.4	4.0
Turkey	31.7	29.0	6.9	6.5	25.1	20.8	2.5	0.7	21.5	18.7	5.5	4.7	32.1	41.8	2.3	1.2
Turkmenistan, Rep	1.8	41.6	0.0	0.0	5.6	17.0	0.0	0.0	5.5	0.0	1.5	20.3	1.0	0.0	0.0	0.0
United Arab Emirates	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Uzbekistan, Rep	4.7	58.8	0.0	0.0	7.1	2.9	0.3	0.0	6.5	0.0	2.7	26.9	1.8	0.0	0.0	0.0
Vietnam	48.8	54.2	0.0	0.0	27.6	17.8	2.8	2.9	23.7	13.2	5.4	4.3	13.8	13.8	0.0	0.0
Yemen	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
OCEANIA	35.3	37.8	6.0	6.3	37.9	37.7										

Data Table 15.4

Production of Selected Minerals and Materials, 1995

Source: United States Geological Survey

	Bauxite (a) (Al content) (000 metric tons)	Iron Ore (Fe content) (000 metric tons)	Copper Ore (Cu content) (metric tons)	Silver Ore (Ag content) (metric tons)	Gold (Au content) (kilograms)	Sulfur (000 metric tons)	Salt (000 metric tons)	Nitrogen (ammonia) (000 metric tons)	Phosphorus (P2O5) (000 metric tons)	Potassium (potash) (000 metric tons)	Sand and Gravel (000 metric tons)	Hydraulic Cement (000 metric tons)
WORLD	27,250	554,846	10,000,000	14,600	2,250,000	54,300	189,000	91,600	40,100	24,700	X	1,421,342
AFRICA	X	X	X	X	X	X	X	X	X	X	X	X
Algeria	X	1,000	X	3	X	X	178	380	232	X	X	6,200
Angola	X	X	X	X	X	X	30	X	X	X	X	300
Benin	X	X	X	X	X	X	1	X	X	X	X	380
Botswana	X	X	21,029	X	86	X	208	X	X	X	X	X
Burkina Faso	X	X	X	X	6,000	X	7	X	X	X	X	X
Burundi	X	X	X	X	10	X	X	X	X	X	X	X
Cameroon	X	X	X	X	560	X	X	X	X	X	X	520
Central African Rep	X	X	X	X	700	X	X	X	X	X	X	X
Chad	X	X	X	X	X	X	X	X	X	X	X	X
Congo, Dem Rep	X	X	28,800	10	9,500	X	X	X	X	X	X	100
Congo, Rep	X	X	X	X	5	X	X	X	X	X	X	100
Côte d'Ivoire	X	X	X	X	3,200	X	X	X	X	X	X	500
Egypt	X	2,100	X	X	X	X	1,000	940	390	X	32,800	16,000
Equatorial Guinea	X	X	X	X	X	X	X	X	X	X	X	X
Eritrea	X	X	X	X	59	X	255	X	X	X	1,334	350
Ethiopia	X	X	X	X	4,500	X	5	X	X	X	1,600	611
Gabon	X	X	X	X	70	X	X	X	X	X	X	130
Gambia, The	X	X	X	X	X	X	X	X	X	X	X	X
Ghana	123	X	X	3	52,200	X	50	X	X	X	X	1,400
Guinea	3,600	X	X	X	7,863	X	X	X	X	X	X	X
Guinea-Bissau	X	X	X	X	X	X	X	X	X	X	X	X
Kenya	X	X	X	X	170	X	74	X	X	X	X	1,500
Lesotho	X	X	X	X	X	X	X	X	X	X	X	X
Liberia	X	X	X	X	500	X	X	X	X	X	X	X
Libya	X	X	X	X	X	X	12	200	X	X	X	2,300
Madagascar	X	X	X	X	500	X	30	X	X	X	X	60
Malawi	X	X	X	X	X	X	X	X	X	X	X	139
Mali	X	X	X	X	7,800	X	5	X	X	X	X	20
Mauritania	X	7,000	X	X	X	X	6	X	X	X	X	375
Mauritius	X	X	X	X	X	X	6	X	X	X	X	X
Morocco	X	40	13,000	330	X	X	175	X	X	X	X	6,500
Mozambique	3	X	X	X	900	X	40	X	X	X	X	20
Namibia	X	X	22,530	66	2,099	X	300	X	X	X	X	X
