

Table 1 Regional groupings

Asia	
People's Republic of China	
Hong Kong	
India	
Japan	
Korea	
Chinese Taipei	
ASEAN	Brunei Darussalam
	Indonesia
	Malaysia
	Myanmar
	Philippines
	Singapore
	Thailand
	Vietnam
Others	Bangladesh, Cambodia, D. P. R. Korea, Mongolia, Nepal, Pakistan, Sri Lanka, and Other Asia in IEA statistics
North America	
The United States	
Canada	
Latin America	
Brazil	
Chile	
Mexico	
Others	Argentina, Bolivia, Colombia, Costa Rica, Cuba, Dominican Republic, Ecuador, El Salvador, Guatemala, Haiti, Honduras, Jamaica, Netherland Antilles, Nicaragua, Panama, Paraguay, Peru, Trinidad and Tobago, Uruguay, and Other Non-OECD Americas in IEA statistics
Europe	
OECD Europe	France
	Germany
	Italy
	The United Kingdom
	Others
Non-OECD Europe	Azerbaijan
	Kazakhstan
	Russian Federation

	Turkmenistan
	Uzbekistan
Other Former USSR	Armenia, Belarus, Georgia, Kyrgyzstan, Latvia, Lithuania, Moldova, Tajikistan, and Ukraine
Others	Albania, Bosnia and Herzegovina, Bulgaria, Croatia, Cyprus, Gibraltar, Kosovo, Former Yugoslav Republic of Macedonia, Malta, Montenegro, Romania, and Serbia
Africa	
South Africa	
North Africa	Algeria, Egypt, Libya, Morocco, and Tunisia
Others	Angola, Benin, Botswana, Cameroon, Democratic Republic of Congo, Congo, Côte d'Ivoire, Eritrea, Ethiopia, Gabon, Ghana, Kenya, Mozambique, Namibia, Nigeria, Senegal, Sudan, Togo, United Republic of Tanzania, Zambia, Zimbabwe, and Other Africa in IEA statistics
Middle East	
Islamic Republic of Iran	
Iraq	
Kuwait	
Oman	
Qatar	
Saudi Arabia	
United Arab Emirates	
Others	Bahrain, Israel, Jordan, Lebanon, Syrian Arab Republic, and Yemen
Oceania	
Australia	
New Zealand	
European Union	
Austria, Belgium, Bulgaria, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Poland, Portugal, Romania, the Slovak Republic, Slovenia, Spain, Sweden, and the United Kingdom	
OECD	
Australia, Austria, Belgium, Canada, Chile, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Japan, Korea, Luxembourg, Mexico, the Netherlands, New Zealand, Norway, Poland, Portugal, the Slovak Republic, Slovenia, Spain, Sweden, Switzerland, Turkey, the United Kingdom, and the United States	
International Bunkers	
World	

Table 2 Major energy and economic indicators

					World = 100			CAGR (%)	
		1990	2011	2040	1990	2011	2040	1990/2011	2011/2040
Population (Million)	<b>World</b>	<b>5,289</b>	<b>6,963</b>	<b>8,982</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>1.3</b>	<b>0.9</b>
	Asia	2,946	3,843	4,565	55.7	55.2	50.8	1.3	0.6
	P.R. China	1,135	1,344	1,410	21.5	19.3	15.7	0.8	0.2
	India	874	1,241	1,592	16.5	17.8	17.7	1.7	0.9
	Japan	124	128	115	2.3	1.8	1.3	0.2	-0.4
GDP (\$2010 billion)	<b>World</b>	<b>36,580</b>	<b>65,161</b>	<b>150,217</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>2.8</b>	<b>2.9</b>
	Asia	7,386	17,878	58,253	20.2	27.4	38.8	4.3	4.2
	P.R. China	812	6,482	27,875	2.2	9.9	18.6	10.4	5.2
	India	477	1,793	9,931	1.3	2.8	6.6	6.5	6.1
	Japan	4,557	5,450	8,055	12.5	8.4	5.4	0.9	1.4
Total primary energy consumption (Mtoe)	<b>World</b>	<b>8,782</b>	<b>13,113</b>	<b>19,642</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>1.9</b>	<b>1.4</b>
	Asia	2,120	5,058	8,931	24.1	38.6	45.5	4.2	2.0
	P.R. China	871	2,728	4,423	9.9	20.8	22.5	5.6	1.7
	India	317	749	1,896	3.6	5.7	9.7	4.2	3.3
	Japan	439	461	425	5.0	3.5	2.2	0.2	-0.3
Primary oil consumption (Mtoe)	<b>World</b>	<b>3,230</b>	<b>4,136</b>	<b>5,788</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>1.2</b>	<b>1.2</b>
	Asia	618	1,198	2,102	19.1	29.0	36.3	3.2	2.0
	P.R. China	119	442	866	3.7	10.7	15.0	6.5	2.3
	India	61	166	432	1.9	4.0	7.5	4.8	3.4
	Japan	250	206	145	7.8	5.0	2.5	-0.9	-1.2
Primary natural gas consumption (Mtoe)	<b>World</b>	<b>1,668</b>	<b>2,787</b>	<b>4,870</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>2.5</b>	<b>1.9</b>
	Asia	116	478	1,508	6.9	17.2	31.0	7.0	4.0
	P.R. China	13	108	628	0.8	3.9	12.9	10.7	6.3
	India	11	50	239	0.6	1.8	4.9	7.7	5.5
	Japan	44	100	107	2.6	3.6	2.2	4.0	0.2
Primary coal consumption (Mtoe)	<b>World</b>	<b>2,230</b>	<b>3,776</b>	<b>4,877</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>2.5</b>	<b>0.9</b>
	Asia	796	2,536	3,681	35.7	67.2	75.5	5.7	1.3
	P.R. China	528	1,859	2,251	23.7	49.2	46.1	6.2	0.7
	India	103	326	843	4.6	8.6	17.3	5.6	3.3
	Japan	77	107	92	3.4	2.8	1.9	1.6	-0.5
Electricity generation (TWh)	<b>World</b>	<b>11,818</b>	<b>22,126</b>	<b>40,671</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>3.0</b>	<b>2.1</b>
	Asia	2,212	8,517	19,612	18.7	38.5	48.2	6.6	2.9
	P.R. China	621	4,716	9,695	5.3	21.3	23.8	10.1	2.5
	India	289	1,052	4,624	2.4	4.8	11.4	6.3	5.2
	Japan	836	1,043	1,193	7.1	4.7	2.9	1.1	0.5
Energy-related CO <sub>2</sub> emissions (Mt)	<b>World</b>	<b>21,244</b>	<b>31,770</b>	<b>44,836</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>1.9</b>	<b>1.2</b>
	Asia	4,962	13,844	22,778	23.4	43.6	50.8	5.0	1.7
	P.R. China	2,338	8,558	12,187	11.0	26.9	27.2	6.4	1.2
	India	591	1,801	4,957	2.8	5.7	11.1	5.5	3.6
	Japan	1,070	1,178	955	5.0	3.7	2.1	0.5	-0.7
TPES per GDP (toe/\$2010 million)	<b>World</b>	<b>240</b>	<b>201</b>	<b>131</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>-0.8</b>	<b>-1.5</b>
	Asia	287	283	153	119.5	140.6	117.2	-0.1	-2.1
	P.R. China	1,072	421	159	446.5	209.1	121.4	-4.4	-3.3
	India	664	418	191	276.7	207.7	146.0	-2.2	-2.7
	Japan	96	85	53	40.2	42.1	40.3	-0.6	-1.6
TPES per capita (toe/person)	<b>World</b>	<b>1.66</b>	<b>1.88</b>	<b>2.19</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>0.6</b>	<b>0.5</b>
	Asia	0.72	1.32	1.96	43.3	69.9	89.4	2.9	1.4
	P.R. China	0.77	2.03	3.14	46.2	107.8	143.4	4.7	1.5
	India	0.36	0.60	1.19	21.8	32.1	54.5	2.5	2.4
	Japan	3.56	3.61	3.69	214.2	191.7	168.9	0.1	0.1

Table 3 Population

(million)

	Historical			Projection			CAGR (%)				
	1990	2000	2011	2020	2030	2040	1990/ 2011	2011/ 2020	2020/ 2030	2030/ 2040	2011/ 2040
Asia	2,946 (55.7)	3,419 (56.0)	3,843 (55.2)	4,159 (54.2)	4,414 (52.7)	4,565 (50.8)	1.3	0.9	0.6	0.3	0.6
P. R. China	1,135 (21.5)	1,263 (20.7)	1,344 (19.3)	1,407 (18.3)	1,427 (17.0)	1,410 (15.7)	0.8	0.5	0.1	-0.1	0.2
India	874 (16.5)	1,054 (17.3)	1,241 (17.8)	1,376 (17.9)	1,501 (17.9)	1,592 (17.7)	1.7	1.1	0.9	0.6	0.9
Japan	124 (2.3)	127 (2.1)	128 (1.8)	126 (1.6)	121 (1.4)	115 (1.3)	0.2	-0.2	-0.4	-0.5	-0.4
Korea	43 (0.8)	47 (0.8)	50 (0.7)	52 (0.7)	53 (0.6)	53 (0.6)	0.7	0.5	0.3	0.0	0.2
Chinese Taipei	20 (0.4)	22 (0.4)	23 (0.3)	24 (0.3)	24 (0.3)	23 (0.3)	0.6	0.3	0.0	-0.3	0.0
ASEAN	430 (8.1)	504 (8.3)	577 (8.3)	635 (8.3)	687 (8.2)	725 (8.1)	1.4	1.1	0.8	0.5	0.8
Indonesia	184 (3.5)	213 (3.5)	242 (3.5)	268 (3.5)	292 (3.5)	309 (3.4)	1.3	1.1	0.9	0.6	0.8
Malaysia	18 (0.3)	23 (0.4)	29 (0.4)	33 (0.4)	37 (0.4)	40 (0.4)	2.2	1.5	1.2	0.8	1.1
Myanmar	39 (0.7)	45 (0.7)	48 (0.7)	52 (0.7)	54 (0.6)	55 (0.6)	1.0	0.8	0.5	0.1	0.4
Philippines	62 (1.2)	77 (1.3)	95 (1.4)	110 (1.4)	128 (1.5)	143 (1.6)	2.1	1.7	1.5	1.2	1.4
Singapore	3 (0.1)	4 (0.1)	5 (0.1)	6 (0.1)	7 (0.1)	7 (0.1)	2.6	1.7	0.8	0.5	1.0
Thailand	57 (1.1)	63 (1.0)	70 (1.0)	71 (0.9)	71 (0.8)	68 (0.8)	0.9	0.2	0.0	-0.3	-0.1
Vietnam	66 (1.2)	78 (1.3)	88 (1.3)	95 (1.2)	99 (1.2)	102 (1.1)	1.4	0.9	0.5	0.2	0.5
Asia excl. Japan	2,823 (53.4)	3,292 (53.9)	3,715 (53.4)	4,034 (52.6)	4,293 (51.3)	4,451 (49.6)	1.3	0.9	0.6	0.4	0.6
North America	277 (5.2)	313 (5.1)	346 (5.0)	372 (4.8)	399 (4.8)	422 (4.7)	1.1	0.8	0.7	0.6	0.7
United States	250 (4.7)	282 (4.6)	312 (4.5)	334 (4.4)	359 (4.3)	379 (4.2)	1.1	0.8	0.7	0.6	0.7
Latin America	439 (8.3)	516 (8.5)	591 (8.5)	649 (8.5)	703 (8.4)	742 (8.3)	1.4	1.0	0.8	0.5	0.8
OECD Europe	499 (9.4)	521 (8.5)	555 (8.0)	573 (7.5)	586 (7.0)	592 (6.6)	0.5	0.4	0.2	0.1	0.2
European Union	473 (8.9)	484 (7.9)	504 (7.2)	517 (6.7)	525 (6.3)	528 (5.9)	0.3	0.3	0.2	0.1	0.2
Non-OECD Europe	344 (6.5)	341 (5.6)	340 (4.9)	340 (4.4)	334 (4.0)	325 (3.6)	-0.1	0.0	-0.2	-0.3	-0.1
Africa	633 (12.0)	809 (13.2)	1,044 (15.0)	1,296 (16.9)	1,614 (19.3)	1,973 (22.0)	2.4	2.4	2.2	2.0	2.2
Middle East	131 (2.5)	167 (2.7)	216 (3.1)	255 (3.3)	292 (3.5)	325 (3.6)	2.4	1.9	1.4	1.1	1.4
Oceania	20 (0.4)	23 (0.4)	27 (0.4)	30 (0.4)	33 (0.4)	36 (0.4)	1.3	1.2	1.0	0.9	1.0
OECD	1,061 (20.1)	1,147 (18.8)	1,237 (17.8)	1,298 (16.9)	1,351 (16.1)	1,386 (15.4)	0.7	0.5	0.4	0.3	0.4
Non-OECD	4,228 (79.9)	4,962 (81.2)	5,726 (82.2)	6,377 (83.1)	7,025 (83.9)	7,596 (84.6)	1.5	1.2	1.0	0.8	1.0
World	5,289 (100)	6,109 (100)	6,963 (100)	7,675 (100)	8,376 (100)	8,982 (100)	1.3	1.1	0.9	0.7	0.9

Source: United Nations "Population Estimates and Projections: The 2012 Revision", World Bank "World Development Indicators"

Note: Figures in parentheses are global shares (%).

Table 4 GDP

(\$2010 billion)

	Historical			Projection			CAGR (%)				
	1990	2000	2011	2020	2030	2040	1990/ 2011	2011 2020	2020/ 2030	2030/ 2040	2011/ 2040
Asia	7,386 (20.2)	10,632 (22.1)	17,878 (27.4)	28,503 (32.5)	42,484 (36.0)	58,253 (38.8)	4.3	5.3	4.1	3.2	4.2
P. R. China	812 (2.2)	2,190 (4.6)	6,482 (9.9)	12,567 (14.3)	19,986 (16.9)	27,875 (18.6)	10.4	7.6	4.7	3.4	5.2
India	477 (1.3)	819 (1.7)	1,793 (2.8)	3,294 (3.8)	6,113 (5.2)	9,931 (6.6)	6.5	7.0	6.4	5.0	6.1
Japan	4,557 (12.5)	5,097 (10.6)	5,450 (8.4)	6,345 (7.2)	7,207 (6.1)	8,055 (5.4)	0.9	1.7	1.3	1.1	1.4
Korea	374 (1.0)	675 (1.4)	1,052 (1.6)	1,451 (1.7)	1,891 (1.6)	2,271 (1.5)	5.0	3.6	2.7	1.8	2.7
Chinese Taipei	168 (0.5)	307 (0.6)	466 (0.7)	657 (0.7)	829 (0.7)	945 (0.6)	5.0	3.9	2.3	1.3	2.5
ASEAN	694 (1.9)	1,120 (2.3)	1,938 (3.0)	3,125 (3.6)	4,890 (4.1)	7,061 (4.7)	5.0	5.5	4.6	3.7	4.6
Indonesia	281 (0.8)	425 (0.9)	754 (1.2)	1,296 (1.5)	2,102 (1.8)	3,182 (2.1)	4.8	6.2	5.0	4.2	5.1
Malaysia	76 (0.2)	151 (0.3)	250 (0.4)	392 (0.4)	611 (0.5)	845 (0.6)	5.8	5.1	4.5	3.3	4.3
Myanmar	7 (0.0)	14 (0.0)	45 (0.1)	78 (0.1)	135 (0.1)	207 (0.1)	9.4	6.4	5.7	4.3	5.4
Philippines	95 (0.3)	125 (0.3)	207 (0.3)	332 (0.4)	526 (0.5)	787 (0.5)	3.8	5.4	4.7	4.1	4.7
Singapore	66 (0.2)	132 (0.3)	238 (0.4)	339 (0.4)	455 (0.4)	528 (0.4)	6.3	4.0	3.0	1.5	2.8
Thailand	135 (0.4)	209 (0.4)	319 (0.5)	485 (0.6)	697 (0.6)	937 (0.6)	4.2	4.8	3.7	3.0	3.8
Vietnam	25 (0.1)	53 (0.1)	113 (0.2)	185 (0.2)	344 (0.3)	549 (0.4)	7.3	5.7	6.4	4.8	5.6
Asia excl. Japan	2,829 (7.7)	5,535 (11.5)	12,428 (19.1)	22,158 (25.3)	35,277 (29.9)	50,198 (33.4)	7.3	6.6	4.8	3.6	4.9
North America	9,820 (26.8)	13,694 (28.5)	16,309 (25.0)	20,695 (23.6)	26,310 (22.3)	31,675 (21.1)	2.4	2.7	2.4	1.9	2.3
United States	8,837 (24.2)	12,384 (25.8)	14,693 (22.5)	18,739 (21.4)	23,903 (20.2)	28,790 (19.2)	2.5	2.7	2.5	1.9	2.3
Latin America	2,704 (7.4)	3,642 (7.6)	5,264 (8.1)	7,291 (8.3)	10,104 (8.6)	12,978 (8.6)	3.2	3.7	3.3	2.5	3.2
OECD Europe	12,147 (33.2)	15,255 (31.7)	17,943 (27.5)	20,335 (23.2)	23,998 (20.3)	27,309 (18.2)	1.9	1.4	1.7	1.3	1.5
European Union	11,369 (31.1)	14,141 (29.4)	16,479 (25.3)	20,371 (23.2)	24,101 (20.4)	27,483 (18.3)	1.8	2.4	1.7	1.3	1.8
Non-OECD Europe	2,128 (5.8)	1,481 (3.1)	2,524 (3.9)	3,456 (3.9)	4,703 (4.0)	5,879 (3.9)	0.8	3.6	3.1	2.3	3.0
Africa	807 (2.2)	1,063 (2.2)	1,709 (2.6)	2,644 (3.0)	4,067 (3.4)	6,059 (4.0)	3.6	5.0	4.4	4.1	4.5
Middle East	878 (2.4)	1,332 (2.8)	2,190 (3.4)	3,023 (3.4)	4,145 (3.5)	5,307 (3.5)	4.4	3.6	3.2	2.5	3.1
Oceania	710 (1.9)	986 (2.1)	1,345 (2.1)	1,799 (2.0)	2,287 (1.9)	2,757 (1.8)	3.1	3.3	2.4	1.9	2.5
OECD	28,305 (77.4)	36,725 (76.4)	43,404 (66.6)	52,419 (59.7)	64,203 (54.4)	75,414 (50.2)	2.1	2.1	2.0	1.6	1.9
Non-OECD	8,274 (22.6)	11,360 (23.6)	21,757 (33.4)	35,327 (40.3)	53,894 (45.6)	74,803 (49.8)	4.7	5.5	4.3	3.3	4.4
World	36,580 (100)	48,085 (100)	65,161 (100)	87,745 (100)	118,098 (100)	150,217 (100)	2.8	3.4	3.0	2.4	2.9

Source: World Bank "World Development Indicators", etc.

Projection by IEEJ

Note: Figures in parentheses are global shares (%).

Table 5 International energy prices (Reference and Advanced Technology Scenarios)

Real prices			2012	2020	2030	2040
Crude oil		\$2012/bbl	115	117	122	127
Natural gas	Japan	\$2012/MBtu	16.7	13.9	14.0	14.4
	United States	\$2012/MBtu	2.8	4.3	5.6	8.0
	Europe	\$2012/MBtu	10.5	11.1	12.0	12.8
Steam coal		\$2012/t	134	139	139	145
Nominal prices			2012	2020	2030	2040
Crude oil		\$/bbl	115	137	174	221
Natural gas	Japan	\$/MBtu	16.7	16.3	20.0	25.1
	United States	\$/MBtu	2.8	5.1	8.0	14.0
	Europe	\$/MBtu	10.5	13.0	17.1	22.3
Steam coal		\$/t	134	163	199	252

Note: 2% per annum of inflation rates are assumed.

Table 6 International energy prices (Enhanced Development Scenario)

Real prices			2012	2020	2030	2040
Crude oil		\$2012/bbl	115	110	105	100
Natural gas	Japan	\$2012/MBtu	16.7	12.5	11.5	10.9
	United States	\$2012/MBtu	2.8	2.9	3.5	4.5
	Europe	\$2012/MBtu	10.5	10.0	9.4	9.0
Steam coal		\$2012/t	134	133	134	135
Nominal prices			2012	2020	2030	2040
Crude oil		\$/bbl	115	129	150	174
Natural gas	Japan	\$/MBtu	16.7	14.6	16.5	18.9
	United States	\$/MBtu	2.8	3.4	4.9	7.9
	Europe	\$/MBtu	10.5	11.8	13.4	15.7
Steam coal		\$/t	134	156	192	235

Note: 2% per annum of inflation rates are assumed.