Niger	X	X	X	X	X	X	3	X	X	X	X	30
Nigeria	X	100	X	X	X	X	X	350	X	X	X	2,600
Rwanda	X	X	X	X	100	X	X	X	X	X	X	5
Senegal	X	X	X	X	X	X	120	X	600	X	X	590
Sierra Leone	70	X	X	X	50	X	100	X	X	X	X	X
Somalia	X	X	X	X	X	X	1	X	X	X	X	25
South Africa	X	19,806	199,600	174	523,820	509	313	600	1,087	X	X	9,071
Sudan	X	X	X	X	3,000	X	75	X	X	X	X	250
Swaziland	X	X	X	X	X	X	X	X	X	X	X	X
Tanzania	X	X	X	X	44	X	7	X	7	X	X	800
Togo	X	X	X	X	X	X	X	X	720	X	X	350
Tunisia	X	128	X	1	X	X	400	X	2,182	X	X	4,300
Uganda	X	X	X	X	X	X	5	X	X	X	X	130
Zambia	X	X	329,200	14	79	X	X	10	X	X	X	300
Zimbabwe	X	160	9,500	10	24,344	X	X	70	45	X	X	1,000
EUROPE	X	X	X	X	X	X	X	X	X	X	X	X
Albania	X	X	800	X	X	X	X	15	1	X	X	200
Austria	X	660	X	X	X	X	701	400	X	X	50,000	5,000
Belarus, Rep	X	X	X	X	X	X	219	500	X	3,210	X	1,235
Belgium	X	X	X	X	X	X	500	X	X	X	14,000	8,000
Bosnia and Herzegovina	19	52	X	X	X	X	50	1	X	X	750	150
Bulgaria	X	250	63,000	35	2,000	X	700	800	X	X	X	2,100
Croatia, Rep	1	X	X	X	X	X	28	300	X	X	3,000	1,700
Czech Rep	X	X	X	X	X	X	180	150	X	X	15,788	4,825
Denmark	X	X	X	X	X	X	576	X	X	X	37,500	2,000
Estonia, Rep	X	X	X	X	X	X	X	45	X	X	21,000	417
Finland	X	X	12,000	27	1,400	X	X	10	244	X	X	900
France	X	600	X	1	4,000	1,100	7,350	1,500	X	802	174,900	21,000
Germany	X	20	X	1	X	1,230	10,800	2,100	X	3,280	450,000	40,000
Greece	479	600	X	45	X	X	150	55	X	X	X	12,000
Hungary	275	X	X	X	X	X	X	230	X	X	3,200	3,000
Iceland	X	X	X	X	X	X	4	9	X	X	X	5,400
Ireland	X	X	X	15	X	X	X	370	X	X	7,500	1,500
Italy	23	X	X	12	X	X	3,400	600	X	X	125,000	35,000
Latvia, Rep	X	X	X	X	X	X	X	X	X	X	91	204
Lithuania, Rep	X	X	X	X	X	X	X	442	X	X	48	649
Macedonia, FYR	X	6	6,500	10	X	X	X	X	X	X	195	500
Moldova, Rep	X	X	X	X	X	X	X	X	6,381	X	X	49
Netherlands	X	X	X	X	X	X	3,500	2,500	X	X	X	3,400
Norway	X	1,430	6,800	X	X	X	X	300	X	X	X	1,400
Poland, Rep	X	X	383,600	1,000	X	2,440	4,000	1,500	X	X	2,000	13,884
Portugal	X	6	134,181	32	X	X	670	100	X	X	5,000	7,500
Romania	44	184	24,003	60	4,000	X	1,602	1	X	X	901	6,000
Russian Federation	968	X	591,000	700	132,170	4,000	7,500	7,500	3,000	2,800	X	36,400
Slovak Rep	X	230	500	X	X	X	70	250	X	X	X	2,500
Slovenia, Rep	X	X	X	X	X	X	8	X	X	X	3,000	1,000
Spain	X	900	5,000	135	6,000	702	3,400	360	X	650	X	25,000
Sweden	X	13,880	83,600	268	6,400	X	X	X	X	X	X	2,100
Switzerland	X	X	X	X	X	X	300	30	X	X	X	4,000
Ukraine	X	24,800	X	X	X	X	3,000	2,200	X	110	X	11,000
United Kingdom	X	X	X	X	X	X	7,100	1,000	X	582	104,000	12,500
Yugoslavia, Fed Rep	12	X	70,000	27	4,000	X	16	150	X	X	3,300	1,696