Table 7 Primary energy consumption

(Mtoe)

	Historical			Projection			CAGR (%)				
	1990	2000	2011	2020	2030	2040	1990/ 2011	2011 2020	2020/ 2030	2030/ 2040	2011/ 2040
Asia	2,120 (24.1)	2,934 (29.1)	5,058 (38.6)	6,339 (41.7)	7,663 (43.7)	8,931 (45.5)	4.2	2.5	1.9	1.5	2.0
P. R. China	871 (9.9)	1,161 (11.5)	2,728 (20.8)	3,433 (22.6)	4,009 (22.9)	4,423 (22.5)	5.6	2.6	1.6	1.0	1.7
India	317 (3.6)	457 (4.5)	749 (5.7)	1,011 (6.6)	1,403 (8.0)	1,896 (9.7)	4.2	3.4	3.3	3.1	3.3
Japan	439 (5.0)	519 (5.1)	461 (3.5)	466 (3.1)	449 (2.6)	425 (2.2)	0.2	0.1	-0.4	-0.6	-0.3
Korea	93 (1.1)	188 (1.9)	260 (2.0)	290 (1.9)	309 (1.8)	310 (1.6)	5.0	1.2	0.6	0.0	0.6
Chinese Taipei	48 (0.5)	85 (0.8)	109 (0.8)	121 (0.8)	128 (0.7)	130 (0.7)	3.9	1.2	0.6	0.1	0.6
ASEAN	233 (2.6)	377 (3.7)	557 (4.2)	767 (5.0)	1,038 (5.9)	1,349 (6.9)	4.2	3.6	3.1	2.7	3.1
Indonesia	99 (1.1)	155 (1.5)	209 (1.6)	301 (2.0)	413 (2.4)	547 (2.8)	3.6	4.1	3.2	2.8	3.4
Malaysia	22 (0.2)	47 (0.5)	76 (0.6)	102 (0.7)	129 (0.7)	152 (0.8)	6.2	3.3	2.4	1.6	2.4
Myanmar	11 (0.1)	13 (0.1)	14 (0.1)	20 (0.1)	27 (0.2)	33 (0.2)	1.3	3.9	3.0	2.2	3.0
Philippines	29 (0.3)	40 (0.4)	40 (0.3)	49 (0.3)	66 (0.4)	87 (0.4)	1.7	2.3	2.9	2.8	2.7
Singapore	12 (0.1)	19 (0.2)	33 (0.3)	42 (0.3)	50 (0.3)	56 (0.3)	5.2	2.5	1.8	1.1	1.8
Thailand	42 (0.5)	72 (0.7)	119 (0.9)	158 (1.0)	205 (1.2)	263 (1.3)	5.1	3.2	2.6	2.5	2.8
Vietnam	18 (0.2)	29 (0.3)	61 (0.5)	91 (0.6)	144 (0.8)	207 (1.1)	6.0	4.5	4.7	3.7	4.3
Asia excl. Japan	1,680 (19.1)	2,415 (24.0)	4,596 (35.0)	5,873 (38.6)	7,214 (41.2)	8,506 (43.3)	4.9	2.8	2.1	1.7	2.1
North America	2,124 (24.2)	2,525 (25.0)	2,443 (18.6)	2,494 (16.4)	2,580 (14.7)	2,625 (13.4)	0.7	0.2	0.3	0.2	0.2
United States	1,915 (21.8)	2,273 (22.5)	2,191 (16.7)	2,234 (14.7)	2,299 (13.1)	2,327 (11.8)	0.6	0.2	0.3	0.1	0.2
Latin America	467 (5.3)	599 (5.9)	809 (6.2)	1,024 (6.7)	1,284 (7.3)	1,508 (7.7)	2.7	2.7	2.3	1.6	2.2
OECD Europe	1,619 (18.4)	1,747 (17.3)	1,756 (13.4)	1,806 (11.9)	1,847 (10.5)	1,860 (9.5)	0.4	0.3	0.2	0.1	0.2
European Union	1,636 (18.6)	1,685 (16.7)	1,654 (12.6)	1,699 (11.2)	1,737 (9.9)	1,753 (8.9)	0.1	0.3	0.2	0.1	0.2
Non-OECD Europe	1,537 (17.5)	1,003 (10.0)	1,176 (9.0)	1,273 (8.4)	1,380 (7.9)	1,464 (7.5)	-1.3	0.9	0.8	0.6	0.8
Africa	392 (4.5)	502 (5.0)	700 (5.3)	850 (5.6)	1,037 (5.9)	1,252 (6.4)	2.8	2.2	2.0	1.9	2.0
Middle East	223 (2.5)	376 (3.7)	670 (5.1)	828 (5.4)	1,027 (5.9)	1,223 (6.2)	5.4	2.4	2.2	1.8	2.1
Oceania	99 (1.1)	125 (1.2)	141 (1.1)	152 (1.0)	160 (0.9)	165 (0.8)	1.7	0.9	0.5	0.3	0.5
OECD	4,511 (51.4)	5,274 (52.3)	5,282 (40.3)	5,484 (36.0)	5,685 (32.5)	5,795 (29.5)	0.8	0.4	0.4	0.2	0.3
Non-OECD	4,070 (46.3)	4,537 (45.0)	7,471 (57.0)	9,283 (61.0)	11,294 (64.5)	13,234 (67.4)	2.9	2.4	2.0	1.6	2.0
World	8,782 (100)	10,082 (100)	13,113 (100)	15,216 (100)	17,517 (100)	19,642 (100)	1.9	1.7	1.4	1.2	1.4

Source: IEA "World Energy Balances"

Projection by IEEJ

Note: Figures in parentheses are global shares (%). World includes international bunkers.

Table 8 Primary energy consumption, coal

(Mtoe)

	Historical			Projection			CAGR (%)				
	1990	2000	2011	2020	2030	2040	1990/ 2011	2011 2020	2020/ 2030	2030/ 2040	2011/ 2040
Asia	796 (35.7)	1,078 (45.7)	2,536 (67.2)	2,879 (70.7)	3,285 (73.3)	3,681 (75.5)	5.7	1.4	1.3	1.1	1.3
P. R. China	528 (23.7)	691 (29.3)	1,859 (49.2)	2,061 (50.6)	2,189 (48.9)	2,251 (46.1)	6.2	1.2	0.6	0.3	0.7
India	103 (4.6)	161 (6.8)	326 (8.6)	421 (10.3)	609 (13.6)	843 (17.3)	5.6	2.9	3.8	3.3	3.3
Japan	77 (3.4)	97 (4.1)	107 (2.8)	97 (2.4)	99 (2.2)	92 (1.9)	1.6	-1.1	0.1	-0.7	-0.5
Korea	26 (1.1)	42 (1.8)	80 (2.1)	76 (1.9)	77 (1.7)	76 (1.5)	5.6	-0.6	0.0	-0.1	-0.2
Chinese Taipei	11 (0.5)	30 (1.3)	41 (1.1)	34 (0.8)	33 (0.7)	27 (0.6)	6.3	-2.0	-0.4	-1.8	-1.4
ASEAN	12 (0.6)	32 (1.3)	90 (2.4)	146 (3.6)	221 (4.9)	321 (6.6)	9.9	5.5	4.3	3.8	4.5
Indonesia	4 (0.2)	12 (0.5)	31 (0.8)	65 (1.6)	101 (2.3)	149 (3.1)	11.0	8.4	4.5	4.0	5.5
Malaysia	1 (0.1)	2 (0.1)	16 (0.4)	19 (0.5)	29 (0.6)	36 (0.7)	12.3	2.4	4.0	2.5	3.0
Myanmar	0 (0.0)	0 (0.0)	0 (0.0)	1 (0.0)	1 (0.0)	2 (0.0)	9.0	5.8	6.4	3.7	5.2
Philippines	1 (0.1)	5 (0.2)	8 (0.2)	11 (0.3)	17 (0.4)	24 (0.5)	8.8	3.4	3.9	3.5	3.6
Singapore	0 (0.0)	- (-)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	-5.0	3.2	1.9	0.8	1.9
Thailand	4 (0.2)	8 (0.3)	18 (0.5)	24 (0.6)	32 (0.7)	42 (0.9)	7.7	3.0	2.9	2.9	2.9
Vietnam	2 (0.1)	4 (0.2)	16 (0.4)	26 (0.6)	42 (0.9)	67 (1.4)	9.7	5.7	5.1	4.8	5.2
Asia excl. Japan	719 (32.2)	981 (41.6)	2,428 (64.3)	2,781 (68.3)	3,187 (71.1)	3,588 (73.6)	6.0	1.5	1.4	1.2	1.4
North America	484 (21.7)	565 (24.0)	499 (13.2)	444 (10.9)	410 (9.2)	378 (7.8)	0.1	-1.3	-0.8	-0.8	-0.9
United States	460 (20.6)	534 (22.6)	479 (12.7)	429 (10.5)	401 (8.9)	369 (7.6)	0.2	-1.2	-0.7	-0.8	-0.9
Latin America	20 (0.9)	27 (1.2)	38 (1.0)	53 (1.3)	71 (1.6)	91 (1.9)	3.0	3.9	3.0	2.5	3.1
OECD Europe	449 (20.1)	331 (14.0)	304 (8.1)	277 (6.8)	262 (5.8)	245 (5.0)	-1.8	-1.0	-0.6	-0.6	-0.7
European Union	455 (20.4)	321 (13.6)	286 (7.6)	261 (6.4)	250 (5.6)	236 (4.8)	-2.2	-1.0	-0.5	-0.6	-0.7
Non-OECD Europe	367 (16.5)	209 (8.9)	233 (6.2)	235 (5.8)	244 (5.4)	250 (5.1)	-2.2	0.1	0.4	0.3	0.2
Africa	74 (3.3)	90 (3.8)	107 (2.8)	121 (3.0)	140 (3.1)	162 (3.3)	1.8	1.4	1.4	1.4	1.4
Middle East	3 (0.1)	8 (0.3)	11 (0.3)	14 (0.3)	21 (0.5)	31 (0.6)	6.2	3.3	3.9	4.0	3.7
Oceania	36 (1.6)	49 (2.1)	50 (1.3)	52 (1.3)	47 (1.1)	41 (0.8)	1.5	0.4	-0.9	-1.5	-0.7
OECD	1,078 (48.3)	1,094 (46.4)	1,055 (27.9)	971 (23.8)	934 (20.8)	889 (18.2)	-0.1	-0.9	-0.4	-0.5	-0.6
Non-OECD	1,152 (51.7)	1,264 (53.6)	2,721 (72.1)	3,102 (76.2)	3,546 (79.2)	3,988 (81.8)	4.2	1.5	1.3	1.2	1.3
World	2,230 (100)	2,358 (100)	3,776 (100)	4,074 (100)	4,480 (100)	4,877 (100)	2.5	0.8	1.0	0.9	0.9

Source: IEA "World Energy Balances"

Projection by IEEJ

Note: Figures in parentheses are global shares (%). World includes international bunkers.



Table 9 Primary energy consumption, oil

	Historical			Projection			CAGR (%)				
	1990	2000	2011	2020	2030	2040	1990/ 2011	2011 2020	2020/ 2030	2030/ 2040	2011/ 2040
Asia	618 (19.1)	918 (25.1)	1,198 (29.0)	1,542 (32.8)	1,842 (34.8)	2,102 (36.3)	3.2	2.8	1.8	1.3	2.0
P. R. China	119 (3.7)	221 (6.0)	442 (10.7)	645 (13.7)	783 (14.8)	866 (15.0)	6.5	4.3	2.0	1.0	2.3
India	61 (1.9)	113 (3.1)	166 (4.0)	239 (5.1)	331 (6.3)	432 (7.5)	4.8	4.2	3.3	2.7	3.4
Japan	250 (7.8)	255 (7.0)	206 (5.0)	180 (3.8)	162 (3.1)	145 (2.5)	-0.9	-1.5	-1.1	-1.1	-1.2
Korea	50 (1.5)	99 (2.7)	94 (2.3)	95 (2.0)	94 (1.8)	92 (1.6)	3.1	0.2	-0.2	-0.2	-0.1
Chinese Taipei	26 (0.8)	38 (1.0)	39 (1.0)	45 (1.0)	48 (0.9)	49 (0.8)	2.0	1.5	0.6	0.1	0.7
ASEAN	88 (2.7)	153 (4.2)	206 (5.0)	283 (6.0)	355 (6.7)	436 (7.5)	4.1	3.6	2.3	2.1	2.6
Indonesia	33 (1.0)	58 (1.6)	73 (1.8)	100 (2.1)	131 (2.5)	168 (2.9)	3.8	3.6	2.7	2.5	2.9
Malaysia	11 (0.4)	19 (0.5)	28 (0.7)	34 (0.7)	37 (0.7)	40 (0.7)	4.3	2.3	1.0	0.6	1.3
Myanmar	1 (0.0)	2 (0.1)	1 (0.0)	2 (0.0)	3 (0.1)	5 (0.1)	2.3	7.4	4.3	4.7	5.4
Philippines	11 (0.3)	16 (0.4)	12 (0.3)	17 (0.4)	23 (0.4)	32 (0.6)	0.6	3.5	3.3	3.3	3.4
Singapore	11 (0.4)	17 (0.5)	24 (0.6)	30 (0.6)	35 (0.7)	38 (0.7)	3.7	2.2	1.6	0.9	1.5
Thailand	18 (0.6)	32 (0.9)	47 (1.1)	68 (1.4)	78 (1.5)	88 (1.5)	4.7	4.2	1.3	1.2	2.2
Vietnam	3 (0.1)	8 (0.2)	21 (0.5)	31 (0.7)	47 (0.9)	64 (1.1)	10.1	4.7	4.2	3.2	4.0
Asia excl. Japan	368 (11.4)	662 (18.1)	991 (24.0)	1,361 (29.0)	1,680 (31.8)	1,958 (33.8)	4.8	3.6	2.1	1.5	2.4
North America	833 (25.8)	958 (26.2)	868 (21.0)	827 (17.6)	818 (15.5)	801 (13.8)	0.2	-0.5	-0.1	-0.2	-0.3
United States	757 (23.4)	871 (23.8)	786 (19.0)	744 (15.8)	730 (13.8)	707 (12.2)	0.2	-0.6	-0.2	-0.3	-0.4
Latin America	237 (7.3)	303 (8.3)	372 (9.0)	443 (9.4)	517 (9.8)	567 (9.8)	2.2	2.0	1.6	0.9	1.5
OECD Europe	606 (18.8)	650 (17.8)	579 (14.0)	540 (11.5)	521 (9.8)	497 (8.6)	-0.2	-0.8	-0.4	-0.5	-0.5
European Union	601 (18.6)	619 (16.9)	547 (13.2)	515 (11.0)	498 (9.4)	478 (8.3)	-0.4	-0.7	-0.3	-0.4	-0.5
Non-OECD Europe	468 (14.5)	203 (5.5)	244 (5.9)	269 (5.7)	291 (5.5)	304 (5.3)	-3.0	1.1	0.8	0.5	0.8
Africa	87 (2.7)	98 (2.7)	148 (3.6)	187 (4.0)	235 (4.4)	295 (5.1)	2.6	2.7	2.3	2.3	2.4
Middle East	146 (4.5)	216 (5.9)	319 (7.7)	389 (8.3)	475 (9.0)	556 (9.6)	3.8	2.3	2.0	1.6	1.9
Oceania	35 (1.1)	40 (1.1)	47 (1.1)	48 (1.0)	51 (1.0)	53 (0.9)	1.5	0.2	0.6	0.4	0.4
OECD	1,861 (57.6)	2,103 (57.5)	1,911 (46.2)	1,819 (38.8)	1,787 (33.8)	1,739 (30.1)	0.1	-0.5	-0.2	-0.3	-0.3
Non-OECD	1,169 (36.2)	1,282 (35.1)	1,865 (45.1)	2,426 (51.7)	2,962 (56.0)	3,436 (59.4)	2.2	3.0	2.0	1.5	2.1
World	3,230 (100)	3,657 (100)	4,136 (100)	4,694 (100)	5,288 (100)	5,788 (100)	1.2	1.4	1.2	0.9	1.2

Source: IEA "World Energy Balances"

Projection by IEEJ

Note: Figures in parentheses are global shares (%). World includes international bunkers.

Table 10 Primary energy consumption, natural gas

(Mtoe)

	Historical			Projection			CAGR (%)				
	1990	2000	2011	2020	2030	2040	1990/ 2011	2011 2020	2020/ 2030	2030/ 2040	2011/ 2040
Asia	116 (6.9)	231 (11.1)	478 (17.2)	764 (22.3)	1,142 (27.4)	1,508 (31.0)	7.0	5.3	4.1	2.8	4.0
P. R. China	13 (0.8)	21 (1.0)	108 (3.9)	272 (7.9)	471 (11.3)	628 (12.9)	10.7	10.8	5.6	2.9	6.3
India	11 (0.6)	23 (1.1)	50 (1.8)	88 (2.6)	146 (3.5)	239 (4.9)	7.7	6.4	5.3	5.0	5.5
Japan	44 (2.6)	66 (3.2)	100 (3.6)	97 (2.8)	108 (2.6)	107 (2.2)	4.0	-0.3	1.1	0.0	0.2
Korea	3 (0.2)	17 (0.8)	42 (1.5)	47 (1.4)	52 (1.2)	52 (1.1)	13.9	1.3	1.0	0.1	0.8
Chinese Taipei	2 (0.1)	6 (0.3)	15 (0.5)	21 (0.6)	28 (0.7)	32 (0.7)	10.4	4.0	2.7	1.4	2.7
ASEAN	29 (1.8)	71 (3.4)	117 (4.2)	176 (5.1)	246 (5.9)	329 (6.8)	6.8	4.6	3.4	2.9	3.6
Indonesia	16 (0.9)	27 (1.3)	35 (1.2)	50 (1.5)	67 (1.6)	91 (1.9)	3.8	4.2	3.0	3.0	3.4
Malaysia	6 (0.4)	22 (1.1)	28 (1.0)	45 (1.3)	55 (1.3)	61 (1.3)	7.6	5.2	2.1	1.0	2.7
Myanmar	1 (0.0)	1 (0.1)	1 (0.1)	5 (0.2)	10 (0.2)	14 (0.3)	3.0	16.1	6.6	3.2	8.3
Philippines	- (-)	0 (0.0)	3 (0.1)	5 (0.2)	8 (0.2)	12 (0.3)	-	5.6	4.6	3.8	4.6
Singapore	- (-)	1 (0.1)	8 (0.3)	10 (0.3)	12 (0.3)	13 (0.3)	-	2.5	1.8	0.8	1.7
Thailand	5 (0.3)	17 (0.8)	31 (1.1)	43 (1.3)	67 (1.6)	100 (2.0)	9.0	3.8	4.5	4.1	4.1
Vietnam	0 (0.0)	1 (0.1)	7 (0.3)	13 (0.4)	23 (0.5)	35 (0.7)	45.8	6.5	5.6	4.4	5.4
Asia excl. Japan	71 (4.3)	165 (8.0)	378 (13.6)	667 (19.5)	1,034 (24.8)	1,401 (28.8)	8.3	6.5	4.5	3.1	4.6
North America	493 (29.6)	622 (30.0)	652 (23.4)	728 (21.2)	791 (19.0)	835 (17.2)	1.3	1.2	0.8	0.5	0.9
United States	438 (26.3)	548 (26.4)	569 (20.4)	631 (18.4)	687 (16.5)	723 (14.8)	1.2	1.2	0.8	0.5	0.8
Latin America	76 (4.6)	116 (5.6)	189 (6.8)	254 (7.4)	347 (8.3)	436 (9.0)	4.4	3.4	3.2	2.3	2.9
OECD Europe	260 (15.6)	393 (19.0)	428 (15.4)	480 (14.0)	512 (12.3)	525 (10.8)	2.4	1.3	0.6	0.2	0.7
European Union	295 (17.7)	394 (19.0)	401 (14.4)	448 (13.1)	480 (11.5)	496 (10.2)	1.5	1.2	0.7	0.3	0.7
Non-OECD Europe	602 (36.1)	488 (23.6)	577 (20.7)	628 (18.3)	661 (15.8)	683 (14.0)	-0.2	0.9	0.5	0.3	0.6
Africa	30 (1.8)	47 (2.3)	94 (3.4)	125 (3.7)	173 (4.1)	237 (4.9)	5.7	3.3	3.3	3.2	3.3
Middle East	72 (4.3)	150 (7.3)	338 (12.1)	411 (12.0)	505 (12.1)	599 (12.3)	7.6	2.2	2.1	1.7	2.0
Oceania	19 (1.1)	24 (1.2)	30 (1.1)	36 (1.1)	42 (1.0)	47 (1.0)	2.4	2.0	1.3	1.1	1.5
OECD	843 (50.5)	1,156 (55.8)	1,313 (47.1)	1,464 (42.7)	1,603 (38.4)	1,695 (34.8)	2.1	1.2	0.9	0.6	0.9
Non-OECD	825 (49.5)	916 (44.2)	1,474 (52.9)	1,963 (57.3)	2,570 (61.6)	3,174 (65.2)	2.8	3.2	2.7	2.1	2.7
World	1,668 (100)	2,072 (100)	2,787 (100)	3,428 (100)	4,173 (100)	4,870 (100)	2.5	2.3	2.0	1.6	1.9

Source: IEA "World Energy Balances"

Projection by IEEJ

Note: Figures in parentheses are global shares (%).

Table 11 Final energy consumption

	Historical			Projection			CAGR (%)				
	1990	2000	2011	2020	2030	2040	1990/ 2011	2011 2020	2020/ 2030	2030/ 2040	2011/ 2040
Asia	1,582 (25.1)	2,044 (28.8)	3,232 (36.2)	4,030 (38.9)	4,843 (40.6)	5,620 (42.1)	3.5	2.5	1.9	1.5	1.9
P. R. China	664 (10.6)	816 (11.5)	1,635 (18.3)	2,058 (19.8)	2,412 (20.2)	2,668 (20.0)	4.4	2.6	1.6	1.0	1.7
India	252 (4.0)	319 (4.5)	493 (5.5)	653 (6.3)	862 (7.2)	1,123 (8.4)	3.2	3.2	2.8	2.7	2.9
Japan	299 (4.8)	343 (4.8)	314 (3.5)	304 (2.9)	293 (2.5)	279 (2.1)	0.2	-0.4	-0.4	-0.5	-0.4
Korea	65 (1.0)	127 (1.8)	161 (1.8)	178 (1.7)	187 (1.6)	188 (1.4)	4.4	1.1	0.5	0.0	0.5
Chinese Taipei	29 (0.5)	49 (0.7)	65 (0.7)	74 (0.7)	79 (0.7)	81 (0.6)	3.9	1.4	0.7	0.2	0.7
ASEAN	173 (2.8)	271 (3.8)	406 (4.6)	558 (5.4)	743 (6.2)	953 (7.1)	4.1	3.6	2.9	2.5	3.0
Indonesia	80 (1.3)	120 (1.7)	158 (1.8)	222 (2.1)	298 (2.5)	388 (2.9)	3.3	3.8	3.0	2.7	3.1
Malaysia	14 (0.2)	30 (0.4)	45 (0.5)	65 (0.6)	81 (0.7)	95 (0.7)	5.7	4.1	2.2	1.6	2.6
Myanmar	9 (0.1)	11 (0.2)	13 (0.1)	17 (0.2)	21 (0.2)	27 (0.2)	1.6	2.7	2.4	2.3	2.5
Philippines	20 (0.3)	24 (0.3)	24 (0.3)	31 (0.3)	42 (0.3)	56 (0.4)	0.9	2.9	3.1	3.0	3.0
Singapore	5 (0.1)	9 (0.1)	24 (0.3)	31 (0.3)	37 (0.3)	41 (0.3)	7.8	2.6	1.9	1.0	1.8
Thailand	29 (0.5)	51 (0.7)	88 (1.0)	116 (1.1)	147 (1.2)	184 (1.4)	5.5	3.1	2.4	2.3	2.6
Vietnam	16 (0.3)	25 (0.4)	51 (0.6)	75 (0.7)	115 (1.0)	160 (1.2)	5.7	4.4	4.3	3.4	4.0
Asia excl. Japan	1,283 (20.4)	1,701 (24.0)	2,917 (32.7)	3,726 (35.9)	4,550 (38.2)	5,340 (40.0)	4.0	2.8	2.0	1.6	2.1
North America	1,452 (23.1)	1,736 (24.5)	1,708 (19.1)	1,761 (17.0)	1,829 (15.3)	1,871 (14.0)	0.8	0.3	0.4	0.2	0.3
United States	1,294 (20.6)	1,546 (21.8)	1,504 (16.9)	1,549 (14.9)	1,602 (13.4)	1,630 (12.2)	0.7	0.3	0.3	0.2	0.3
Latin America	346 (5.5)	453 (6.4)	592 (6.6)	749 (7.2)	924 (7.8)	1,065 (8.0)	2.6	2.6	2.1	1.4	2.0
OECD Europe	1,123 (17.9)	1,226 (17.3)	1,222 (13.7)	1,272 (12.3)	1,304 (10.9)	1,315 (9.9)	0.4	0.4	0.2	0.1	0.3
European Union	1,124 (17.9)	1,169 (16.5)	1,144 (12.8)	1,194 (11.5)	1,227 (10.3)	1,241 (9.3)	0.1	0.5	0.3	0.1	0.3
Non-OECD Europe	1,073 (17.1)	654 (9.2)	742 (8.3)	825 (8.0)	914 (7.7)	981 (7.4)	-1.7	1.2	1.0	0.7	1.0
Africa	294 (4.7)	380 (5.4)	525 (5.9)	633 (6.1)	767 (6.4)	919 (6.9)	2.8	2.1	1.9	1.8	1.9
Middle East	155 (2.5)	247 (3.5)	446 (5.0)	553 (5.3)	693 (5.8)	836 (6.3)	5.2	2.4	2.3	1.9	2.2
Oceania	66 (1.1)	83 (1.2)	91 (1.0)	101 (1.0)	110 (0.9)	118 (0.9)	1.5	1.2	0.9	0.7	0.9
OECD	3,102 (49.3)	3,633 (51.2)	3,637 (40.8)	3,784 (36.5)	3,919 (32.9)	3,990 (29.9)	0.8	0.4	0.3	0.2	0.3
Non-OECD	2,990 (47.5)	3,189 (45.0)	4,919 (55.2)	6,139 (59.2)	7,467 (62.6)	8,734 (65.5)	2.4	2.5	2.0	1.6	2.0
World	6,293 (100)	7,094 (100)	8,918 (100)	10,372 (100)	11,924 (100)	13,337 (100)	1.7	1.7	1.4	1.1	1.4

Source: IEA "World Energy Balances"

Projection by IEEJ

Note: Figures in parentheses are global shares (%). World includes international bunkers.

Table 12 Final energy consumption, industry

(Mtoe)

	Historical			Projection			CAGR (%)				
	1990	2000	2011	2020	2030	2040	1990/ 2011	2011 2020	2020/ 2030	2030/ 2040	2011/ 2040
Asia	523 (28.8)	678 (35.6)	1,267 (49.6)	1,498 (51.0)	1,725 (51.4)	1,938 (51.6)	4.3	1.9	1.4	1.2	1.5
P. R. China	244 (13.4)	329 (17.2)	783 (30.6)	870 (29.6)	912 (27.2)	922 (24.5)	5.7	1.2	0.5	0.1	0.6
India	70 (3.9)	87 (4.6)	168 (6.6)	231 (7.9)	314 (9.4)	416 (11.1)	4.2	3.6	3.1	2.8	3.2
Japan	102 (5.6)	98 (5.1)	85 (3.3)	84 (2.9)	83 (2.5)	80 (2.1)	-0.9	0.0	-0.2	-0.3	-0.2
Korea	19 (1.1)	38 (2.0)	47 (1.8)	54 (1.8)	59 (1.8)	60 (1.6)	4.4	1.5	1.0	0.2	0.9
Chinese Taipei	12 (0.7)	19 (1.0)	23 (0.9)	25 (0.8)	26 (0.8)	26 (0.7)	3.0	0.9	0.5	0.1	0.5
ASEAN	43 (2.3)	77 (4.0)	119 (4.6)	177 (6.0)	254 (7.6)	339 (9.0)	5.0	4.6	3.7	2.9	3.7
Indonesia	18 (1.0)	31 (1.6)	45 (1.8)	73 (2.5)	102 (3.0)	135 (3.6)	4.4	5.6	3.4	2.8	3.9
Malaysia	6 (0.3)	12 (0.6)	12 (0.5)	20 (0.7)	27 (0.8)	34 (0.9)	3.6	6.0	3.3	2.1	3.7
Myanmar	0 (0.0)	1 (0.1)	1 (0.1)	2 (0.1)	4 (0.1)	6 (0.2)	5.9	6.9	5.6	3.4	5.2
Philippines	5 (0.3)	5 (0.3)	6 (0.3)	8 (0.3)	11 (0.3)	15 (0.4)	1.6	2.8	3.1	2.8	2.9
Singapore	1 (0.0)	3 (0.2)	8 (0.3)	10 (0.4)	13 (0.4)	14 (0.4)	13.2	2.9	1.9	0.9	1.8
Thailand	9 (0.5)	17 (0.9)	27 (1.1)	35 (1.2)	51 (1.5)	72 (1.9)	5.6	2.8	4.0	3.5	3.4
Vietnam	5 (0.3)	8 (0.4)	18 (0.7)	28 (0.9)	44 (1.3)	63 (1.7)	6.8	4.8	4.9	3.5	4.4
Asia excl. Japan	421 (23.2)	581 (30.5)	1,182 (46.2)	1,414 (48.1)	1,642 (48.9)	1,858 (49.5)	5.0	2.0	1.5	1.2	1.6
North America	331 (18.2)	387 (20.3)	343 (13.4)	338 (11.5)	339 (10.1)	332 (8.9)	0.2	-0.2	0.0	-0.2	-0.1
United States	284 (15.6)	332 (17.4)	287 (11.2)	281 (9.6)	278 (8.3)	267 (7.1)	0.1	-0.2	-0.1	-0.4	-0.2
Latin America	115 (6.3)	150 (7.9)	197 (7.7)	255 (8.7)	330 (9.8)	401 (10.7)	2.6	2.9	2.6	2.0	2.5
OECD Europe	322 (17.8)	324 (17.0)	294 (11.5)	303 (10.3)	311 (9.3)	317 (8.4)	-0.4	0.4	0.3	0.2	0.3
European Union	341 (18.8)	307 (16.1)	269 (10.5)	279 (9.5)	287 (8.6)	294 (7.8)	-1.1	0.4	0.3	0.2	0.3
Non-OECD Europe	396 (21.8)	206 (10.8)	214 (8.4)	249 (8.5)	284 (8.4)	310 (8.3)	-2.9	1.7	1.3	0.9	1.3
Africa	61 (3.3)	66 (3.5)	92 (3.6)	113 (3.8)	141 (4.2)	177 (4.7)	2.0	2.3	2.3	2.3	2.3
Middle East	43 (2.4)	65 (3.4)	123 (4.8)	151 (5.1)	197 (5.9)	246 (6.6)	5.1	2.3	2.7	2.2	2.4
Oceania	23 (1.3)	28 (1.5)	27 (1.1)	30 (1.0)	32 (1.0)	34 (0.9)	0.8	1.2	0.7	0.5	0.8
OECD	827 (45.6)	911 (47.8)	835 (32.7)	860 (29.3)	885 (26.3)	895 (23.8)	0.0	0.3	0.3	0.1	0.2
Non-OECD	987 (54.4)	995 (52.2)	1,722 (67.3)	2,078 (70.7)	2,475 (73.7)	2,861 (76.2)	2.7	2.1	1.8	1.5	1.8
World	1,814 (100)	1,905 (100)	2,557 (100)	2,938 (100)	3,359 (100)	3,756 (100)	1.6	1.6	1.3	1.1	1.3

Source: IEA "World Energy Balances"

Projection by IEEJ

Note: Figures in parentheses are global shares (%).

Table 13 Final energy consumption, transport

(Mtoe)

	Historical			Projection			CAGR (%)				
	1990	2000	2011	2020	2030	2040	1990/ 2011	2011/ 2020	2020/ 2030	2030/ 2040	2011/ 2040
Asia	197 (12.5)	321 (16.4)	510 (20.9)	743 (25.7)	966 (28.9)	1,172 (31.5)	4.6	4.3	2.7	2.0	2.9
P. R. China	34 (2.1)	83 (4.3)	211 (8.6)	365 (12.6)	483 (14.4)	566 (15.2)	9.1	6.3	2.8	1.6	3.5
India	27 (1.7)	32 (1.6)	58 (2.4)	91 (3.2)	142 (4.2)	203 (5.5)	3.7	5.1	4.5	3.7	4.4
Japan	72 (4.5)	88 (4.5)	76 (3.1)	69 (2.4)	62 (1.8)	54 (1.5)	0.3	-1.0	-1.2	-1.2	-1.1
Korea	15 (0.9)	26 (1.3)	29 (1.2)	29 (1.0)	29 (0.9)	29 (0.8)	3.4	0.0	0.0	-0.2	-0.1
Chinese Taipei	7 (0.4)	12 (0.6)	12 (0.5)	14 (0.5)	15 (0.5)	15 (0.4)	2.9	1.6	0.8	-0.1	0.8
ASEAN	32 (2.0)	62 (3.2)	97 (4.0)	141 (4.9)	192 (5.7)	249 (6.7)	5.4	4.2	3.1	2.6	3.3
Indonesia	11 (0.7)	22 (1.1)	39 (1.6)	62 (2.1)	92 (2.8)	126 (3.4)	6.4	5.2	4.1	3.2	4.1
Malaysia	5 (0.3)	10 (0.5)	14 (0.6)	19 (0.7)	21 (0.6)	23 (0.6)	5.4	3.2	1.2	0.8	1.6
Myanmar	0 (0.0)	1 (0.1)	1 (0.0)	2 (0.1)	4 (0.1)	6 (0.2)	3.0	11.1	5.2	5.4	7.1
Philippines	5 (0.3)	8 (0.4)	8 (0.3)	12 (0.4)	17 (0.5)	25 (0.7)	2.7	4.3	4.1	3.7	4.0
Singapore	1 (0.1)	2 (0.1)	3 (0.1)	3 (0.1)	4 (0.1)	4 (0.1)	3.7	1.9	1.5	0.7	1.4
Thailand	9 (0.6)	15 (0.7)	21 (0.8)	25 (0.9)	28 (0.8)	31 (0.8)	4.0	2.2	0.9	1.1	1.4
Vietnam	1 (0.1)	3 (0.2)	11 (0.5)	18 (0.6)	25 (0.7)	33 (0.9)	10.4	5.3	3.6	2.8	3.9
Asia excl. Japan	125 (7.9)	233 (11.9)	434 (17.8)	674 (23.3)	905 (27.0)	1,117 (30.0)	6.1	5.0	3.0	2.1	3.3
North America	531 (33.6)	640 (32.7)	648 (26.5)	650 (22.5)	654 (19.6)	654 (17.6)	1.0	0.0	0.1	0.0	0.0
United States	488 (30.8)	588 (30.0)	589 (24.1)	591 (20.4)	593 (17.7)	591 (15.9)	0.9	0.0	0.0	0.0	0.0
Latin America	103 (6.5)	141 (7.2)	203 (8.3)	269 (9.3)	328 (9.8)	363 (9.8)	3.3	3.1	2.0	1.0	2.0
OECD Europe	266 (16.8)	316 (16.2)	331 (13.5)	320 (11.0)	313 (9.4)	298 (8.0)	1.1	-0.4	-0.2	-0.5	-0.4
European Union	257 (16.3)	302 (15.4)	316 (12.9)	309 (10.7)	305 (9.1)	292 (7.8)	1.0	-0.3	-0.1	-0.4	-0.3
Non-OECD Europe	172 (10.9)	110 (5.6)	148 (6.1)	172 (5.9)	191 (5.7)	205 (5.5)	-0.7	1.7	1.1	0.7	1.1
Africa	38 (2.4)	54 (2.8)	83 (3.4)	102 (3.5)	125 (3.7)	151 (4.0)	3.8	2.2	2.0	1.9	2.1
Middle East	50 (3.2)	74 (3.8)	126 (5.1)	154 (5.3)	189 (5.6)	224 (6.0)	4.5	2.3	2.1	1.7	2.0
Oceania	24 (1.5)	30 (1.5)	35 (1.4)	37 (1.3)	40 (1.2)	42 (1.1)	1.7	0.8	0.8	0.6	0.7
OECD	938 (59.4)	1,143 (58.3)	1,178 (48.2)	1,177 (40.7)	1,180 (35.3)	1,167 (31.3)	1.1	0.0	0.0	-0.1	0.0
Non-OECD	442 (27.9)	545 (27.8)	906 (37.1)	1,269 (43.8)	1,626 (48.6)	1,943 (52.2)	3.5	3.8	2.5	1.8	2.7
World	1,581 (100)	1,959 (100)	2,445 (100)	2,895 (100)	3,345 (100)	3,722 (100)	2.1	1.9	1.5	1.1	1.5

Source: IEA "World Energy Balances"

Projection by IEEJ

Note: Figures in parentheses are global shares (%). World includes international bunkers.

Table 14 Final energy consumption, buildings, etc.

(Mtoe)

	Historical			Projection			CAGR (%)				
	1990	2000	2011	2020	2030	2040	1990/ 2011	2011/ 2020	2020/ 2030	2030/ 2040	2011/ 2040
Asia	<b>748</b> (30.9)	<b>853</b> (32.7)	<b>1,131</b> (36.5)	<b>1,363</b> (38.1)	<b>1,637</b> (40.0)	<b>1,920</b> (41.7)	2.0	2.1	1.9	1.6	1.8
P. R. China	<b>344</b> (14.2)	<b>342</b> (13.1)	<b>513</b> (16.6)	<b>632</b> (17.7)	<b>777</b> (19.0)	<b>908</b> (19.7)	1.9	2.4	2.1	1.6	2.0
India	<b>143</b> (5.9)	<b>171</b> (6.5)	<b>226</b> (7.3)	<b>281</b> (7.9)	<b>337</b> (8.2)	<b>413</b> (9.0)	2.2	2.4	1.9	2.0	2.1
Japan	<b>91</b> (3.8)	<b>116</b> (4.4)	<b>116</b> (3.8)	<b>115</b> (3.2)	<b>114</b> (2.8)	<b>110</b> (2.4)	1.2	-0.1	-0.1	-0.3	-0.2
Korea	<b>24</b> (1.0)	<b>37</b> (1.4)	<b>44</b> (1.4)	<b>47</b> (1.3)	<b>49</b> (1.2)	<b>47</b> (1.0)	2.9	0.7	0.3	-0.3	0.2
Chinese Taipei	<b>6</b> (0.3)	<b>10</b> (0.4)	<b>12</b> (0.4)	<b>13</b> (0.4)	<b>14</b> (0.3)	<b>15</b> (0.3)	2.9	1.2	0.8	0.4	0.8
ASEAN	<b>87</b> (3.6)	<b>112</b> (4.3)	<b>136</b> (4.4)	<b>167</b> (4.7)	<b>211</b> (5.1)	<b>266</b> (5.8)	2.1	2.3	2.4	2.4	2.3
Indonesia	<b>44</b> (1.8)	<b>58</b> (2.2)	<b>64</b> (2.1)	<b>77</b> (2.1)	<b>92</b> (2.2)	<b>113</b> (2.4)	1.9	1.9	1.8	2.0	1.9
Malaysia	<b>3</b> (0.1)	<b>5</b> (0.2)	<b>10</b> (0.3)	<b>14</b> (0.4)	<b>19</b> (0.5)	<b>24</b> (0.5)	6.0	4.2	3.1	2.5	3.2
Myanmar	<b>8</b> (0.3)	<b>9</b> (0.3)	<b>11</b> (0.3)	<b>12</b> (0.3)	<b>13</b> (0.3)	<b>14</b> (0.3)	1.2	1.0	0.9	0.9	0.9
Philippines	<b>10</b> (0.4)	<b>10</b> (0.4)	<b>9</b> (0.3)	<b>10</b> (0.3)	<b>13</b> (0.3)	<b>15</b> (0.3)	-0.6	1.5	1.9	1.9	1.8
Singapore	<b>1</b> (0.0)	<b>2</b> (0.1)	<b>2</b> (0.1)	<b>3</b> (0.1)	<b>3</b> (0.1)	<b>4</b> (0.1)	5.2	3.0	2.4	1.7	2.4
Thailand	<b>11</b> (0.4)	<b>14</b> (0.5)	<b>21</b> (0.7)	<b>25</b> (0.7)	<b>32</b> (0.8)	<b>41</b> (0.9)	3.1	2.3	2.5	2.4	2.4
Vietnam	<b>10</b> (0.4)	<b>14</b> (0.5)	<b>19</b> (0.6)	<b>25</b> (0.7)	<b>38</b> (0.9)	<b>54</b> (1.2)	3.0	3.4	4.1	3.6	3.7
Asia excl. Japan	<b>657</b> (27.1)	<b>737</b> (28.3)	<b>1,015</b> (32.8)	<b>1,248</b> (34.9)	<b>1,523</b> (37.2)	<b>1,810</b> (39.3)	2.1	2.3	2.0	1.7	2.0
North America	<b>457</b> (18.9)	<b>535</b> (20.5)	<b>559</b> (18.1)	<b>608</b> (17.0)	<b>655</b> (16.0)	<b>691</b> (15.0)	1.0	0.9	0.7	0.5	0.7
United States	<b>403</b> (16.7)	<b>473</b> (18.1)	<b>495</b> (16.0)	<b>539</b> (15.1)	<b>580</b> (14.2)	<b>611</b> (13.3)	1.0	0.9	0.7	0.5	0.7
Latin America	<b>102</b> (4.2)	<b>121</b> (4.6)	<b>149</b> (4.8)	<b>170</b> (4.8)	<b>197</b> (4.8)	<b>220</b> (4.8)	1.8	1.5	1.5	1.1	1.4
OECD Europe	<b>436</b> (18.0)	<b>473</b> (18.1)	<b>488</b> (15.8)	<b>532</b> (14.9)	<b>555</b> (13.6)	<b>569</b> (12.4)	0.5	1.0	0.4	0.3	0.5
European Union	<b>428</b> (17.7)	<b>450</b> (17.3)	<b>454</b> (14.7)	<b>495</b> (13.8)	<b>517</b> (12.6)	<b>532</b> (11.6)	0.3	1.0	0.4	0.3	0.6
Non-OECD Europe	<b>439</b> (18.1)	<b>289</b> (11.1)	<b>293</b> (9.5)	<b>311</b> (8.7)	<b>339</b> (8.3)	<b>361</b> (7.8)	-1.9	0.7	0.9	0.6	0.7
Africa	<b>184</b> (7.6)	<b>243</b> (9.3)	<b>334</b> (10.8)	<b>402</b> (11.3)	<b>484</b> (11.8)	<b>575</b> (12.5)	2.9	2.1	1.9	1.7	1.9
Middle East	<b>40</b> (1.7)	<b>76</b> (2.9)	<b>121</b> (3.9)	<b>160</b> (4.5)	<b>199</b> (4.9)	<b>237</b> (5.1)	5.3	3.2	2.2	1.8	2.4
Oceania	<b>15</b> (0.6)	<b>19</b> (0.7)	<b>23</b> (0.7)	<b>26</b> (0.7)	<b>30</b> (0.7)	<b>32</b> (0.7)	2.1	1.5	1.2	0.9	1.2
OECD	<b>1,046</b> (43.2)	<b>1,210</b> (46.4)	<b>1,265</b> (40.9)	<b>1,368</b> (38.3)	<b>1,448</b> (35.3)	<b>1,503</b> (32.6)	0.9	0.9	0.6	0.4	0.6
Non-OECD	<b>1,374</b> (56.8)	<b>1,399</b> (53.6)	<b>1,831</b> (59.1)	<b>2,205</b> (61.7)	<b>2,648</b> (64.7)	<b>3,103</b> (67.4)	1.4	2.1	1.8	1.6	1.8
World	<b>2,421</b> (100)	<b>2,609</b> (100)	<b>3,096</b> (100)	<b>3,573</b> (100)	<b>4,096</b> (100)	<b>4,605</b> (100)	1.2	1.6	1.4	1.2	1.4

Source: IEA "World Energy Balances"

Projection by IEEJ

Note: Figures in parentheses are global shares (%).