	Bauxite (a) (Al content) (000 metric tons)	Iron Ore (Fe content) (000 metric tons)	Copper Ore (Cu content) (metric tons)	Silver Ore (Ag content) (metric tons)	Gold (Au content) (kilograms)	Sulfur (000 metric tons)	Salt (000 metric tons)	Nitrogen (ammonia) (000 metric tons)	Phosphorus (P2O5) (000 metric tons)	Potassium (potash) (000 metric tons)	Sand and Gravel (000 metric tons)	Hydraulic Cement (000 metric tons)
NORTH AMERICA	X	X	X	X	X	X	X	X	X	X	X	X
Canada	X	24,651	728,680	1,195	150,273	9,010	10,893	3,500	X	9,010	240,189	10,722
United States	50	39,577	1,849,000	1,640	320,000	11,800	42,100	13,300	12,800	1,480	963,000	78,320
CENTRAL AMERICA	X	X	X	X	X	X	X	X	X	X	X	X
Belize	X	X	X	X	5	X	X	X	X	X	320	X
Costa Rica	X	X	X	X	500	X	47	X	X	X	1,500	90
Cuba	X	X	1,500	X	X	X	180	130	X	X	X	1,200
Dominican Rep	X	X	X	13	3,288	X	11	X	X	X	5,500	1,453
El Salvador	X	X	X	X	X	X	30	X	X	X	X	875
Guatemala	X	2	X	X	30	X	100	X	X	X	1,000	1,560
Haiti	X	X	X	X	X	X	X	X	X	X	1,500	50
Honduras	X	X	390	25	110	X	25	X	X	X	X	655
Jamaica	2,714	X	X	X	X	X	18	X	X	X	1,800	523
Mexico	X	5,540	331,900	2,400	20,292	2,880	7,670	2,100	180	X	157,692	23,971
Nicaragua	X	X	X	2	1,600	X	15	X	X	X	1,300	350
Panama	X	X	X	X	1,100	X	22	X	X	X	3,000	350
Trinidad and Tobago	X	X	X	X	X	X	X	1,696	X	X	X	600
SOUTH AMERICA	X	X	X	X	X	X	X	X	X	X	X	X
Argentina	X	<500	300	43	1,100	X	1,000	70	X	X	21,067	6,400
Bolivia	X	X	127	410	14,405	X	5	X	X	X	X	700
Brazil	2,190	120,900	41,000	155	72,000	X	3,100	940	700	223	X	25,500
Chile	X	5,119	2,488,000	1,032	39,180	X	3,000	X	3	50	300	3,000
Colombia	X	75,000	2,800	6	21,160	X	550	90	11	X	859	9,624
Ecuador	X	X	X	X	15,500	X	X	X	X	X	170	2,300
Guyana	525	X	X	X	11,800	X	X	X	X	X	X	X
Paraguay	X	X	X	X	X	X	X	X	X	X	2,000	570
Peru	X	4,900	380,700	1,908	56,500	X	238	90	12	X	900	2,100
Suriname	825	X	X	X	300	X	X	X	X	X	195	50
Uruguay	X	X	X	X	900	X	X	X	X	X	2,000	600
Venezuela	1,296	12,743	X	X	7,259	X	3,500	600	49	X	4,629	6,900
ASIA	X	X	X	X	X	X	X	X	X	X	X	X
Afghanistan, Islamic State	X	X	X	X	X	X	13	30	X	X	X	115
Armenia, Rep	X	X	1,000	X	100	X	50	X	X	X	X	200
Azerbaijan	9	83	X	X	X	X	20	X	X	X	X	200
Bangladesh	X	X	X	X	X	X	350	975	X	X	X	280