Table 15 Final energy consumption, electricity

(TWh)

	Historical			Projection			CAGR (%)				
	1990	2000	2011	2020	2030	2040	1990/ 2011	2011/ 2020	2020/ 2030	2030/ 2040	2011/ 2040
Asia	1,809 (18.7)	3,220 (25.4)	7,091 (38.5)	9,848 (42.9)	13,348 (46.3)	16,705 (48.5)	6.7	3.7	3.1	2.3	3.0
P. R. China	454 (4.7)	1,037 (8.2)	3,863 (21.0)	5,438 (23.7)	7,127 (24.7)	8,231 (23.9)	10.7	3.9	2.7	1.5	2.6
India	212 (2.2)	368 (2.9)	774 (4.2)	1,323 (5.8)	2,317 (8.0)	3,681 (10.7)	6.4	6.1	5.8	4.7	5.5
Japan	750 (7.7)	944 (7.4)	939 (5.1)	1,032 (4.5)	1,087 (3.8)	1,097 (3.2)	1.1	1.0	0.5	0.1	0.5
Korea	94 (1.0)	263 (2.1)	471 (2.6)	564 (2.5)	645 (2.2)	681 (2.0)	8.0	2.0	1.3	0.6	1.3
Chinese Taipei	77 (0.8)	160 (1.3)	223 (1.2)	251 (1.1)	271 (0.9)	281 (0.8)	5.2	1.3	0.8	0.3	0.8
ASEAN	130 (1.3)	320 (2.5)	614 (3.3)	962 (4.2)	1,509 (5.2)	2,220 (6.4)	7.7	5.1	4.6	3.9	4.5
Indonesia	28 (0.3)	79 (0.6)	160 (0.9)	275 (1.2)	445 (1.5)	708 (2.1)	8.6	6.2	4.9	4.8	5.3
Malaysia	20 (0.2)	61 (0.5)	107 (0.6)	166 (0.7)	252 (0.9)	341 (1.0)	8.4	5.0	4.3	3.0	4.1
Myanmar	2 (0.0)	3 (0.0)	6 (0.0)	20 (0.1)	42 (0.1)	65 (0.2)	5.8	14.6	7.9	4.5	8.7
Philippines	21 (0.2)	37 (0.3)	56 (0.3)	80 (0.3)	115 (0.4)	158 (0.5)	4.7	4.0	3.7	3.2	3.6
Singapore	13 (0.1)	27 (0.2)	42 (0.2)	51 (0.2)	63 (0.2)	73 (0.2)	5.7	2.2	2.2	1.4	1.9
Thailand	38 (0.4)	88 (0.7)	149 (0.8)	218 (0.9)	327 (1.1)	465 (1.4)	6.7	4.3	4.2	3.6	4.0
Vietnam	6 (0.1)	22 (0.2)	91 (0.5)	148 (0.6)	259 (0.9)	404 (1.2)	13.7	5.6	5.8	4.5	5.3
Asia excl. Japan	1,059 (10.9)	2,277 (18.0)	6,152 (33.4)	8,816 (38.4)	12,261 (42.6)	15,608 (45.3)	8.7	4.1	3.4	2.4	3.3
North America	3,052 (31.5)	3,981 (31.4)	4,309 (23.4)	4,736 (20.6)	5,257 (18.2)	5,669 (16.5)	1.7	1.1	1.0	0.8	1.0
United States	2,634 (27.2)	3,499 (27.6)	3,790 (20.6)	4,194 (18.3)	4,666 (16.2)	5,034 (14.6)	1.7	1.1	1.1	0.8	1.0
Latin America	517 (5.3)	810 (6.4)	1,168 (6.4)	1,557 (6.8)	2,044 (7.1)	2,505 (7.3)	4.0	3.2	2.8	2.1	2.7
OECD Europe	2,230 (23.0)	2,710 (21.4)	3,039 (16.5)	3,299 (14.4)	3,573 (12.4)	3,776 (11.0)	1.5	0.9	0.8	0.6	0.8
European Union	2,150 (22.2)	2,519 (19.9)	2,768 (15.0)	3,005 (13.1)	3,269 (11.3)	3,477 (10.1)	1.2	0.9	0.8	0.6	0.8
Non-OECD Europe	1,471 (15.2)	1,011 (8.0)	1,238 (6.7)	1,468 (6.4)	1,745 (6.1)	1,996 (5.8)	-0.8	1.9	1.7	1.4	1.7
Africa	257 (2.7)	361 (2.8)	569 (3.1)	753 (3.3)	1,066 (3.7)	1,504 (4.4)	3.9	3.2	3.5	3.5	3.4
Middle East	194 (2.0)	372 (2.9)	733 (4.0)	1,017 (4.4)	1,441 (5.0)	1,920 (5.6)	6.5	3.7	3.5	2.9	3.4
Oceania	157 (1.6)	207 (1.6)	250 (1.4)	295 (1.3)	336 (1.2)	374 (1.1)	2.2	1.9	1.3	1.1	1.4
OECD	6,399 (66.1)	8,304 (65.5)	9,291 (50.5)	10,331 (45.0)	11,449 (39.7)	12,316 (35.8)	1.8	1.2	1.0	0.7	1.0
Non-OECD	3,288 (33.9)	4,368 (34.5)	9,106 (49.5)	12,642 (55.0)	17,360 (60.3)	22,133 (64.2)	5.0	3.7	3.2	2.5	3.1
World	9,687 (100)	12,672 (100)	18,397 (100)	22,973 (100)	28,809 (100)	34,449 (100)	3.1	2.5	2.3	1.8	2.2

Source: IEA "World Energy Balances"

Projection by IEEJ

Note: Figures in parentheses are global shares (%).



Table 16 Electricity generation

(TWh)

	Historical			Projection			CAGR (%)				
	1990	2000	2011	2020	2030	2040	1990/ 2011	2011/ 2020	2020/ 2030	2030/ 2040	2011/ 2040
Asia	2,212 (18.7)	3,966 (25.7)	8,517 (38.5)	11,659 (42.6)	15,707 (46.0)	19,612 (48.2)	6.6	3.6	3.0	2.2	2.9
P. R. China	621 (5.3)	1,356 (8.8)	4,716 (21.3)	6,524 (23.8)	8,458 (24.8)	9,695 (23.8)	10.1	3.7	2.6	1.4	2.5
India	289 (2.4)	561 (3.6)	1,052 (4.8)	1,715 (6.3)	2,933 (8.6)	4,624 (11.4)	6.3	5.6	5.5	4.7	5.2
Japan	836 (7.1)	1,049 (6.8)	1,043 (4.7)	1,126 (4.1)	1,185 (3.5)	1,193 (2.9)	1.1	0.9	0.5	0.1	0.5
Korea	105 (0.9)	289 (1.9)	520 (2.4)	618 (2.3)	707 (2.1)	746 (1.8)	7.9	1.9	1.3	0.5	1.3
Chinese Taipei	88 (0.7)	181 (1.2)	249 (1.1)	279 (1.0)	301 (0.9)	311 (0.8)	5.1	1.3	0.8	0.3	0.8
ASEAN	154 (1.3)	370 (2.4)	694 (3.1)	1,071 (3.9)	1,668 (4.9)	2,448 (6.0)	7.4	4.9	4.5	3.9	4.4
Indonesia	33 (0.3)	93 (0.6)	182 (0.8)	310 (1.1)	498 (1.5)	788 (1.9)	8.5	6.1	4.9	4.7	5.2
Malaysia	23 (0.2)	69 (0.4)	130 (0.6)	201 (0.7)	298 (0.9)	387 (1.0)	8.6	5.0	4.0	2.7	3.8
Myanmar	2 (0.0)	5 (0.0)	7 (0.0)	23 (0.1)	50 (0.1)	78 (0.2)	5.3	13.8	7.9	4.5	8.5
Philippines	26 (0.2)	45 (0.3)	69 (0.3)	95 (0.3)	137 (0.4)	188 (0.5)	4.7	3.6	3.7	3.2	3.5
Singapore	16 (0.1)	32 (0.2)	46 (0.2)	57 (0.2)	70 (0.2)	81 (0.2)	5.2	2.5	2.1	1.4	2.0
Thailand	44 (0.4)	96 (0.6)	156 (0.7)	217 (0.8)	324 (0.9)	476 (1.2)	6.2	3.7	4.1	3.9	3.9
Vietnam	9 (0.1)	27 (0.2)	99 (0.4)	163 (0.6)	285 (0.8)	444 (1.1)	12.3	5.7	5.8	4.5	5.3
Asia excl. Japan	1,377 (11.6)	2,917 (18.9)	7,474 (33.8)	10,532 (38.5)	14,522 (42.6)	18,419 (45.3)	8.4	3.9	3.3	2.4	3.2
North America	3,685 (31.2)	4,631 (30.1)	4,964 (22.4)	5,426 (19.8)	5,998 (17.6)	6,452 (15.9)	1.4	1.0	1.0	0.7	0.9
United States	3,203 (27.1)	4,026 (26.1)	4,327 (19.6)	4,761 (17.4)	5,273 (15.5)	5,672 (13.9)	1.4	1.1	1.0	0.7	0.9
Latin America	623 (5.3)	1,003 (6.5)	1,469 (6.6)	1,927 (7.0)	2,513 (7.4)	3,076 (7.6)	4.2	3.1	2.7	2.0	2.6
OECD Europe	2,662 (22.5)	3,223 (20.9)	3,558 (16.1)	3,818 (13.9)	4,087 (12.0)	4,275 (10.5)	1.4	0.8	0.7	0.5	0.6
European Union	2,568 (21.7)	2,995 (19.4)	3,251 (14.7)	3,498 (12.8)	3,774 (11.1)	4,004 (9.8)	1.1	0.8	0.8	0.6	0.7
Non-OECD Europe	1,894 (16.0)	1,432 (9.3)	1,725 (7.8)	2,020 (7.4)	2,352 (6.9)	2,652 (6.5)	-0.4	1.8	1.5	1.2	1.5
Africa	316 (2.7)	441 (2.9)	692 (3.1)	902 (3.3)	1,272 (3.7)	1,790 (4.4)	3.8	3.0	3.5	3.5	3.3
Middle East	240 (2.0)	465 (3.0)	905 (4.1)	1,268 (4.6)	1,784 (5.2)	2,367 (5.8)	6.5	3.8	3.5	2.9	3.4
Oceania	187 (1.6)	249 (1.6)	297 (1.3)	352 (1.3)	401 (1.2)	447 (1.1)	2.2	1.9	1.3	1.1	1.4
OECD	7,608 (64.4)	9,686 (62.9)	10,743 (48.6)	11,856 (43.3)	13,083 (38.4)	14,038 (34.5)	1.7	1.1	1.0	0.7	0.9
Non-OECD	4,210 (35.6)	5,725 (37.1)	11,383 (51.4)	15,516 (56.7)	21,031 (61.6)	26,633 (65.5)	4.9	3.5	3.1	2.4	3.0
World	11,818 (100)	15,411 (100)	22,126 (100)	27,372 (100)	34,114 (100)	40,671 (100)	3.0	2.4	2.2	1.8	2.1

Source: IEA "World Energy Balances"

Projection by IEEJ

Note: Figures in parentheses are global shares (%).



Table 17 GDP per capita

(\$2010 thousand/person)

	Historical			Projection			CAGR (%)				
	1990	2000	2011	2020	2030	2040	1990/ 2011	2011/ 2020	2020/ 2030	2030/ 2040	2011/ 2040
Asia	2.5	3.1	4.7	6.9	9.6	12.8	3.0	4.4	3.5	2.9	3.5
P. R. China	0.7	1.7	4.8	8.9	14.0	19.8	9.5	7.1	4.6	3.5	5.0
India	0.5	0.8	1.4	2.4	4.1	6.2	4.7	5.8	5.5	4.4	5.2
Japan	36.9	40.2	42.6	50.4	59.5	70.1	0.7	1.9	1.7	1.6	1.7
Korea	8.7	14.4	21.1	28.0	35.5	42.5	4.3	3.2	2.4	1.8	2.4
Chinese Taipei	8.2	13.8	20.1	27.7	34.8	41.1	4.3	3.6	2.3	1.7	2.5
ASEAN	0.4	0.6	0.8	1.0	1.2	1.3	3.5	2.8	1.5	0.8	1.7
Indonesia	1.5	2.0	3.1	4.8	7.2	10.3	3.4	5.0	4.1	3.6	4.2
Malaysia	4.2	6.5	8.7	11.9	16.5	21.1	3.5	3.6	3.3	2.5	3.1
Myanmar	0.2	0.3	0.9	1.5	2.5	3.8	8.3	5.6	5.2	4.2	5.0
Philippines	1.5	1.6	2.2	3.0	4.1	5.5	1.7	3.7	3.2	2.9	3.2
Singapore	21.7	32.7	46.0	56.1	69.2	76.6	3.7	2.2	2.1	1.0	1.8
Thailand	2.4	3.3	4.6	6.8	9.9	13.7	3.2	4.5	3.7	3.3	3.8
Vietnam	0.4	0.7	1.3	1.9	3.5	5.4	5.9	4.8	5.9	4.5	5.1
Asia excl. Japan	1.0	1.7	3.3	5.5	8.2	11.3	5.9	5.7	4.1	3.2	4.3
North America	35.4	43.8	47.1	55.6	65.9	75.0	1.4	1.9	1.7	1.3	1.6
United States	6.2	7.1	8.9	11.2	14.4	17.5	1.8	2.6	2.5	2.0	2.4
Latin America	6.2	7.1	8.9	11.2	14.4	17.5	1.8	2.6	2.5	2.0	2.4
OECD Europe	24.3	29.3	32.3	35.5	41.0	46.1	1.4	1.0	1.4	1.2	1.2
European Union	77.3	99.4	129.4	169.7	224.8	284.3	2.5	3.1	2.9	2.4	2.8
Non-OECD Europe	6.2	4.3	7.4	10.2	14.1	18.1	0.9	3.5	3.3	2.5	3.1
Africa	1.3	1.3	1.6	2.0	2.5	3.1	1.2	2.5	2.1	2.0	2.2
Middle East	6.7	8.0	10.1	11.8	14.2	16.3	2.0	1.8	1.8	1.4	1.7
Oceania	34.8	42.8	49.8	59.7	68.5	75.8	1.7	2.1	1.4	1.0	1.5
OECD	26.7	32.0	35.1	40.4	47.5	54.4	1.3	1.6	1.6	1.4	1.5
Non-OECD	2.0	2.3	3.8	5.5	7.7	9.8	3.2	4.3	3.3	2.5	3.3
World	6.9	7.9	9.4	11.4	14.1	16.7	1.5	2.2	2.1	1.7	2.0

Source: World Bank "World Development Indicators", IEA "World Energy Balances", etc.

Projection by IEEJ

Table 18 Primary energy consumption per capita

	Historical			Projection			CAGR (%)				
	1990	2000	2011	2020	2030	2040	1990/ 2011	2011/ 2020	2020/ 2030	2030/ 2040	2011/ 2040
Asia	0.72	0.86	1.32	1.52	1.74	1.96	2.9	1.6	1.3	1.2	1.4
P. R. China	0.77	0.92	2.03	2.44	2.81	3.14	4.7	2.1	1.4	1.1	1.5
India	0.36	0.43	0.60	0.74	0.94	1.19	2.5	2.2	2.4	2.5	2.4
Japan	3.56	4.09	3.61	3.71	3.71	3.69	0.1	0.3	0.0	0.0	0.1
Korea	2.17	4.00	5.23	5.60	5.80	5.80	4.3	0.8	0.3	0.0	0.4
Chinese Taipei	2.37	3.83	4.67	5.09	5.39	5.64	3.3	1.0	0.6	0.5	0.7
ASEAN	0.11	0.17	0.19	0.19	0.19	0.18	2.5	0.1	-0.2	-0.4	-0.2
Indonesia	0.53	0.73	0.86	1.12	1.42	1.77	2.3	3.0	2.3	2.2	2.5
Malaysia	1.18	2.01	2.63	3.09	3.49	3.79	3.9	1.8	1.2	0.8	1.3
Myanmar	0.27	0.29	0.29	0.38	0.50	0.61	0.3	3.1	2.6	2.0	2.6
Philippines	0.46	0.52	0.43	0.45	0.52	0.61	-0.4	0.6	1.4	1.6	1.2
Singapore	3.78	4.64	6.45	6.93	7.63	8.08	2.6	0.8	1.0	0.6	0.8
Thailand	0.73	1.14	1.71	2.22	2.90	3.84	4.1	2.9	2.7	2.9	2.8
Vietnam	0.27	0.37	0.70	0.96	1.45	2.04	4.6	3.6	4.2	3.5	3.8
Asia excl. Japan	0.60	0.73	1.24	1.46	1.68	1.91	3.5	1.8	1.4	1.3	1.5
North America	7.65	8.07	7.06	6.70	6.46	6.22	-0.4	-0.6	-0.4	-0.4	-0.4
United States	4.37	4.40	3.71	3.44	3.27	3.14	-0.8	-0.8	-0.5	-0.4	-0.6
Latin America	1.06	1.16	1.37	1.58	1.83	2.03	1.2	1.6	1.5	1.1	1.4
OECD Europe	3.25	3.35	3.17	3.15	3.16	3.14	-0.1	0.0	0.0	0.0	0.0
European Union	3.46	3.48	3.28	3.29	3.31	3.32	-0.2	0.0	0.1	0.0	0.0
Non-OECD Europe	4.47	2.95	3.46	3.74	4.13	4.50	-1.2	0.9	1.0	0.9	0.9
Africa	0.62	0.62	0.67	0.66	0.64	0.63	0.4	-0.3	-0.2	-0.1	-0.2
Middle East	1.70	2.26	3.10	3.24	3.51	3.76	2.9	0.5	0.8	0.7	0.7
Oceania	4.86	5.44	5.22	5.06	4.79	4.54	0.3	-0.3	-0.5	-0.5	-0.5
OECD	4.25	4.60	4.27	4.22	4.21	4.18	0.0	-0.1	0.0	-0.1	-0.1
Non-OECD	0.96	0.91	1.30	1.46	1.61	1.74	1.5	1.2	1.0	0.8	1.0
World	1.66	1.65	1.88	1.98	2.09	2.19	0.6	0.6	0.5	0.4	0.5

Source: World Bank "World Development Indicators", IEA "World Energy Balances", etc.

Projection by IEEJ

Table 19 Primary energy consumption per GDP

	Historical			Projection			(toe/\$2010 million)				
	1990	2000	2011	2020	2030	2040	1990/ 2011	2011/ 2020	2020/ 2030	2030/ 2040	2011/ 2040
Asia	287	276	283	222	180	153	-0.1	-2.6	-2.1	-1.6	-2.1
P. R. China	1,072	530	421	273	201	159	-4.4	-4.7	-3.0	-2.3	-3.3
India	664	559	418	307	230	191	-2.2	-3.4	-2.9	-1.8	-2.7
Japan	96	102	85	74	62	53	-0.6	-1.6	-1.6	-1.7	-1.6
Korea	249	279	248	200	163	136	0.0	-2.3	-2.0	-1.8	-2.0
Chinese Taipei	288	278	233	184	155	137	-1.0	-2.6	-1.7	-1.2	-1.8
ASEAN	288	278	233	184	155	137	-1.0	-2.6	-1.7	-1.2	-1.8
Indonesia	351	364	277	232	197	172	-1.1	-1.9	-1.7	-1.3	-1.6
Malaysia	283	311	304	260	211	179	0.3	-1.7	-2.1	-1.6	-1.8
Myanmar	1,577	951	316	255	198	161	-7.4	-2.3	-2.5	-2.1	-2.3
Philippines	303	318	195	149	125	110	-2.1	-3.0	-1.7	-1.3	-2.0
Singapore	174	142	140	124	110	105	-1.0	-1.4	-1.1	-0.4	-1.0
Thailand	311	346	373	325	294	280	0.9	-1.5	-1.0	-0.5	-1.0
Vietnam	702	544	543	493	418	378	-1.2	-1.1	-1.6	-1.0	-1.2
Asia excl. Japan	594	436	370	265	204	169	-2.2	-3.6	-2.6	-1.9	-2.7
North America	216	184	150	121	98	83	-1.7	-2.4	-2.0	-1.7	-2.0
United States	708	624	416	306	227	179	-2.5	-3.3	-2.9	-2.4	-2.9
Latin America	173	164	154	140	127	116	-0.6	-1.0	-1.0	-0.9	-1.0
OECD Europe	133	115	98	89	77	68	-1.5	-1.1	-1.4	-1.2	-1.2
European Union	45	35	25	19	15	12	-2.7	-3.0	-2.7	-2.3	-2.6
Non-OECD Europe	722	678	466	368	293	249	-2.1	-2.6	-2.3	-1.6	-2.1
Africa	486	472	410	321	255	207	-0.8	-2.7	-2.3	-2.1	-2.3
Middle East	254	282	306	274	248	230	0.9	-1.2	-1.0	-0.7	-1.0
Oceania	140	127	105	85	70	60	-1.3	-2.3	-1.9	-1.5	-1.9
OECD	159	144	122	105	89	77	-1.3	-1.7	-1.7	-1.4	-1.6
Non-OECD	492	399	343	263	210	177	-1.7	-2.9	-2.2	-1.7	-2.3
World	240	210	201	173	148	131	-0.8	-1.6	-1.5	-1.3	-1.5

Table 20 Energy-related carbon dioxide emissions

	Historical			Projection			CAGR (%)				
	1990	2000	2011	2020	2030	2040	1990/ 2011	2011/ 2020	2020/ 2030	2030/ 2040	2011/ 2040
Asia	4,962 (23.4)	7,038 (29.8)	13,844 (43.6)	16,626 (46.5)	19,781 (48.9)	22,778 (50.8)	5.0	2.1	1.8	1.4	1.7
P. R. China	2,338 (11.0)	3,258 (13.8)	8,558 (26.9)	10,178 (28.5)	11,430 (28.2)	12,187 (27.2)	6.4	1.9	1.2	0.6	1.2
India	591 (2.8)	958 (4.1)	1,801 (5.7)	2,463 (6.9)	3,574 (8.8)	4,957 (11.1)	5.5	3.5	3.8	3.3	3.6
Japan	1,070 (5.0)	1,194 (5.1)	1,178 (3.7)	1,060 (3.0)	1,033 (2.6)	955 (2.1)	0.5	-1.2	-0.3	-0.8	-0.7
Korea	240 (1.1)	433 (1.8)	580 (1.8)	558 (1.6)	559 (1.4)	546 (1.2)	4.3	-0.4	0.0	-0.2	-0.2
Chinese Taipei	117 (0.5)	226 (1.0)	262 (0.8)	258 (0.7)	271 (0.7)	257 (0.6)	3.9	-0.2	0.5	-0.5	-0.1
ASEAN	358 (1.7)	703 (3.0)	1,105 (3.5)	1,643 (4.6)	2,291 (5.7)	3,091 (6.9)	5.5	4.5	3.4	3.0	3.6
Indonesia	134 (0.6)	262 (1.1)	402 (1.3)	655 (1.8)	927 (2.3)	1,279 (2.9)	5.4	5.6	3.5	3.3	4.1
Malaysia	53 (0.2)	115 (0.5)	188 (0.6)	253 (0.7)	321 (0.8)	372 (0.8)	6.3	3.4	2.4	1.5	2.4
Myanmar	4 (0.0)	10 (0.0)	8 (0.0)	22 (0.1)	39 (0.1)	55 (0.1)	3.4	11.4	5.9	3.7	6.8
Philippines	38 (0.2)	68 (0.3)	78 (0.2)	108 (0.3)	157 (0.4)	221 (0.5)	3.6	3.7	3.7	3.5	3.6
Singapore	28 (0.1)	48 (0.2)	60 (0.2)	72 (0.2)	83 (0.2)	90 (0.2)	3.7	2.2	1.4	0.7	1.4
Thailand	81 (0.4)	152 (0.6)	228 (0.7)	310 (0.9)	412 (1.0)	549 (1.2)	5.1	3.5	2.9	2.9	3.1
Vietnam	17 (0.1)	43 (0.2)	132 (0.4)	213 (0.6)	342 (0.8)	514 (1.1)	10.2	5.4	4.8	4.2	4.8
Asia excl. Japan	3,893 (18.3)	5,845 (24.8)	12,666 (39.9)	15,566 (43.6)	18,748 (46.3)	21,823 (48.7)	5.8	2.3	1.9	1.5	1.9
North America	5,235 (24.6)	6,125 (26.0)	5,699 (17.9)	5,515 (15.4)	5,457 (13.5)	5,350 (11.9)	0.4	-0.4	-0.1	-0.2	-0.2
United States	4,820 (22.7)	5,617 (23.8)	5,247 (16.5)	5,057 (14.2)	4,997 (12.3)	4,866 (10.9)	0.4	-0.4	-0.1	-0.3	-0.3
Latin America	912 (4.3)	1,197 (5.1)	1,613 (5.1)	2,014 (5.6)	2,492 (6.2)	2,898 (6.5)	2.8	2.5	2.2	1.5	2.0
OECD Europe	3,952 (18.6)	3,893 (16.5)	3,659 (11.5)	3,530 (9.9)	3,465 (8.6)	3,340 (7.5)	-0.4	-0.4	-0.2	-0.4	-0.3
European Union	4,047 (19.1)	3,767 (16.0)	3,443 (10.8)	3,338 (9.3)	3,295 (8.1)	3,202 (7.1)	-0.8	-0.3	-0.1	-0.3	-0.2
Non-OECD Europe	4,123 (19.4)	2,461 (10.4)	2,793 (8.8)	2,982 (8.3)	3,141 (7.8)	3,248 (7.2)	-1.8	0.7	0.5	0.3	0.5
Africa	593 (2.8)	719 (3.1)	1,052 (3.3)	1,303 (3.6)	1,634 (4.0)	2,056 (4.6)	2.8	2.4	2.3	2.3	2.3
Middle East	570 (2.7)	958 (4.1)	1,608 (5.1)	1,975 (5.5)	2,425 (6.0)	2,876 (6.4)	5.1	2.3	2.1	1.7	2.0
Oceania	280 (1.3)	357 (1.5)	396 (1.2)	417 (1.2)	419 (1.0)	408 (0.9)	1.7	0.6	0.1	-0.3	0.1
OECD	11,095 (52.2)	12,398 (52.6)	12,047 (37.9)	11,734 (32.8)	11,734 (29.0)	11,577 (25.8)	0.4	-0.3	0.0	-0.1	-0.1
Non-OECD	9,533 (44.9)	10,351 (43.9)	18,616 (58.6)	22,628 (63.3)	27,079 (66.9)	31,378 (70.0)	3.2	2.2	1.8	1.5	1.8
World	21,244 (100)	23,582 (100)	31,770 (100)	35,738 (100)	40,467 (100)	44,836 (100)	1.9	1.3	1.3	1.0	1.2

Source: Compiled from IEA "World Energy Balances"

Projection by IEEJ

Note: Figures in parentheses are global shares (%). Excludes emission reduction by CCS. World includes international bunkers.

Table 21 World

Primary energy consumption	Mtoe							Shares (%)			CAGR (%)				
	1980	1990	2000	2011	2020	2030	2040	1990/2011	2011/2040	2040	1990/2011	2011/2020	2020/2030	2030/2040	2011/2040
<b>Total<sup>1</sup></b>	7,217	8,782	10,082	13,113	15,216	17,517	19,642	100	100	100	1.9	1.7	1.4	1.2	1.4
Coal	1,788	2,230	2,358	3,776	4,074	4,480	4,877	25	29	25	2.5	0.8	1.0	0.9	0.9
Oil	3,101	3,230	3,657	4,136	4,694	5,288	5,788	37	32	29	1.2	1.4	1.2	0.9	1.2
Natural gas	1,234	1,668	2,072	2,787	3,428	4,173	4,870	19	21	25	2.5	2.3	2.0	1.6	1.9
Nuclear	186	526	676	674	891	1,050	1,175	6.0	5.1	6.0	1.2	3.1	1.7	1.1	1.9
Hydro	148	184	225	300	344	374	400	2.1	2.3	2.0	2.3	1.5	0.8	0.7	1.0
Geothermal	12	34	52	66	113	174	235	0.4	0.5	1.2	3.2	6.1	4.5	3.1	4.5
Solar, wind, etc.	0.1	2.4	7.9	61	118	174	239	0.0	0.5	1.2	16.8	7.5	4.0	3.3	4.8
Biomass and waste	748	907	1,033	1,312	1,554	1,802	2,055	10	10	10	1.8	1.9	1.5	1.3	1.6

Final energy consumption	Mtoe							Shares (%)			CAGR (%)				
	1980	1990	2000	2011	2020	2030	2040	1990/2011	2011/2040	2040	1990/2011	2011/2020	2020/2030	2030/2040	2011/2040
<b>Total</b>	5,388	6,293	7,094	8,918	10,372	11,924	13,337	100	100	100	1.7	1.7	1.4	1.1	1.4
By sector															
Industry	1,782	1,814	1,905	2,557	2,938	3,359	3,756	29	29	28	1.6	1.6	1.3	1.1	1.3
Transport	1,247	1,581	1,959	2,445	2,895	3,345	3,722	25	27	28	2.1	1.9	1.5	1.1	1.5
Buildings, etc.	2,005	2,421	2,609	3,096	3,573	4,096	4,605	38	35	35	1.2	1.6	1.4	1.2	1.4
Non-energy use	354	478	621	819	967	1,124	1,254	7.6	9.2	9.4	2.6	1.9	1.5	1.1	1.5
By energy															
Coal	712	770	578	904	947	958	999	12	10	7.5	0.8	0.5	0.1	0.4	0.3
Oil	2,445	2,608	3,126	3,633	4,138	4,674	5,121	41	41	38	1.6	1.5	1.2	0.9	1.2
Natural gas	816	944	1,119	1,380	1,702	2,024	2,304	15	15	17	1.8	2.4	1.7	1.3	1.8
Electricity	586	833	1,090	1,582	1,976	2,478	2,963	13	18	22	3.1	2.5	2.3	1.8	2.2
Heat	121	335	247	281	305	337	359	5.3	3.2	2.7	-0.8	0.9	1.0	0.6	0.8
Renewables	708	802	935	1,137	1,305	1,454	1,591	13	13	12	1.7	1.5	1.1	0.9	1.2

Electricity generation	(TWh)							Shares (%)			CAGR (%)				
	1980	1990	2000	2011	2020	2030	2040	1990/2011	2011/2040	2040	1990/2011	2011/2020	2020/2030	2030/2040	2011/2040
<b>Total</b>	8,282	11,818	15,411	22,126	27,372	34,114	40,671	100	100	100	3.0	2.4	2.2	1.8	2.1
Coal	3,141	4,426	6,002	9,144	10,453	12,786	14,839	37	41	36	3.5	1.5	2.0	1.5	1.7
Oil	1,653	1,332	1,200	1,058	1,201	1,454	1,704	11	4.8	4.2	-1.1	1.4	1.9	1.6	1.7
Natural gas	999	1,730	2,740	4,852	6,389	8,592	10,923	15	22	27	5.0	3.1	3.0	2.4	2.8
Nuclear	713	2,013	2,591	2,584	3,417	4,035	4,530	17	12	11	1.2	3.2	1.7	1.2	2.0
Hydro	1,717	2,144	2,620	3,490	4,002	4,350	4,648	18	16	11	2.3	1.5	0.8	0.7	1.0
Geothermal	14	36	52	69	140	219	298	0.3	0.3	0.7	3.1	8.1	4.6	3.1	5.2
Other renewables	45	137	204	927	1,770	2,678	3,728	1.2	4.2	9.2	9.5	7.5	4.2	3.4	4.9

Energy and economic indicators								CAGR (%)				
	1980	1990	2000	2011	2020	2030	2040	1990/2011	2011/2020	2020/2030	2030/2040	2011/2040
GDP (\$2010 billion)	27,110	36,580	48,085	65,161	87,745	118,098	150,217	2.8	3.4	3.0	2.4	2.9
Population (million)	4,444	5,289	6,109	6,963	7,675	8,376	8,982	1.3	1.1	0.9	0.7	0.9
CO <sub>2</sub> emissions <sup>2</sup> (Mt)	18,431	21,244	23,582	31,770	35,738	40,467	44,836	1.9	1.3	1.3	1.0	1.2
GDP per capita (\$2010 thousand)	6.1	6.9	7.9	9.4	11	14	17	1.5	2.2	2.1	1.7	2.0
Primary energy consump. per capita (toe)	1.6	1.7	1.7	1.9	2.0	2.1	2.2	0.6	0.6	0.5	0.4	0.5
Primary energy consumption per GDP <sup>3</sup>	266	240	210	201	173	148	131	-0.8	-1.6	-1.5	-1.3	-1.5
CO <sub>2</sub> emissions per GDP <sup>2, 4</sup>	680	581	490	488	407	343	298	-0.8	-2.0	-1.7	-1.4	-1.7
CO <sub>2</sub> per primary energy consumption <sup>2, 5</sup>	2.6	2.4	2.3	2.4	2.3	2.3	2.3	0.0	-0.3	-0.2	-0.1	-0.2
Automobile ownership (million)	426	593	787	1,134	1,424	1,771	2,115	3.1	2.6	2.2	1.8	2.2
Automobile ownership rates <sup>6</sup>	96	112	129	163	185	211	235	1.8	1.5	1.3	1.1	1.3

\*1 Trade of electricity and heat are not shown, \*2 Excludes emission reduction by CCS, \*3 toe/\$2010 million,

\*4 t/\$2010 million, \*5 t/toe, \*6 Vehicles per 1,000 people

Table 22 Asia

Primary energy consumption	Mtoe							Shares (%)			CAGR (%)				
	1980	1990	2000	2011	2020	2030	2040	1990	2011	2040	1990/2011	2011/2020	2020/2030	2030/2040	2011/2040
<b>Total<sup>1</sup></b>	1,444	2,120	2,934	5,058	6,339	7,663	8,931	100	100	100	4.2	2.5	1.9	1.5	2.0
Coal	471	796	1,078	2,536	2,879	3,285	3,681	38	50	41	5.7	1.4	1.3	1.1	1.3
Oil	478	618	918	1,198	1,542	1,842	2,102	29	24	24	3.2	2.8	1.8	1.3	2.0
Natural gas	51	116	231	478	764	1,142	1,508	5.4	9.5	17	7.0	5.3	4.1	2.8	4.0
Nuclear	25	77	132	110	282	380	477	3.6	2.2	5.3	1.7	11.0	3.0	2.3	5.2
Hydro	20	32	41	91	122	136	148	1.5	1.8	1.7	5.1	3.3	1.1	0.9	1.7
Geothermal	2.6	8.2	23	31	45	69	93	0.4	0.6	1.0	6.6	4.2	4.4	3.0	3.9
Solar, wind, etc.	-	1.2	2.1	21	44	65	94	0.1	0.4	1.0	14.5	8.4	4.0	3.7	5.2
Biomass and waste	397	472	510	590	659	739	824	22	12	9.2	1.1	1.2	1.1	1.1	1.2

Final energy consumption	Mtoe							Shares (%)			CAGR (%)				
	1980	1990	2000	2011	2020	2030	2040	1990	2011	2040	1990/2011	2011/2020	2020/2030	2030/2040	2011/2040
<b>Total</b>	1,142	1,582	2,044	3,232	4,030	4,843	5,620	100	100	100	3.5	2.5	1.9	1.5	1.9
By sector															
Industry	392	523	678	1,267	1,498	1,725	1,938	33	39	34	4.3	1.9	1.4	1.2	1.5
Transport	127	197	321	510	743	966	1,172	12	16	21	4.6	4.3	2.7	2.0	2.9
Buildings, etc.	570	748	853	1,131	1,363	1,637	1,920	47	35	34	2.0	2.1	1.9	1.6	1.8
Non-energy use	54	115	192	324	426	515	590	7.3	10	10	5.1	3.1	1.9	1.4	2.1
By energy															
Coal	310	439	408	737	770	769	798	28	23	14	2.5	0.5	0.0	0.4	0.3
Oil	328	468	745	1,043	1,350	1,630	1,874	30	32	33	3.9	2.9	1.9	1.4	2.0
Natural gas	21	47	88	217	371	550	717	3.0	6.7	13	7.6	6.1	4.0	2.7	4.2
Electricity	88	156	277	610	847	1,148	1,437	9.8	19	26	6.7	3.7	3.1	2.3	3.0
Heat	7.5	14	30	71	95	114	127	0.9	2.2	2.3	8.0	3.2	1.9	1.1	2.0
Renewables	388	459	497	553	597	633	667	29	17	12	0.9	0.9	0.6	0.5	0.7

Electricity generation	(TWh)							Shares (%)			CAGR (%)				
	1980	1990	2000	2011	2020	2030	2040	1990	2011	2040	1990/2011	2011/2020	2020/2030	2030/2040	2011/2040
<b>Total</b>	1,195	2,212	3,966	8,517	11,659	15,707	19,612	100	100	100	6.6	3.6	3.0	2.2	2.9
Coal	302	864	1,991	5,329	6,600	8,776	10,658	39	63	54	9.1	2.4	2.9	2.0	2.4
Oil	470	429	382	321	308	323	342	19	3.8	1.7	-1.4	-0.4	0.5	0.6	0.2
Natural gas	90	235	563	1,131	1,644	2,585	3,600	11	13	18	7.8	4.2	4.6	3.4	4.1
Nuclear	97	294	505	424	1,084	1,468	1,856	13	5.0	9.5	1.7	11.0	3.1	2.4	5.2
Hydro	232	370	481	1,059	1,414	1,583	1,725	17	12	8.8	5.1	3.3	1.1	0.9	1.7
Geothermal	3.0	8.3	20	22	47	75	102	0.4	0.3	0.5	4.8	8.8	4.7	3.1	5.4
Other renewables	0.0	11	25	232	562	898	1,330	0.5	2.7	6.8	15.5	10.3	4.8	4.0	6.2

Energy and economic indicators								CAGR (%)				
	1980	1990	2000	2011	2020	2030	2040	1990/2011	2011/2020	2020/2030	2030/2040	2011/2040
GDP (\$2010 billion)	4,340	7,386	10,632	17,878	28,503	42,484	58,253	4.3	5.3	4.1	3.2	4.2
Population (million)	2,448	2,946	3,419	3,843	4,159	4,414	4,565	1.3	0.9	0.6	0.3	0.6
CO <sub>2</sub> emissions <sup>2</sup> (Mt)	3,289	4,962	7,038	13,844	16,626	19,781	22,778	5.0	2.1	1.8	1.4	1.7
GDP per capita (\$2010 thousand)	1.8	2.5	3.1	4.7	6.9	9.6	13	3.0	4.4	3.5	2.9	3.5
Primary energy consump. per capita (toe)	0.6	0.7	0.9	1.3	1.5	1.7	2.0	2.9	1.6	1.3	1.2	1.4
Primary energy consumption per GDP <sup>3</sup>	333	287	276	283	222	180	153	-0.1	-2.6	-2.1	-1.6	-2.1
CO <sub>2</sub> emissions per GDP <sup>2, 4</sup>	758	672	662	774	583	466	391	0.7	-3.1	-2.2	-1.7	-2.3
CO <sub>2</sub> per primary energy consumption <sup>2, 5</sup>	2.3	2.3	2.4	2.7	2.6	2.6	2.6	0.7	-0.5	-0.2	-0.1	-0.2
Automobile ownership (million)	48	86	140	266	415	588	797	5.5	5.1	3.5	3.1	3.9
Automobile ownership rates <sup>6</sup>	20	29	41	69	100	133	175	4.2	4.2	2.9	2.7	3.2