Bhutan	X	X	X	X	X	X	X	X	X	X	X	140
Cambodia	X	X	X	X	X	X	40	X	X	X	X	X
China	1,250	X	370,000	250	140,000	6,530	25,000	19,500	6,400	80	X	445,610
Georgia	X	X	1,000	X	500	X	X	30	X	X	X	100
India	1,200	37,800	63,000	40	2,300	X	9,500	7,713	338	X	X	70,000
Indonesia	225	197	443,618	112	62,800	X	670	2,850	2	X	X	16,300
Iran, Islamic Rep	25	4,500	100,000	60	650	890	936	700	X	X	X	16,300
Iraq	X	X	X	X	X	475	250	500	300	X	X	18,000
Israel	X	X	X	X	X	X	1,200	41	1,264	1,330	X	3,500
Japan	X	1	2,376	100	9,185	2,860	1,400	1,400	X	X	X	90,474
Jordan	X	X	X	X	X	X	25	X	1,655	1,070	X	4,000
Kazakhstan, Rep	825	8,200	260,000	800	26,000	X	X	200	550	X	X	1,800
Korea, Dem People's Rep	X	5,100	16,000	50	5,000	X	600	600	164	X	X	17,000
Korea, Rep	X	106	5	258	13,000	X	770	470	X	X	1,718	55,130
Kuwait	X	X	X	X	X	X	45	325	X	X	X	2,000
Kyrgyz Rep	X	X	X	X	1,200	X	X	X	X	X	X	300
Lao People's Dem Rep	X	X	X	X	X	X	8	X	X	X	X	X
Lebanon	X	X	X	X	X	X	3	X	X	X	X	3,000
Malaysia	46	123	21,900	11	3,161	X	X	340	X	X	X	10,667
Mongolia	X	X	100,400	X	4,800	X	1	X	X	X	X	109
Myanmar	X	X	3,700	4	X	X	260	130	X	X	X	517
Nepal	X	X	2	X	X	X	7	X	X	X	X	220
Oman	X	X	X	X	X	X	X	X	X	X	6,500	1,400
Pakistan	2	X	X	X	X	X	952	1,450	5	X	X	8,586
Philippines	X	X	105,655	27	27,144	X	540	X	7	X	22,500	9,800
Saudi Arabia	X	X	925	18	8,080	2,200	X	2,000	X	X	X	16,000
Singapore	X	X	X	X	X	X	X	X	X	X	X	1,900
Sri Lanka	X	X	X	X	X	X	60	X	11	X	X	900
Syrian Arab Rep	X	X	X	X	X	X	130	67	477	X	4,200	6,000
Tajikistan, Rep	X	X	X	X	1,500	X	X	25	X	X	X	100
Thailand	X	17	X	X	X	X	481	X	3	X	X	26,500
Turkey	83	3,200	34,100	65	1,000	X	1,400	350	24	X	X	33,153
Turkmenistan, Rep	X	X	X	X	X	X	500	25	X	X	X	400
United Arab Emirates	X	X	X	X	X	X	X	250	X	X	X	6,000
Uzbekistan, Rep	X	X	45,000	X	75,000	X	X	1,100	X	X	X	3,500
Vietnam	X	X	X	X	X	X	375	52	145	X	X	7,500
Yemen	X	X	X	X	X	X	110	X	X	X	X	1,000
OCEANIA	X	X	X	X	X	X	X	X	X	X	X	X
Australia	10,664	88,653	437,000	920	253,504	X	8,480	433	1	X	45,000	6,000
Fiji	X	X	X	2	3,775	X	X	X	X	X	300	78
New Zealand	X	900	X	32	13,000	X	50	80	X	X	20,000	700
Papua New Guinea	X	X	212,737	65	52,635	X	X	X	X	X	X	X
Solomon Islands	X	X	X	X	1	X	X	X	X	X	X	X

Notes: a. Includes nepheline syenite ores from the Russian Federation and alunite ores from Azerbaijan converted to bauxite equivalents.

Sources and Technical Notes

Data Table 15.1

Commercial Energy Production and Consumption, 1985–95

Source: United Nations Statistical Division (UNSTAT), *1995 Energy Statistics Yearbook* (UNSTAT, New York, 1997).

Energy data are compiled by UNSTAT, primarily from responses to questionnaires sent to national governments, supplemented by official national statistical publications and by data from intergovernmental organizations. When official numbers are not available, UNSTAT prepares estimates based on the professional and commercial literature.

Commercial energy production includes *total energy production*, solid, liquid, and gaseous fuels; and primary electricity production. *Solid fuels* include bituminous coal, lignite, peat, and oil shale burned directly. *Liquid fuels* include crude petroleum and natural gas liquids. *Gaseous fuels* include natural gas and other petroleum gases. *Primary electricity* refers to electricity generated by non-combustible energy sources and includes nuclear, wind, tidal, wave, solar, geothermal, and hydroelectric power sources. Primary electricity values are calculated to equate them with the amount of coal or oil required to produce an equivalent unit of thermal electricity and are expressed in joules. The conversion from kilowatt-hours to joules, assuming a thermal efficiency of the primary source of 100 percent, is 0.0036 petajoules per million kilowatt-hours. However, the efficiency, or the percentage of heat energy transformed into electrical energy, of nuclear power plants is estimated at an average of 33 percent, and geothermal plants at 10 percent. Hydroelectric, wave, wind, and solar power sources (which are mechanical as opposed to thermal sources) are assumed to be 100 percent efficient.

Electricity production data generally refer to gross production. Data for the Dominican Republic, Finland, France (including Monaco), Mexico, the United States, Zambia, and Zimbabwe refer to net production. Gross production is the amount of electricity produced by a generating station before consumption by station auxiliaries and transformer losses within the station are deducted. Net production is the amount of electricity remaining after these deductions. Typically, net production is 5 to 10 percent less than gross production. Energy production from pumped storage facilities is not included in gross or net electricity generation.

Electricity production includes both public and self-producer power plants. Public power plants produce electricity for many users. They may be operated by private, cooperative, or governmental organizations. Self-producer power plants are operated by organizations or companies to produce

electricity for internal applications, such as factory operations.

Total energy consumption includes *commercial energy* and *traditional fuels*. *Commercial energy* refers to apparent consumption and is defined as domestic production plus net imports, minus net stock increases, and minus aircraft and marine bunkers. Commercial energy consumption includes energy from solid, liquid, and gaseous fuels, plus primary electricity (see the definition above).

Traditional fuels include estimates of the consumption of fuelwood, charcoal, bagasse, and animal and vegetal wastes. Fuelwood and charcoal consumption data are estimated from population data and country-specific per capita consumption figures. These per capita estimates were prepared by the Food and Agriculture Organization of the United Nations (FAO) after an assessment of the available consumption data. Data were supplied by the answers to questionnaires or come from official publications by Bangladesh, Bhutan, Brazil, the Central African Republic, Chile, Colombia, Costa Rica, Cuba, Cyprus, El Salvador, The Gambia, Japan, Kenya, the Democratic People's Republic of Korea, the Republic of Korea, Luxembourg, Malawi, Mauritius, Nepal, Panama, Portugal, the former Soviet Union, Sri Lanka, Sweden, Thailand, and Uruguay. The conversion of fuelwood is based on 20 to 30 percent moisture content.

Similar estimates were prepared for coniferous fuelwood and for charcoal. Although the energy values of fuelwood and charcoal vary widely, UNSTAT uses standard factors of 0.33 metric ton of coal equivalent per cubic meter of fuelwood and 0.986 metric ton of coal equivalent per metric ton of charcoal.

Bagasse production is based on sugar production data in the *Sugar Yearbook* of the International Sugar Organization. It is assumed that 3.26 metric tons of fuel bagasse at 50 percent moisture are produced per metric ton of extracted cane sugar. The energy of a metric ton of bagasse is valued at 0.264 metric ton of coal equivalent.