\*1 Trade of electricity and heat are not shown, \*2 Excludes emission reduction by CCS, \*3 toe/\$2010 million,

\*4 t/\$2010 million, \*5 t/toe, \*6 Vehicles per 1,000 people

Table 23 People's Republic of China

Primary energy consumption	Mtoe							Shares (%)			CAGR (%)				
	1980	1990	2000	2011	2020	2030	2040	1990	2011	2040	1990/2011	2011/2020	2020/2030	2030/2040	2011/2040
<b>Total<sup>1</sup></b>	598	871	1,161	2,728	3,433	4,009	4,423	100	100	100	5.6	2.6	1.6	1.0	1.7
Coal	313	528	691	1,859	2,061	2,189	2,251	61	68	51	6.2	1.2	0.6	0.3	0.7
Oil	89	119	221	442	645	783	866	14	16	20	6.5	4.3	2.0	1.0	2.3
Natural gas	12	13	21	108	272	471	628	1.5	4.0	14	10.7	10.8	5.6	2.9	6.3
Nuclear	-	-	4.4	23	109	181	249	-	0.8	5.6	n.a.	19.2	5.2	3.2	8.6
Hydro	5.0	11	19	60	83	89	94	1.3	2.2	2.1	8.5	3.7	0.7	0.5	1.6
Geothermal	-	-	1.6	4.0	4.5	5.5	6.3	-	0.1	0.1	n.a.	1.4	1.9	1.4	1.6
Solar, wind, etc.	-	0.0	1.0	17	31	45	65	0.0	0.6	1.5	34.8	6.7	3.8	3.7	4.7
Biomass and waste	180	200	204	216	229	245	266	23	7.9	6.0	0.4	0.6	0.7	0.8	0.7

Final energy consumption	Mtoe							Shares (%)			CAGR (%)				
	1980	1990	2000	2011	2020	2030	2040	1990	2011	2040	1990/2011	2011/2020	2020/2030	2030/2040	2011/2040
<b>Total</b>	494	664	816	1,635	2,058	2,412	2,668	100	100	100	4.4	2.6	1.6	1.0	1.7
By sector															
Industry	188	244	329	783	870	912	922	37	48	35	5.7	1.2	0.5	0.1	0.6
Transport	24	34	83	211	365	483	566	5.1	13	21	9.1	6.3	2.8	1.6	3.5
Buildings, etc.	272	344	342	513	632	777	908	52	31	34	1.9	2.4	2.1	1.6	2.0
Non-energy use	10	43	62	127	190	239	272	6.5	7.8	10	5.3	4.5	2.3	1.3	2.7
By energy															
Coal	220	318	304	551	532	481	455	48	34	17	2.7	-0.4	-1.0	-0.5	-0.7
Oil	59	85	180	400	577	702	776	13	24	29	7.7	4.2	2.0	1.0	2.3
Natural gas	6.4	8.9	12	71	177	291	387	1.3	4.4	14	10.4	10.6	5.1	2.9	6.0
Electricity	21	39	89	332	468	613	708	5.9	20	27	10.7	3.9	2.7	1.5	2.6
Heat	7.4	13	25	65	87	104	114	2.0	4.0	4.3	7.9	3.2	1.8	1.0	2.0
Renewables	180	200	205	215	218	221	228	30	13	8.5	0.3	0.1	0.2	0.3	0.2

Electricity generation	(TWh)							Shares (%)			CAGR (%)				
	1980	1990	2000	2011	2020	2030	2040	1990	2011	2040	1990/2011	2011/2020	2020/2030	2030/2040	2011/2040
<b>Total</b>	301	621	1,356	4,716	6,524	8,458	9,695	100	100	100	10.1	3.7	2.6	1.4	2.5
Coal	164	443	1,062	3,723	4,578	5,676	6,100	71	79	63	10.7	2.3	2.2	0.7	1.7
Oil	78	49	46	7.9	7.6	7.5	7.4	7.9	0.2	0.1	-8.3	-0.3	-0.2	-0.2	-0.2
Natural gas	0.7	2.8	5.8	84	267	581	837	0.4	1.8	8.6	17.7	13.7	8.1	3.7	8.3
Nuclear	-	-	17	86	418	695	954	-	1.8	9.8	n.a.	19.2	5.2	3.2	8.6
Hydro	58	127	222	699	969	1,039	1,096	20	15	11	8.5	3.7	0.7	0.5	1.6
Geothermal	-	-	-	0.2	0.5	0.8	1.2	-	0.0	0.0	n.a.	13.4	5.6	3.6	7.3
Other renewables	-	0.0	3.1	115	284	458	698	0.0	2.4	7.2	63.1	10.5	4.9	4.3	6.4

Energy and economic indicators										CAGR (%)				
	1980	1990	2000	2011	2020	2030	2040	1990/2011	2011/2020	2020/2030	2030/2040	2011/2040		
GDP (\$2010 billion)	334	812	2,190	6,482	12,567	19,986	27,875	10.4	7.6	4.7	3.4	5.2		
Population (million)	981	1,135	1,263	1,344	1,407	1,427	1,410	0.8	0.5	0.1	-0.1	0.2		
CO <sub>2</sub> emissions <sup>2</sup> (Mt)	1,506	2,338	3,258	8,558	10,178	11,430	12,187	6.4	1.9	1.2	0.6	1.2		
GDP per capita (\$2010 thousand)	0.3	0.7	1.7	4.8	8.9	14	20	9.5	7.1	4.6	3.5	5.0		
Primary energy consump. per capita (toe)	0.6	0.8	0.9	2.0	2.4	2.8	3.1	4.7	2.1	1.4	1.1	1.5		
Primary energy consumption per GDP <sup>3</sup>	1,790	1,072	530	421	273	201	159	-4.4	-4.7	-3.0	-2.3	-3.3		
CO <sub>2</sub> emissions per GDP <sup>2, 4</sup>	4,507	2,879	1,488	1,320	810	572	437	-3.6	-5.3	-3.4	-2.6	-3.7		
CO <sub>2</sub> per primary energy consumption <sup>2, 5</sup>	2.5	2.7	2.8	3.1	3.0	2.9	2.8	0.7	-0.6	-0.4	-0.3	-0.4		
Automobile ownership (million)	1.8	5.5	16	94	192	284	363	14.4	8.3	4.0	2.5	4.8		
Automobile ownership rates <sup>6</sup>	1.8	4.9	13	70	136	199	258	13.5	7.7	3.9	2.6	4.6		

\*1 Trade of electricity and heat are not shown, \*2 Excludes emission reduction by CCS, \*3 toe/\$2010 million,

\*4 t/\$2010 million, \*5 t/toe, \*6 Vehicles per 1,000 people

Table 24 India

Primary energy consumption	Mtoe							Shares (%)			CAGR (%)				
	1980	1990	2000	2011	2020	2030	2040	1990	2011	2040	1990/2011	2011/2020	2020/2030	2030/2040	2011/2040
<b>Total<sup>1</sup></b>	205	317	457	749	1,011	1,403	1,896	100	100	100	4.2	3.4	3.3	3.1	3.3
Coal	49	103	161	326	421	609	843	33	43	44	5.6	2.9	3.8	3.3	3.3
Oil	33	61	113	166	239	331	432	19	22	23	4.8	4.2	3.3	2.7	3.4
Natural gas	1.3	11	23	50	88	146	239	3.3	6.7	13	7.7	6.4	5.3	5.0	5.5
Nuclear	0.8	1.6	4.4	8.7	27	48	74	0.5	1.2	3.9	8.4	13.5	5.9	4.3	7.6
Hydro	4.0	6.2	6.4	11	14	18	22	1.9	1.5	1.1	2.9	2.5	2.5	1.8	2.3
Geothermal	-	-	-	-	-	-	-	-	-	-	n.a.	n.a.	n.a.	n.a.	n.a.
Solar, wind, etc.	-	0.0	0.2	2.4	7.6	12	15	0.0	0.3	0.8	29.6	13.5	4.4	2.6	6.5
Biomass and waste	116	133	149	185	214	239	272	42	25	14	1.6	1.7	1.1	1.3	1.3

Final energy consumption	Mtoe							Shares (%)			CAGR (%)				
	1980	1990	2000	2011	2020	2030	2040	1990	2011	2040	1990/2011	2011/2020	2020/2030	2030/2040	2011/2040
<b>Total</b>	179	252	319	493	653	862	1,123	100	100	100	3.2	3.2	2.8	2.7	2.9
By sector															
Industry	44	70	87	168	231	314	416	28	34	37	4.2	3.6	3.1	2.8	3.2
Transport	17	27	32	58	91	142	203	11	12	18	3.7	5.1	4.5	3.7	4.4
Buildings, etc.	113	143	171	226	281	337	413	57	46	37	2.2	2.4	1.9	2.0	2.1
Non-energy use	5.2	12	29	40	50	68	92	4.6	8.2	8.2	6.1	2.5	3.2	3.0	2.9
By energy															
Coal	28	42	33	86	106	124	146	17	17	13	3.5	2.4	1.6	1.7	1.9
Oil	27	53	96	141	210	293	385	21	29	34	4.8	4.5	3.4	2.7	3.5
Natural gas	0.7	5.6	9.7	26	40	60	86	2.2	5.3	7.6	7.6	4.8	4.2	3.6	4.2
Electricity	7.7	18	32	67	114	199	317	7.2	14	28	6.4	6.1	5.8	4.7	5.5
Heat	-	-	-	-	-	-	-	-	-	-	n.a.	n.a.	n.a.	n.a.	n.a.
Renewables	116	133	148	173	184	185	190	53	35	17	1.2	0.7	0.1	0.3	0.3

Electricity generation	(TWh)							Shares (%)			CAGR (%)				
	1980	1990	2000	2011	2020	2030	2040	1990	2011	2040	1990/2011	2011/2020	2020/2030	2030/2040	2011/2040
<b>Total</b>	119	289	561	1,052	1,715	2,933	4,624	100	100	100	6.3	5.6	5.5	4.7	5.2
Coal	61	192	387	715	1,048	1,838	2,940	66	68	64	6.5	4.3	5.8	4.8	5.0
Oil	7.6	10	24	12	27	46	70	3.5	1.2	1.5	0.9	9.4	5.3	4.3	6.2
Natural gas	0.6	10.0	56	109	219	402	724	3.4	10	16	12.0	8.1	6.3	6.1	6.8
Nuclear	3.0	6.1	17	33	104	185	282	2.1	3.2	6.1	8.4	13.5	5.9	4.3	7.6
Hydro	47	72	74	131	163	208	250	25	12	5.4	2.9	2.5	2.5	1.8	2.3
Geothermal	-	-	-	-	-	-	-	-	-	-	n.a.	n.a.	n.a.	n.a.	n.a.
Other renewables	-	0.0	3.0	53	154	254	358	0.0	5.0	7.7	42.3	12.7	5.1	3.5	6.8

Energy and economic indicators										CAGR (%)				
	1980	1990	2000	2011	2020	2030	2040	1990/2011	2011/2020	2020/2030	2030/2040	2011/2040		
GDP (\$2010 billion)	278	477	819	1,793	3,294	6,113	9,931	6.5	7.0	6.4	5.0	6.1		
Population (million)	700	874	1,054	1,241	1,376	1,501	1,592	1.7	1.1	0.9	0.6	0.9		
CO <sub>2</sub> emissions <sup>2</sup> (Mt)	285	591	958	1,801	2,463	3,574	4,957	5.5	3.5	3.8	3.3	3.6		
GDP per capita (\$2010 thousand)	0.4	0.5	0.8	1.4	2.4	4.1	6.2	4.7	5.8	5.5	4.4	5.2		
Primary energy consump. per capita (toe)	0.3	0.4	0.4	0.6	0.7	0.9	1.2	2.5	2.2	2.4	2.5	2.4		
Primary energy consumption per GDP <sup>3</sup>	739	664	559	418	307	230	191	-2.2	-3.4	-2.9	-1.8	-2.7		
CO <sub>2</sub> emissions per GDP <sup>2, 4</sup>	1,026	1,239	1,170	1,004	748	585	499	-1.0	-3.2	-2.4	-1.6	-2.4		
CO <sub>2</sub> per primary energy consumption <sup>2, 5</sup>	1.4	1.9	2.1	2.4	2.4	2.5	2.6	1.2	0.1	0.5	0.3	0.3		
Automobile ownership (million)	1.7	4.3	9.4	20	41	87	172	7.7	8.2	7.8	7.1	7.6		
Automobile ownership rates <sup>6</sup>	2.4	4.9	8.9	16	30	58	108	5.9	6.9	6.8	6.5	6.7		

\*1 Trade of electricity and heat are not shown, \*2 Excludes emission reduction by CCS, \*3 toe/\$2010 million,

\*4 t/\$2010 million, \*5 t/toe, \*6 Vehicles per 1,000 people



Table 25 Japan

Primary energy consumption	Mtoe							Shares (%)			CAGR (%)				
	1980	1990	2000	2011	2020	2030	2040	1990	2011	2040	1990/2011	2011/2020	2020/2030	2030/2040	2011/2040
<b>Total<sup>*1</sup></b>	345	439	519	461	466	449	425	100	100	100	0.2	0.1	-0.4	-0.6	-0.3
Coal	60	77	97	107	97	99	92	17	23	22	1.6	-1.1	0.1	-0.7	-0.5
Oil	234	250	255	206	180	162	145	57	45	34	-0.9	-1.5	-1.1	-1.1	-1.2
Natural gas	21	44	66	100	97	108	107	10	22	25	4.0	-0.3	1.1	0.0	0.2
Nuclear	22	53	84	27	62	44	37	12	5.7	8.7	-3.2	9.9	-3.4	-1.8	1.1
Hydro	7.6	7.7	7.5	7.2	7.4	7.4	7.4	1.7	1.6	1.8	-0.3	0.3	0.1	0.0	0.1
Geothermal	0.8	1.6	3.1	2.5	7.0	12	17	0.4	0.5	3.9	2.2	12.1	5.5	3.3	6.8
Solar, wind, etc.	-	1.2	0.8	1.2	3.5	5.1	6.9	0.3	0.3	1.6	0.3	12.3	3.7	3.1	6.1
Biomass and waste	-	5.0	5.9	10	12	13	13	1.1	2.3	3.0	3.6	1.2	0.8	0.1	0.7

Final energy consumption	Mtoe							Shares (%)			CAGR (%)				
	1980	1990	2000	2011	2020	2030	2040	1990	2011	2040	1990/2011	2011/2020	2020/2030	2030/2040	2011/2040
<b>Total</b>	232	299	343	314	304	293	279	100	100	100	0.2	-0.4	-0.4	-0.5	-0.4
By sector															
Industry	91	102	98	85	84	83	80	34	27	29	-0.9	0.0	-0.2	-0.3	-0.2
Transport	54	72	88	76	69	62	54	24	24	20	0.3	-1.0	-1.2	-1.2	-1.1
Buildings, etc.	58	91	116	116	115	114	110	30	37	39	1.2	-0.1	-0.1	-0.3	-0.2
Non-energy use	28	35	42	38	35	35	35	12	12	12	0.4	-0.8	0.0	-0.1	-0.3
By energy															
Coal	25	32	25	26	25	24	22	11	8.4	7.8	-0.9	-0.5	-0.7	-0.8	-0.7
Oil	157	184	210	168	147	131	117	61	53	42	-0.4	-1.4	-1.2	-1.1	-1.2
Natural gas	5.8	15	23	35	36	37	37	5.1	11	13	4.1	0.2	0.2	0.0	0.2
Electricity	44	64	81	81	89	93	94	22	26	34	1.1	1.0	0.5	0.1	0.5
Heat	0.1	0.2	0.5	0.5	2.7	4.8	6.6	0.1	0.2	2.4	5.2	19.7	5.7	3.3	9.0
Renewables	-	3.9	3.7	3.6	3.6	3.3	2.6	1.3	1.1	0.9	-0.4	0.2	-1.1	-2.4	-1.2

Electricity generation	(TWh)							Shares (%)			CAGR (%)				
	1980	1990	2000	2011	2020	2030	2040	1990	2011	2040	1990/2011	2011/2020	2020/2030	2030/2040	2011/2040
<b>Total</b>	573	836	1,049	1,043	1,126	1,185	1,193	100	100	100	1.1	0.9	0.5	0.1	0.5
Coal	55	117	232	281	246	273	265	14	27	22	4.3	-1.5	1.0	-0.3	-0.2
Oil	265	248	137	153	125	113	97	30	15	8.1	-2.3	-2.2	-1.0	-1.5	-1.6
Natural gas	81	167	251	374	345	425	450	20	36	38	3.9	-0.9	2.1	0.6	0.6
Nuclear	83	202	322	102	239	169	141	24	9.8	12	-3.2	9.9	-3.4	-1.8	1.1
Hydro	88	89	87	83	86	87	87	11	8.0	7.3	-0.3	0.3	0.1	0.0	0.1
Geothermal	0.9	1.7	3.3	2.7	7.9	14	19	0.2	0.3	1.6	2.1	12.7	5.6	3.4	7.0
Other renewables	-	11	16	47	78	105	134	1.3	4.5	11	7.4	5.9	3.1	2.4	3.7

Energy and economic indicators									CAGR (%)				
	1980	1990	2000	2011	2020	2030	2040	1990/2011	2011/2020	2020/2030	2030/2040	2011/2040	
GDP (\$2010 billion)	2,896	4,557	5,097	5,450	6,345	7,207	8,055	0.9	1.7	1.3	1.1	1.4	
Population (million)	117	124	127	128	126	121	115	0.2	-0.2	-0.4	-0.5	-0.4	
CO <sub>2</sub> emissions <sup>*2</sup> (Mt)	916	1,070	1,194	1,178	1,060	1,033	955	0.5	-1.2	-0.3	-0.8	-0.7	
GDP per capita (\$2010 thousand)	25	37	40	43	50	60	70	0.7	1.9	1.7	1.6	1.7	
Primary energy consump. per capita (toe)	3.0	3.6	4.1	3.6	3.7	3.7	3.7	0.1	0.3	0.0	0.0	0.1	
Primary energy consumption per GDP <sup>*3</sup>	119	96	102	85	74	62	53	-0.6	-1.6	-1.6	-1.7	-1.6	
CO <sub>2</sub> emissions per GDP <sup>*2, *4</sup>	316	235	234	216	167	143	119	-0.4	-2.8	-1.5	-1.9	-2.0	
CO <sub>2</sub> per primary energy consumption <sup>*2, *5</sup>	2.7	2.4	2.3	2.6	2.3	2.3	2.3	0.2	-1.3	0.1	-0.2	-0.4	
Automobile ownership (million)	38	58	72	75	76	72	67	1.3	0.1	-0.6	-0.6	-0.4	
Automobile ownership rates <sup>*6</sup>	325	467	570	590	603	591	584	1.1	0.2	-0.2	-0.1	0.0	

\*1 Trade of electricity and heat are not shown, \*2 Excludes emission reduction by CCS, \*3 toe/\$2010 million,

\*4 t/\$2010 million, \*5 t/toe, \*6 Vehicles per 1,000 people

Table 26 Korea

Primary energy consumption	Mtoe							Shares (%)			CAGR (%)				
	1980	1990	2000	2011	2020	2030	2040	1990/1990	2011/2011	2040/2040	1990/2011	2011/2020	2020/2030	2030/2040	2011/2040
<b>Total<sup>*1</sup></b>	41	93	188	260	290	309	310	100	100	100	5.0	1.2	0.6	0.0	0.6
Coal	13	26	42	80	76	77	76	27	31	24	5.6	-0.6	0.0	-0.1	-0.2
Oil	27	50	99	94	95	94	92	53	36	30	3.1	0.2	-0.2	-0.2	-0.1
Natural gas	-	2.7	17	42	47	52	52	2.9	16	17	13.9	1.3	1.0	0.1	0.8
Nuclear	0.9	14	28	40	65	78	78	15	15	25	5.2	5.5	1.8	0.0	2.3
Hydro	0.2	0.5	0.3	0.4	0.4	0.4	0.4	0.6	0.2	0.1	-1.5	0.0	0.0	0.0	0.0
Geothermal	-	-	-	0.0	0.1	0.1	0.1	-	0.0	0.0	n.a.	2.8	2.2	1.8	2.3
Solar, wind, etc.	-	0.0	0.0	0.2	1.1	2.0	3.4	0.0	0.1	1.1	15.5	20.0	6.3	5.6	10.1
Biomass and waste	-	0.7	1.4	3.9	5.2	6.5	7.9	0.8	1.5	2.5	8.2	3.3	2.3	1.9	2.5