One petajoule (1×10^{15} joules) is the same as $20,778 \times 10^6$ kilowatt-hours, 9.478×10^{-7} Quads, and 9.478×10^{11} British thermal units and is the equivalent of 163,400 "U.N. standard" barrels of oil or 34,140 U.N. standard metric tons of coal. The heat content of various fuels has been converted to coal-equivalent and then petajoule-equivalent values using country- and year-specific conversion factors. For example, a metric ton of bituminous coal produced in Argentina has an energy value of 0.843 metric ton of standard coal equivalent (7 million kilocalories). A metric ton of bituminous coal produced in Turkey has a 1991 energy value of 0.925 metric ton of standard coal equivalent. The original national production data for bituminous coal were multiplied by these conversion factors and then by 29.3076×10^{-6} to yield petajoule

equivalents. Other fuels were converted to coal-equivalent and petajoule-equivalent terms in a similar manner.

For additional information, refer to the UNSTAT *1995 Energy Statistics Yearbook*.

Data Table 15.2

Electricity Production and Trade, 1985–95

Source: United Nations Statistical Division (UNSTAT), *1995 Energy Statistics Yearbook* (UNSTAT, New York, 1997).

Energy data are compiled by UNSTAT, primarily from responses to questionnaires sent to national governments, supplemented by official national statistical publications and by data from intergovernmental organizations. When official numbers are not available, UNSTAT prepares estimates based on the professional and commercial literature.

Electricity production, which encompasses *total*, *thermal*, *hydroelectric*, *geothermal*, and *nuclear* production, represents the amount of electricity output generated by each of the different sources in million kilowatt-hours. Figures generally refer to gross production. Data for the Dominican Republic, Finland, France (including Monaco), Mexico, the United States, Zambia, and Zimbabwe refer to net production. Gross production is the amount of electricity produced by a generating station before consumption by station auxiliaries and transformer losses within the station are deducted. Net production is the amount of electricity remaining after these deductions. Typically, net production is 5–10 percent less than gross production. Energy production from pumped storage is not included in gross or net electricity generation.

Total electricity production is the total amount of electricity produced, both from primary and secondary sources. *Thermal* electricity is generated from the heat produced by the burning of fossil and renewable fuels. *Hydroelectric* power is generated from the energy of water falling from a higher to a lower point. *Geothermal* refers to electricity produced using sources of heat from the earth's interior, except in some specified countries (see data table). *Nuclear* electricity is generated from the heat produced by nuclear fission.

Electricity production includes both public and self-producer power plants. Public power plants produce electricity for many users. They may be operated by private, cooperative, or governmental organizations. Self-producer power plants are operated by organizations or companies to produce electricity for internal applications, such as factory operations.

Import and export trade refer to the amounts of electric energy transferred to and from the country concerned, respectively.

One kilowatt-hour equals 3.6×10^6 joules, 3.41×10^{-15} Quads, and 3,413 British thermal units.

Data Table 15.3

Energy Balances, 1985–95

Source: International Energy Agency (IEA), *Energy Balances of Organisation for Economic Co-Operation and Development (OECD) Countries, 1960–95*, and *Energy Balances of OECD Countries, 1960–1995*, on diskette (OECD, Paris, 1997).

Data for OECD and Economic Commission for Europe (ECE) countries were compiled from information provided in IEA/OECD/UN-ECE Eurostat questionnaires. Data from other large and medium-sized energy consumers come mostly from individual country information. Data for the remaining countries were gathered from a variety of international organizations. WRI calculated the amount of individual energy-use sectors as a percentage of total final (energy) consumption for each country.