Final energy consumption	Mtoe							Shares (%)			CAGR (%)				
	1980	1990	2000	2011	2020	2030	2040	1990/1990	2011/2011	2040/2040	1990/2011	2011/2020	2020/2030	2030/2040	2011/2040
<b>Total</b>	31	65	127	161	178	187	188	100	100	100	4.4	1.1	0.5	0.0	0.5
By sector															
Industry	10	19	38	47	54	59	60	30	29	32	4.4	1.5	1.0	0.2	0.9
Transport	4.8	15	26	29	29	29	29	22	18	15	3.4	0.0	0.0	-0.2	-0.1
Buildings, etc.	13	24	37	44	47	49	47	38	28	25	2.9	0.7	0.3	-0.3	0.2
Non-energy use	3.1	6.7	25	40	48	50	52	10	25	27	8.9	1.9	0.5	0.3	0.9
By energy															
Coal	9.7	12	9.1	9.6	11	11	10	18	6.0	5.4	-0.9	1.4	0.4	-1.2	0.2
Oil	19	44	80	82	85	84	83	67	51	44	3.1	0.4	-0.1	-0.1	0.0
Natural gas	-	0.7	11	22	26	28	27	1.0	13	15	18.0	2.1	0.8	-0.3	0.8
Electricity	2.8	8.1	23	40	49	55	59	13	25	31	8.0	2.0	1.3	0.6	1.3
Heat	-	-	3.3	4.5	4.1	4.0	3.9	-	2.8	2.1	n.a.	-1.0	-0.2	-0.3	-0.5
Renewables	-	0.7	1.3	2.8	3.4	4.1	4.8	1.1	1.7	2.5	6.6	2.2	1.8	1.6	1.8

Electricity generation	(TWh)							Shares (%)			CAGR (%)				
	1980	1990	2000	2011	2020	2030	2040	1990/1990	2011/2011	2040/2040	1990/2011	2011/2020	2020/2030	2030/2040	2011/2040
<b>Total</b>	37	105	289	520	618	707	746	100	100	100	7.9	1.9	1.3	0.5	1.3
Coal	2.5	18	111	225	214	225	237	17	43	32	12.9	-0.5	0.5	0.5	0.2
Oil	29	19	35	17	12	7.7	5.9	18	3.2	0.8	-0.6	-3.7	-4.3	-2.5	-3.5
Natural gas	-	9.6	29	116	122	142	153	9.1	22	20	12.6	0.6	1.6	0.7	1.0
Nuclear	3.5	53	109	155	250	299	299	50	30	40	5.2	5.5	1.8	0.0	2.3
Hydro	2.0	6.4	4.0	4.6	4.6	4.6	4.6	6.0	0.9	0.6	-1.5	0.0	0.0	0.0	0.0
Geothermal	-	-	-	-	-	-	-	-	-	-	n.a.	n.a.	n.a.	n.a.	n.a.
Other renewables	-	0.0	0.1	3.7	15	28	47	0.0	0.7	6.3	47.9	17.2	6.1	5.3	9.1

Energy and economic indicators									CAGR (%)				
	1980	1990	2000	2011	2020	2030	2040	1990/2011	2011/2020	2020/2030	2030/2040	2011/2040	
GDP (\$2010 billion)	162	374	675	1,052	1,451	1,891	2,271	5.0	3.6	2.7	1.8	2.7	
Population (million)	38	43	47	50	52	53	53	0.7	0.5	0.3	0.0	0.2	
CO <sub>2</sub> emissions <sup>*2</sup> (Mt)	126	240	433	580	558	559	546	4.3	-0.4	0.0	-0.2	-0.2	
GDP per capita (\$2010 thousand)	4.3	8.7	14	21	28	35	43	4.3	3.2	2.4	1.8	2.4	
Primary energy consump. per capita (toe)	1.1	2.2	4.0	5.2	5.6	5.8	5.8	4.3	0.8	0.3	0.0	0.4	
Primary energy consumption per GDP <sup>*3</sup>	254	249	279	248	200	163	136	0.0	-2.3	-2.0	-1.8	-2.0	
CO <sub>2</sub> emissions per GDP <sup>*2, *4</sup>	776	640	641	551	385	295	241	-0.7	-3.9	-2.6	-2.0	-2.8	
CO <sub>2</sub> per primary energy consumption <sup>*2, *5</sup>	3.1	2.6	2.3	2.2	1.9	1.8	1.8	-0.7	-1.6	-0.6	-0.2	-0.8	
Automobile ownership (million)	0.5	3.4	12	18	22	26	28	8.4	1.9	1.6	1.0	1.5	
Automobile ownership rates <sup>*6</sup>	14	79	257	370	422	480	530	7.6	1.5	1.3	1.0	1.2	

\*1 Trade of electricity and heat are not shown, \*2 Excludes emission reduction by CCS, \*3 toe/\$2010 million,

\*4 t/\$2010 million, \*5 t/toe, \*6 Vehicles per 1,000 people

Table 27 Chinese Taipei

Primary energy consumption	Mtoe							Shares (%)			CAGR (%)				
	1980	1990	2000	2011	2020	2030	2040	1990	2011	2040	1990/2011	2011/2020	2020/2030	2030/2040	2011/2040
<b>Total<sup>1</sup></b>	28	48	85	109	121	128	130	100	100	100	3.9	1.2	0.6	0.1	0.6
Coal	3.9	11	30	41	34	33	27	24	38	21	6.3	-2.0	-0.4	-1.8	-1.4
Oil	20	26	38	39	45	48	49	54	36	37	2.0	1.5	0.6	0.1	0.7
Natural gas	1.6	1.9	6.0	15	21	28	32	3.8	14	25	10.4	4.0	2.7	1.4	2.7
Nuclear	2.1	8.6	10	11	16	14	14	18	10	11	1.2	4.6	-1.7	0.0	0.8
Hydro	0.3	0.5	0.4	0.3	0.3	0.3	0.3	1.1	0.3	0.3	-2.2	0.0	0.0	0.0	0.0
Geothermal	-	0.0	-	-	-	-	-	0.0	-	-	-100	n.a.	n.a.	n.a.	n.a.
Solar, wind, etc.	-	0.0	0.1	0.2	0.6	0.9	1.4	0.0	0.2	1.1	12.8	11.8	3.7	5.1	6.6
Biomass and waste	-	-	0.6	1.8	2.9	4.6	6.5	-	1.6	5.0	n.a.	5.8	4.5	3.6	4.6

Final energy consumption	Mtoe							Shares (%)			CAGR (%)				
	1980	1990	2000	2011	2020	2030	2040	1990	2011	2040	1990/2011	2011/2020	2020/2030	2030/2040	2011/2040
<b>Total</b>	19	29	49	65	74	79	81	100	100	100	3.9	1.4	0.7	0.2	0.7
By sector															
Industry	10	12	19	23	25	26	26	42	35	33	3.0	0.9	0.5	0.1	0.5
Transport	2.9	6.7	12	12	14	15	15	23	19	19	2.9	1.6	0.8	-0.1	0.8
Buildings, etc.	3.6	6.4	10	12	13	14	15	22	18	18	2.9	1.2	0.8	0.4	0.8
Non-energy use	2.2	4.0	7.8	18	22	24	25	14	28	30	7.5	1.9	0.9	0.4	1.0
By energy															
Coal	2.2	3.6	5.0	7.5	8.3	8.6	8.5	12	11	11	3.6	1.2	0.3	0.0	0.4
Oil	12	18	28	36	40	44	44	62	55	55	3.3	1.3	0.7	0.1	0.7
Natural gas	1.4	0.9	1.6	2.4	2.9	3.2	3.4	3.0	3.6	4.2	4.8	2.1	1.1	0.6	1.3
Electricity	3.2	6.6	14	19	22	23	24	22	29	30	5.2	1.3	0.8	0.3	0.8
Heat	-	-	-	-	-	-	-	-	-	-	n.a.	n.a.	n.a.	n.a.	n.a.
Renewables	-	0.0	0.1	0.3	0.6	0.7	0.8	0.1	0.5	1.0	15.0	6.1	2.2	1.3	3.1

Electricity generation	(TWh)							Shares (%)			CAGR (%)				
	1980	1990	2000	2011	2020	2030	2040	1990	2011	2040	1990/2011	2011/2020	2020/2030	2030/2040	2011/2040
<b>Total</b>	43	88	181	249	279	301	311	100	100	100	5.1	1.3	0.8	0.3	0.8
Coal	6.0	24	88	127	105	100	77	28	51	25	8.2	-2.1	-0.5	-2.5	-1.7
Oil	26	23	30	9.6	5.7	4.7	4.4	26	3.9	1.4	-4.1	-5.7	-1.8	-0.7	-2.6
Natural gas	-	1.2	17	61	89	121	142	1.4	25	46	20.4	4.3	3.1	1.6	2.9
Nuclear	8.2	33	39	42	63	53	53	37	17	17	1.2	4.6	-1.7	0.0	0.8
Hydro	2.9	6.4	4.6	4.0	4.0	4.0	4.0	7.2	1.6	1.3	-2.2	0.0	0.0	0.0	0.0
Geothermal	-	0.0	-	-	-	-	-	0.0	-	-	-100	n.a.	n.a.	n.a.	n.a.
Other renewables	-	-	1.7	5.0	12	18	29	-	2.0	9.4	n.a.	9.9	4.5	4.9	6.3

Energy and economic indicators								CAGR (%)				
	1980	1990	2000	2011	2020	2030	2040	1990/2011	2011/2020	2020/2030	2030/2040	2011/2040
GDP (\$2010 billion)	80	168	307	466	657	829	945	5.0	3.9	2.3	1.3	2.5
Population (million)	18	20	22	23	24	24	23	0.6	0.3	0.0	-0.3	0.0
CO <sub>2</sub> emissions <sup>2</sup> (Mt)	74	117	226	262	258	271	257	3.9	-0.2	0.5	-0.5	-0.1
GDP per capita (\$2010 thousand)	4.5	8.2	14	20	28	35	41	4.3	3.6	2.3	1.7	2.5
Primary energy consump. per capita (toe)	1.6	2.4	3.8	4.7	5.1	5.4	5.6	3.3	1.0	0.6	0.5	0.7
Primary energy consumption per GDP <sup>3</sup>	347	288	278	233	184	155	137	-1.0	-2.6	-1.7	-1.2	-1.8
CO <sub>2</sub> emissions per GDP <sup>2, 4</sup>	918	695	736	562	392	327	272	-1.0	-3.9	-1.8	-1.8	-2.5
CO <sub>2</sub> per primary energy consumption <sup>2, 5</sup>	2.6	2.4	2.6	2.4	2.1	2.1	2.0	0.0	-1.4	-0.1	-0.6	-0.7
Automobile ownership (million)	0.5	2.9	5.5	7.0	8.4	9.4	9.7	4.3	2.0	1.1	0.3	1.1
Automobile ownership rates <sup>6</sup>	27	141	249	301	352	393	420	3.7	1.7	1.1	0.7	1.1

\*1 Trade of electricity and heat are not shown, \*2 Excludes emission reduction by CCS, \*3 toe/\$2010 million,

\*4 t/\$2010 million, \*5 t/toe, \*6 Vehicles per 1,000 people

Table 28 ASEAN

Primary energy consumption	Mtoe							Shares (%)			CAGR (%)				
	1980	1990	2000	2011	2020	2030	2040	1990	2011	2040	1990/2011	2011/2020	2020/2030	2030/2040	2011/2040
<b>Total<sup>1</sup></b>	142	233	377	557	767	1,038	1,349	100	100	100	4.2	3.6	3.1	2.7	3.1
Coal	3.6	12	32	90	146	221	321	5.4	16	24	9.9	5.5	4.3	3.8	4.5
Oil	58	88	153	206	283	355	436	38	37	32	4.1	3.6	2.3	2.1	2.6
Natural gas	8.4	29	71	117	176	246	329	13	21	24	6.8	4.6	3.4	2.9	3.6
Nuclear	-	-	-	-	-	9.4	20	-	-	1.5	n.a.	n.a.	n.a.	7.9	n.a.
Hydro	0.8	2.3	4.1	6.3	8.0	10	11	1.0	1.1	0.8	4.8	2.8	2.3	0.9	2.0
Geothermal	1.8	6.6	18	25	33	51	69	2.9	4.4	5.1	6.5	3.2	4.5	3.1	3.6
Solar, wind, etc.	-	-	-	0.0	0.1	0.2	0.7	-	0.0	0.1	n.a.	20.9	5.7	11.4	12.2
Biomass and waste	70	93	98	112	120	142	159	40	20	12	0.9	0.8	1.7	1.2	1.2

Final energy consumption	Mtoe							Shares (%)			CAGR (%)				
	1980	1990	2000	2011	2020	2030	2040	1990	2011	2040	1990/2011	2011/2020	2020/2030	2030/2040	2011/2040
<b>Total</b>	112	173	271	406	558	743	953	100	100	100	4.1	3.6	2.9	2.5	3.0
By sector															
Industry	22	43	77	119	177	254	339	25	29	36	5.0	4.6	3.7	2.9	3.7
Transport	17	32	62	97	141	192	249	19	24	26	5.4	4.2	3.1	2.6	3.3
Buildings, etc.	71	87	112	136	167	211	266	50	33	28	2.1	2.3	2.4	2.4	2.3
Non-energy use	2.4	11	21	54	73	86	98	6.6	13	10	7.7	3.4	1.7	1.3	2.1
By energy															
Coal	2.1	6.1	14	35	58	83	109	3.5	8.6	11	8.7	5.8	3.5	2.8	4.0
Oil	41	67	124	186	252	325	405	38	46	43	5.0	3.4	2.5	2.2	2.7
Natural gas	2.5	7.4	17	33	51	74	102	4.3	8.3	11	7.4	4.7	3.9	3.2	3.9
Electricity	4.7	11	28	53	83	130	191	6.4	13	20	7.7	5.1	4.6	3.9	4.5
Heat	-	-	-	-	-	-	-	-	-	-	n.a.	n.a.	n.a.	n.a.	n.a.
Renewables	62	82	89	98	114	132	145	47	24	15	0.9	1.7	1.5	1.0	1.4

Electricity generation	(TWh)							Shares (%)			CAGR (%)				
	1980	1990	2000	2011	2020	2030	2040	1990	2011	2040	1990/2011	2011/2020	2020/2030	2030/2040	2011/2040
<b>Total</b>	62	154	370	694	1,071	1,668	2,448	100	100	100	7.4	4.9	4.5	3.9	4.4
Coal	3.0	28	79	216	357	595	951	18	31	39	10.3	5.8	5.2	4.8	5.3
Oil	47	66	72	71	70	71	72	43	10	3.0	0.3	-0.1	0.1	0.2	0.1
Natural gas	0.7	26	154	307	497	752	1,067	17	44	44	12.6	5.5	4.2	3.6	4.4
Nuclear	-	-	-	-	-	45	104	-	-	4.2	n.a.	n.a.	n.a.	8.7	n.a.
Hydro	9.8	27	47	73	94	118	129	18	11	5.3	4.8	2.9	2.3	0.9	2.0
Geothermal	2.1	6.6	16	19	38	59	80	4.3	2.8	3.3	5.3	7.8	4.5	3.1	5.0
Other renewables	-	0.6	1.0	7.9	16	29	46	0.4	1.1	1.9	13.1	8.0	6.2	4.7	6.2

Energy and economic indicators								CAGR (%)				
	1980	1990	2000	2011	2020	2030	2040	1990/2011	2011/2020	2020/2030	2030/2040	2011/2040
GDP (\$2010 billion)	400	694	1,120	1,938	3,125	4,890	7,061	5.0	5.5	4.6	3.7	4.6
Population (million)	348	430	504	577	635	687	725	1.4	1.1	0.8	0.5	0.8
CO <sub>2</sub> emissions <sup>2</sup> (Mt)	205	358	703	1,105	1,643	2,291	3,091	5.5	4.5	3.4	3.0	3.6
GDP per capita (\$2010 thousand)	1.1	1.6	2.2	3.4	4.9	7.1	9.7	3.5	4.3	3.8	3.2	3.7
Primary energy consump. per capita (toe)	0.4	0.5	0.7	1.0	1.2	1.5	1.9	2.8	2.5	2.3	2.1	2.3
Primary energy consumption per GDP <sup>3</sup>	356	335	336	287	246	212	191	-0.7	-1.7	-1.4	-1.0	-1.4
CO <sub>2</sub> emissions per GDP <sup>2, 4</sup>	512	516	628	570	526	468	438	0.5	-0.9	-1.2	-0.7	-0.9
CO <sub>2</sub> per primary energy consumption <sup>2, 5</sup>	1.4	1.5	1.9	2.0	2.1	2.2	2.3	1.2	0.9	0.3	0.4	0.5
Automobile ownership (million)	4.5	10	21	45	67	98	138	7.4	4.6	3.8	3.5	4.0
Automobile ownership rates <sup>6</sup>	13	24	41	78	106	143	191	5.9	3.5	3.0	3.0	3.1

\*1 Trade of electricity and heat are not shown, \*2 Excludes emission reduction by CCS, \*3 toe/\$2010 million,

\*4 t/\$2010 million, \*5 t/toe, \*6 Vehicles per 1,000 people

Table 29 Indonesia

Primary energy consumption	Mtoe							Shares (%)			CAGR (%)				
	1980	1990	2000	2011	2020	2030	2040	1990	2011	2040	1990/2011	2011/2020	2020/2030	2030/2040	2011/2040
<b>Total<sup>1</sup></b>	56	99	155	209	301	413	547	100	100	100	3.6	4.1	3.2	2.8	3.4
Coal	0.2	3.5	12	31	65	101	149	3.6	15	27	11.0	8.4	4.5	4.0	5.5
Oil	20	33	58	73	100	131	168	34	35	31	3.8	3.6	2.7	2.5	2.9
Natural gas	4.9	16	27	35	50	67	91	16	17	17	3.8	4.2	3.0	3.0	3.4
Nuclear	-	-	-	-	-	-	-	-	-	-	n.a.	n.a.	n.a.	n.a.	n.a.
Hydro	0.1	0.5	0.9	1.1	1.2	1.4	1.5	0.5	0.5	0.3	3.8	1.2	1.3	0.7	1.1
Geothermal	-	1.9	8.4	16	24	41	58	2.0	7.7	11	10.6	4.3	5.6	3.6	4.5
Solar, wind, etc.	-	-	-	0.0	0.0	0.0	0.0	-	0.0	0.0	n.a.	28.0	6.5	12.8	15.0
Biomass and waste	30	43	49	53	61	72	80	44	25	15	0.9	1.6	1.7	1.0	1.4

Final energy consumption	Mtoe							Shares (%)			CAGR (%)				
	1980	1990	2000	2011	2020	2030	2040	1990	2011	2040	1990/2011	2011/2020	2020/2030	2030/2040	2011/2040
<b>Total</b>	50	80	120	158	222	298	388	100	100	100	3.3	3.8	3.0	2.7	3.1
By sector															
Industry	6.7	18	31	45	73	102	135	23	28	35	4.4	5.6	3.4	2.8	3.9
Transport	6.0	11	22	39	62	92	126	13	25	32	6.4	5.2	4.1	3.2	4.1
Buildings, etc.	36	44	58	64	77	92	113	55	41	29	1.9	1.9	1.8	2.0	1.9
Non-energy use	1.2	7.4	9.8	9.8	10	12	14	9.2	6.2	3.7	1.4	0.4	1.7	1.8	1.3
By energy															
Coal	0.1	2.1	4.7	11	27	37	47	2.7	7.1	12	8.2	10.1	3.3	2.5	5.1
Oil	17	27	49	64	89	121	158	34	41	41	4.2	3.7	3.1	2.7	3.2
Natural gas	2.4	6.0	12	17	21	30	42	7.5	11	11	5.0	2.8	3.6	3.2	3.2
Electricity	0.6	2.4	6.8	14	24	38	61	3.0	8.7	16	8.6	6.2	4.9	4.8	5.3
Heat	-	-	-	-	-	-	-	-	-	-	n.a.	n.a.	n.a.	n.a.	n.a.
Renewables	29	42	48	52	61	72	80	53	33	21	1.0	1.7	1.7	1.0	1.5

Electricity generation	(TWh)							Shares (%)			CAGR (%)				
	1980	1990	2000	2011	2020	2030	2040	1990	2011	2040	1990/2011	2011/2020	2020/2030	2030/2040	2011/2040
<b>Total</b>	7.5	33	93	182	310	498	788	100	100	100	8.5	6.1	4.9	4.7	5.2
Coal	-	9.8	34	81	154	276	472	30	44	60	10.6	7.4	6.0	5.5	6.3
Oil	6.2	15	18	42	39	37	34	47	23	4.3	5.0	-0.8	-0.7	-0.7	-0.7
Natural gas	-	0.7	26	37	75	122	197	2.2	20	25	20.5	8.2	4.9	4.9	5.9
Nuclear	-	-	-	-	-	-	-	-	-	-	n.a.	n.a.	n.a.	n.a.	n.a.
Hydro	1.3	5.7	10	12	14	16	17	17	6.8	2.1	3.8	1.2	1.3	0.7	1.1
Geothermal	-	1.1	4.9	9.4	27	47	67	3.4	5.1	8.5	10.6	12.6	5.6	3.6	7.0
Other renewables	-	-	0.0	0.2	0.4	0.7	1.0	-	0.1	0.1	n.a.	8.9	4.9	4.1	5.9