Total final consumption is the sum of consumption by the different sectors. Backflows from the petrochemical industry are not included. *Industry sector* includes the *iron and steel* industry, chemical industry, nonferrous metals basic industries, non-metallic mineral products (e.g., glass, ceramics, cement, etc.), transport equipment, machinery, mining and quarrying, food and tobacco, paper, pulp and print, wood and wood products, construction, textile and leather, and any nonspecified industry. The *transportation sector* includes all fuel used for transportation except international marine bunkers. Fuel used for ocean, coastal, and inland fishing is not included. *Air transportation* includes both international civil aviation and domestic air travel. *Road transportation* includes all human and cargo transportation taking place on a nation's road network. *Agriculture* includes all agricultural activity, including ocean, coastal, and inland fishing. *Commercial and public services* include service sectors such as stores, repair shops, restaurants, etc. *Residential* includes energy use by residences. IEA reports that it can be difficult to accurately distinguish among the agriculture, commercial, and public services sectors, and that a total of the three is

more accurate than values for the individual sectors.

Data Table 15.4

Production of Selected Minerals and Materials, 1995

Source: United States Geological Survey (USGS), *Minerals and Materials Information CD-ROM* (USGS, Minerals Information Team, Reston, Virginia, 1997).

The work of the old U.S. Bureau of Mines, compiling data on the mineral resources of the world, continues through the work of the Minerals Information Team of the USGS. The team compiles data based on the review of the world's published literature and, often, through personal knowledge of particular industries and countries. Although these data are based on the best country information available, they are only as accurate and comprehensive as the information reported by companies, countries, and commodity organizations. Detailed commodity notes and sources are available from the USGS.

Bauxite is the primary ore from which aluminum is derived, although these data also contain the dry bauxite equivalents of the minerals nepheline syenite and alunite. To allow comparisons with other extraction activities, the bauxite equivalent is reported here in terms of its content of aluminum, which is 25 percent of the mass of bauxite. Not all bauxite is used for the production of aluminum, however; it can also be used in the production of such items as abrasives, chemicals, and refractories.

Iron ore is reported as the elemental iron contained in the production of iron ore, iron ore concentrates, and iron ore agglomerates and in principle contains no double-counting of ores traded rather than produced.

Copper ore is the world mine production in terms of the copper content of ores produced. Where possible, the copper content was calculated from actual analysis of the relevant ores or concentrates.

Silver ore is commonly produced as a byproduct of gold, copper, and other metals production, although it is also mined directly.

Gold production is based on the actual reported production of the element. It does not necessarily capture small-scale artisanal production nor pro-

duction that, to escape taxation, enters illegal channels.

Sulfur is produced from elemental deposits, from the production of other minerals, or as a by-product of other industrial processes. It is counted here as produced in the country of origin if production is from native sulfur, pyrites, gypsum, byproducts from the extraction of crude oil and natural gas, or tar sands. It is counted as produced in the country of recovery if it is obtained from metallurgical operations, petroleum refineries, or spent oxides.

Salt here refers to sodium chloride, or common salt, and is derived from mines, oceans, and seas through evaporation and by the extraction of brines. It is used to season and preserve foods, as an essential raw material for the chemical industry, and for several other industrial uses.

Nitrogen is measured as the amount (82.2 percent) contained in anhydrous *ammonia* produced by combining nitrogen from the air with hydrogen (derived from several potential sources) and water. Ammonia, in turn, provides the essential input to a variety of nitrogen-based fertilizers that together provide more than 50 percent of the nitrogen required for the world's food and fiber production.

Phosphorus, another of the three essential elements for plant growth, is obtained primarily from phosphate rock and is measured in terms of the quantity of phosphorus pentoxide (P_2O_5) or its equivalent.

Potassium, the final of the three elements essential for plant growth, is derived from a variety of mined and manufactured salts.

Sand and gravel for construction are basic raw materials produced everywhere for local use. Because of the local nature of these resources, data on sand and gravel should be used with caution and can significantly understate the amount actually produced in a country. These data are presented here to illustrate the relative magnitude of reported production. Sand and gravel are used in the production of concrete, asphalt paving materials, road building, fill, concrete products, and in a variety of other applications.

Hydraulic cement is a product that can set underwater and is the dominant form of cement manufactured in the world. Its use in concrete and in masonry is critical to the construction industry. Portland and masonry cements are made by burning calcareous rocks such as limestone with lesser quantities of other materials.