Energy and economic indicators										CAGR (%)				
	1980	1990	2000	2011	2020	2030	2040	1990/2011	2011/2020	2020/2030	2030/2040	2011/2040		
GDP (\$2010 billion)	152	281	425	754	1,296	2,102	3,182	4.8	6.2	5.0	4.2	5.1		
Population (million)	151	184	213	242	268	292	309	1.3	1.1	0.9	0.6	0.8		
CO <sub>2</sub> emissions <sup>2</sup> (Mt)	71	134	262	402	655	927	1,279	5.4	5.6	3.5	3.3	4.1		
GDP per capita (\$2010 thousand)	1.0	1.5	2.0	3.1	4.8	7.2	10	3.4	5.0	4.1	3.6	4.2		
Primary energy consump. per capita (toe)	0.4	0.5	0.7	0.9	1.1	1.4	1.8	2.3	3.0	2.3	2.2	2.5		
Primary energy consumption per GDP <sup>3</sup>	368	351	364	277	232	197	172	-1.1	-1.9	-1.7	-1.3	-1.6		
CO <sub>2</sub> emissions per GDP <sup>2, 4</sup>	472	476	616	533	506	441	402	0.5	-0.6	-1.4	-0.9	-1.0		
CO <sub>2</sub> per primary energy consumption <sup>2, 5</sup>	1.3	1.4	1.7	1.9	2.2	2.2	2.3	1.7	1.4	0.3	0.4	0.7		
Automobile ownership (million)	1.3	2.8	5.4	17	29	48	74	8.9	6.3	5.1	4.5	5.2		
Automobile ownership rates <sup>6</sup>	8.6	15	25	69	108	163	239	7.5	5.1	4.2	3.9	4.4		

\*1 Trade of electricity and heat are not shown, \*2 Excludes emission reduction by CCS, \*3 toe/\$2010 million,

\*4 t/\$2010 million, \*5 t/toe, \*6 Vehicles per 1,000 people

Table 30 Malaysia

Primary energy consumption	Mtoe							Shares (%)			CAGR (%)				
	1980	1990	2000	2011	2020	2030	2040	1990/1990	2011/2011	2040/2040	1990/2011	2011/2020	2020/2030	2030/2040	2011/2040
<b>Total<sup>1</sup></b>	12	22	47	76	102	129	152	100	100	100	6.2	3.3	2.4	1.6	2.4
Coal	0.1	1.4	2.3	16	19	29	36	6.3	21	24	12.3	2.4	4.0	2.5	3.0
Oil	7.9	11	19	28	34	37	40	53	36	26	4.3	2.3	1.0	0.6	1.3
Natural gas	2.0	6.1	22	28	45	55	61	28	38	40	7.6	5.2	2.1	1.0	2.7
Nuclear	-	-	-	-	-	2.6	7.7	-	-	5.1	n.a.	n.a.	n.a.	11.6	n.a.
Hydro	0.1	0.3	0.6	0.7	0.7	0.9	1.0	1.6	0.9	0.7	3.1	0.0	3.4	1.1	1.5
Geothermal	-	-	-	-	-	-	-	-	-	-	n.a.	n.a.	n.a.	n.a.	n.a.
Solar, wind, etc.	-	-	-	-	0.0	0.0	0.0	-	-	0.0	n.a.	n.a.	6.5	12.8	n.a.
Biomass and waste	1.8	2.4	2.9	3.5	3.2	4.5	5.7	11	4.6	3.8	1.8	-0.9	3.3	2.5	1.7

Final energy consumption	Mtoe							Shares (%)			CAGR (%)				
	1980	1990	2000	2011	2020	2030	2040	1990/1990	2011/2011	2040/2040	1990/2011	2011/2020	2020/2030	2030/2040	2011/2040
<b>Total</b>	7.3	14	30	45	65	81	95	100	100	100	5.7	4.1	2.2	1.6	2.6
By sector															
Industry	3.1	5.6	12	12	20	27	34	40	26	36	3.6	6.0	3.3	2.1	3.7
Transport	2.1	4.8	10	14	19	21	23	34	32	24	5.4	3.2	1.2	0.8	1.6
Buildings, etc.	1.7	2.8	5.4	9.6	14	19	24	20	21	26	6.0	4.2	3.1	2.5	3.2
Non-energy use	0.3	0.8	2.1	9.1	12	13	14	5.6	20	14	12.4	2.8	1.0	0.5	1.4
By energy															
Coal	0.1	0.5	1.0	1.8	1.8	2.2	2.5	3.7	3.9	2.6	6.0	0.1	2.2	1.1	1.2
Oil	5.3	9.2	18	24	31	34	36	66	54	38	4.8	2.7	0.9	0.6	1.4
Natural gas	0.0	1.0	3.5	7.7	15	20	23	7.1	17	24	10.3	7.8	2.6	1.6	3.8
Electricity	0.7	1.7	5.3	9.2	14	22	29	12	21	31	8.4	5.0	4.3	3.0	4.1
Heat	-	-	-	-	-	-	-	-	-	-	n.a.	n.a.	n.a.	n.a.	n.a.
Renewables	1.2	1.5	1.8	1.8	2.3	3.0	3.6	11	3.9	3.8	0.6	3.1	2.6	1.9	2.5

Electricity generation	(TWh)							Shares (%)			CAGR (%)				
	1980	1990	2000	2011	2020	2030	2040	1990/1990	2011/2011	2040/2040	1990/2011	2011/2020	2020/2030	2030/2040	2011/2040
<b>Total</b>	10	23	69	130	201	298	387	100	100	100	8.6	5.0	4.0	2.7	3.8
Coal	-	2.9	7.7	53	74	116	155	13	41	40	14.8	3.8	4.6	3.0	3.8
Oil	8.5	11	3.6	10.0	10.0	10.0	10.0	48	7.7	2.6	-0.5	0.0	0.0	0.0	0.0
Natural gas	0.1	5.0	51	58	106	146	173	22	45	45	12.4	6.9	3.2	1.7	3.8
Nuclear	-	-	-	-	-	9.8	29	-	-	7.6	n.a.	n.a.	n.a.	11.6	n.a.
Hydro	1.4	4.0	7.0	7.6	8.1	11	13	17	5.9	3.3	3.1	0.7	3.4	1.1	1.8
Geothermal	-	-	-	-	-	-	-	-	-	-	n.a.	n.a.	n.a.	n.a.	n.a.
Other renewables	-	-	-	1.3	2.9	4.6	6.8	-	1.0	1.8	n.a.	8.8	4.9	3.9	5.7

Energy and economic indicators								CAGR (%)				
	1980	1990	2000	2011	2020	2030	2040	1990/2011	2011/2020	2020/2030	2030/2040	2011/2040
GDP (\$2010 billion)	43	76	151	250	392	611	845	5.8	5.1	4.5	3.3	4.3
Population (million)	14	18	23	29	33	37	40	2.2	1.5	1.2	0.8	1.1
CO <sub>2</sub> emissions <sup>2</sup> (Mt)	28	53	115	188	253	321	372	6.3	3.4	2.4	1.5	2.4
GDP per capita (\$2010 thousand)	3.1	4.2	6.5	8.7	12	17	21	3.5	3.6	3.3	2.5	3.1
Primary energy consump. per capita (toe)	0.9	1.2	2.0	2.6	3.1	3.5	3.8	3.9	1.8	1.2	0.8	1.3
Primary energy consumption per GDP <sup>3</sup>	279	283	311	304	260	211	179	0.3	-1.7	-2.1	-1.6	-1.8
CO <sub>2</sub> emissions per GDP <sup>2, 4</sup>	663	690	756	752	646	526	440	0.4	-1.7	-2.0	-1.8	-1.8
CO <sub>2</sub> per primary energy consumption <sup>2, 5</sup>	2.4	2.4	2.4	2.5	2.5	2.5	2.5	0.1	0.0	0.0	-0.2	0.0
Automobile ownership (million)	0.9	2.4	5.2	11	14	16	18	7.4	2.9	1.6	0.9	1.7
Automobile ownership rates <sup>6</sup>	65	133	224	376	427	445	449	5.1	1.4	0.4	0.1	0.6

\*1 Trade of electricity and heat are not shown, \*2 Excludes emission reduction by CCS, \*3 toe/\$2010 million,

\*4 t/\$2010 million, \*5 t/toe, \*6 Vehicles per 1,000 people

Table 31 Manmar

Primary energy consumption	Mtoe							Shares (%)			CAGR (%)				
	1980	1990	2000	2011	2020	2030	2040	1990	2011	2040	1990/2011	2011/2020	2020/2030	2030/2040	2011/2040
<b>Total<sup>1</sup></b>	9.4	11	13	14	20	27	33	100	100	100	1.3	3.9	3.0	2.2	3.0
Coal	0.2	0.1	0.3	0.4	0.7	1.3	1.8	0.6	2.9	5.5	9.0	5.8	6.4	3.7	5.2
Oil	1.3	0.7	2.0	1.2	2.2	3.4	5.4	6.8	8.3	16	2.3	7.4	4.3	4.7	5.4
Natural gas	0.3	0.8	1.2	1.4	5.4	10	14	7.1	10	42	3.0	16.1	6.6	3.2	8.3
Nuclear	-	-	-	-	-	-	-	-	-	-	n.a.	n.a.	n.a.	n.a.	n.a.
Hydro	0.1	0.1	0.2	0.4	0.4	0.4	0.4	1.0	3.2	1.3	7.2	0.0	0.0	0.0	0.0
Geothermal	-	-	-	-	-	-	-	-	-	-	n.a.	n.a.	n.a.	n.a.	n.a.
Solar, wind, etc.	-	-	-	-	-	-	-	-	-	-	n.a.	n.a.	n.a.	n.a.	n.a.
Biomass and waste	7.6	9.0	9.2	11	11	11	12	84	76	35	0.8	0.5	0.3	0.0	0.3

Final energy consumption	Mtoe							Shares (%)			CAGR (%)				
	1980	1990	2000	2011	2020	2030	2040	1990	2011	2040	1990/2011	2011/2020	2020/2030	2030/2040	2011/2040
<b>Total</b>	8.4	9.4	11	13	17	21	27	100	100	100	1.6	2.7	2.4	2.3	2.5
By sector															
Industry	0.6	0.4	1.2	1.3	2.4	4.1	5.7	4.2	10	22	5.9	6.9	5.6	3.4	5.2
Transport	0.6	0.4	1.2	0.8	2.1	3.5	6.0	4.7	6.3	23	3.0	11.1	5.2	5.4	7.1
Buildings, etc.	7.0	8.5	9.1	11	12	13	14	90	83	53	1.2	1.0	0.9	0.9	0.9
Non-energy use	0.1	0.1	0.1	0.1	0.3	0.4	0.6	1.0	1.1	2.3	1.8	6.9	5.6	3.4	5.2
By energy															
Coal	0.1	0.1	0.3	0.2	0.3	0.4	0.6	0.5	1.8	2.3	7.5	2.7	4.0	3.6	3.5
Oil	1.2	0.6	1.5	1.1	2.5	4.2	6.9	6.2	8.4	26	3.0	9.8	5.1	5.2	6.6
Natural gas	0.1	0.2	0.3	0.7	0.9	1.3	1.8	2.4	5.2	6.8	5.4	3.4	3.8	3.1	3.4
Electricity	0.1	0.1	0.3	0.5	1.7	3.6	5.6	1.6	3.8	21	5.8	14.6	7.9	4.5	8.7
Heat	-	-	-	-	-	-	-	-	-	-	n.a.	n.a.	n.a.	n.a.	n.a.
Renewables	6.9	8.4	9.0	11	11	11	12	89	81	43	1.1	0.6	0.3	0.0	0.3

Electricity generation	(TWh)							Shares (%)			CAGR (%)				
	1980	1990	2000	2011	2020	2030	2040	1990	2011	2040	1990/2011	2011/2020	2020/2030	2030/2040	2011/2040
<b>Total</b>	1.5	2.5	5.1	7.3	23	50	78	100	100	100	5.3	13.8	7.9	4.5	8.5
Coal	0.0	0.0	-	0.6	1.4	3.4	5.6	1.6	7.6	7.1	13.4	10.7	9.4	5.0	8.2
Oil	0.5	0.3	0.7	0.0	0.1	0.2	0.3	11	0.4	0.4	-10.2	10.7	9.4	5.0	8.2
Natural gas	0.2	1.0	2.5	1.6	17	41	67	39	22	86	2.4	30.0	9.4	5.0	13.8
Nuclear	-	-	-	-	-	-	-	-	-	-	n.a.	n.a.	n.a.	n.a.	n.a.
Hydro	0.8	1.2	1.9	5.2	5.2	5.2	5.2	48	70	6.6	7.2	0.0	0.0	0.0	0.0
Geothermal	-	-	-	-	-	-	-	-	-	-	n.a.	n.a.	n.a.	n.a.	n.a.
Other renewables	-	-	-	-	-	-	-	-	-	-	n.a.	n.a.	n.a.	n.a.	n.a.

Energy and economic indicators										CAGR (%)				
	1980	1990	2000	2011	2020	2030	2040	1990/2011	2011/2020	2020/2030	2030/2040	2011/2040		
GDP (\$2010 billion)	6.0	6.8	14	45	78	135	207	9.4	6.4	5.7	4.3	5.4		
Population (million)	33	39	45	48	52	54	55	1.0	0.8	0.5	0.1	0.4		
CO <sub>2</sub> emissions <sup>2</sup> (Mt)	5.2	4.1	9.9	8.2	22	39	55	3.4	11.4	5.9	3.7	6.8		
GDP per capita (\$2010 thousand)	0.2	0.2	0.3	0.9	1.5	2.5	3.8	8.3	5.6	5.2	4.2	5.0		
Primary energy consump. per capita (toe)	0.3	0.3	0.3	0.3	0.4	0.5	0.6	0.3	3.1	2.6	2.0	2.6		
Primary energy consumption per GDP <sup>3</sup>	1,581	1,577	951	316	255	198	161	-7.4	-2.3	-2.5	-2.1	-2.3		
CO <sub>2</sub> emissions per GDP <sup>2, 4</sup>	879	600	734	185	278	285	268	-5.5	4.7	0.2	-0.6	1.3		
CO <sub>2</sub> per primary energy consumption <sup>2, 5</sup>	0.6	0.4	0.8	0.6	1.1	1.4	1.7	2.1	7.2	2.8	1.5	3.7		
Automobile ownership (million)	0.1	0.1	0.3	0.4	0.7	1.7	4.0	8.6	7.5	8.4	9.0	8.4		
Automobile ownership rates <sup>6</sup>	2.3	1.8	5.6	8.1	14	31	73	7.5	6.7	7.9	8.9	7.9		

\*1 Trade of electricity and heat are not shown, \*2 Excludes emission reduction by CCS, \*3 toe/\$2010 million,

\*4 t/\$2010 million, \*5 t/toe, \*6 Vehicles per 1,000 people

Table 32 Philippines

Primary energy consumption	Mtoe							Shares (%)			CAGR (%)				
	1980	1990	2000	2011	2020	2030	2040	1990/1990	2011/2011	2040/2040	1990/2011	2011/2020	2020/2030	2030/2040	2011/2040
<b>Total<sup>1</sup></b>	22	29	40	40	49	66	87	100	100	100	1.7	2.3	2.9	2.8	2.7
Coal	0.5	1.4	5.0	8.4	11	17	24	5.0	21	27	8.8	3.4	3.9	3.5	3.6
Oil	10	11	16	12	17	23	32	38	31	37	0.6	3.5	3.3	3.3	3.4
Natural gas	-	-	0.0	3.3	5.4	8.5	12	-	8.1	14	n.a.	5.6	4.6	3.8	4.6
Nuclear	-	-	-	-	-	-	-	-	-	-	n.a.	n.a.	n.a.	n.a.	n.a.
Hydro	0.3	0.5	0.7	0.8	1.0	1.2	1.3	1.8	2.1	1.5	2.3	2.0	1.9	0.7	1.5
Geothermal	1.8	4.7	10.0	8.5	9.2	9.9	11	16	21	12	2.9	0.8	0.8	0.7	0.8
Solar, wind, etc.	-	-	-	0.0	0.0	0.0	0.1	-	0.0	0.1	n.a.	13.3	4.0	7.2	7.9
Biomass and waste	9.4	11	8.1	6.9	5.6	6.1	6.5	39	17	7.4	-2.2	-2.4	0.9	0.6	-0.2

Final energy consumption	Mtoe							Shares (%)			CAGR (%)				
	1980	1990	2000	2011	2020	2030	2040	1990/1990	2011/2011	2040/2040	1990/2011	2011/2020	2020/2030	2030/2040	2011/2040
<b>Total</b>	17	20	24	24	31	42	56	100	100	100	0.9	2.9	3.1	3.0	3.0
By sector															
Industry	3.4	4.6	5.3	6.5	8.3	11	15	23	27	27	1.6	2.8	3.1	2.8	2.9
Transport	3.5	4.5	8.1	8.0	12	17	25	23	34	45	2.7	4.3	4.1	3.7	4.0
Buildings, etc.	9.4	10	10	9.0	10	13	15	52	38	27	-0.6	1.5	1.9	1.9	1.8
Non-energy use	0.3	0.4	0.4	0.2	0.3	0.3	0.3	2.0	0.9	0.6	-2.8	4.5	0.0	-0.1	1.4
By energy															
Coal	0.2	0.8	0.9	2.0	2.2	2.7	3.2	3.8	8.5	5.8	4.8	1.0	1.9	1.9	1.6
Oil	7.0	8.1	13	11	15	22	30	41	48	55	1.6	3.5	3.5	3.5	3.5
Natural gas	-	-	-	0.1	0.7	1.4	2.1	-	0.3	3.8	n.a.	27.8	7.1	4.1	12.1
Electricity	1.5	1.8	3.1	4.8	6.9	9.9	14	9.2	20	24	4.7	4.0	3.7	3.2	3.6
Heat	-	-	-	-	-	-	-	-	-	-	n.a.	n.a.	n.a.	n.a.	n.a.
Renewables	7.8	9.1	6.9	5.5	5.5	6.0	6.3	46	23	11	-2.4	-0.1	0.9	0.5	0.4

Electricity generation	(TWh)							Shares (%)			CAGR (%)				
	1980	1990	2000	2011	2020	2030	2040	1990/1990	2011/2011	2040/2040	1990/2011	2011/2020	2020/2030	2030/2040	2011/2040
<b>Total</b>	18	26	45	69	95	137	188	100	100	100	4.7	3.6	3.7	3.2	3.5
Coal	0.2	1.9	17	25	39	61	89	7.3	37	48	13.0	4.9	4.6	3.9	4.4
Oil	12	12	9.2	3.4	3.4	3.4	3.4	47	4.9	1.8	-6.0	0.0	0.0	0.0	0.0
Natural gas	-	-	0.0	21	30	46	66	-	30	35	n.a.	4.4	4.3	3.7	4.1
Nuclear	-	-	-	-	-	-	-	-	-	-	n.a.	n.a.	n.a.	n.a.	n.a.
Hydro	3.5	6.1	7.8	9.7	12	14	15	23	14	8.0	2.3	2.0	1.9	0.7	1.5
Geothermal	2.1	5.5	12	9.9	11	12	12	21	14	6.6	2.9	0.8	0.8	0.7	0.8
Other renewables	-	0.4	-	0.2	0.5	0.8	1.4	1.6	0.3	0.7	-3.5	10.9	4.4	5.6	6.8

Energy and economic indicators								CAGR (%)				
	1980	1990	2000	2011	2020	2030	2040	1990/2011	2011/2020	2020/2030	2030/2040	2011/2040
GDP (\$2010 billion)	80	95	125	207	332	526	787	3.8	5.4	4.7	4.1	4.7
Population (million)	47	62	77	95	110	128	143	2.1	1.7	1.5	1.2	1.4
CO <sub>2</sub> emissions <sup>2</sup> (Mt)	33	38	68	78	108	157	221	3.6	3.7	3.7	3.5	3.6
GDP per capita (\$2010 thousand)	1.7	1.5	1.6	2.2	3.0	4.1	5.5	1.7	3.7	3.2	2.9	3.2
Primary energy consump. per capita (toe)	0.5	0.5	0.5	0.4	0.4	0.5	0.6	-0.4	0.6	1.4	1.6	1.2
Primary energy consumption per GDP <sup>3</sup>	280	303	318	195	149	125	110	-2.1	-3.0	-1.7	-1.3	-2.0
CO <sub>2</sub> emissions per GDP <sup>2, 4</sup>	414	397	541	379	326	298	280	-0.2	-1.7	-0.9	-0.6	-1.0
CO <sub>2</sub> per primary energy consumption <sup>2, 5</sup>	1.5	1.3	1.7	1.9	2.2	2.4	2.5	1.9	1.4	0.8	0.7	0.9
Automobile ownership (million)	0.9	1.2	2.4	3.2	5.4	8.2	12	4.7	5.9	4.3	3.9	4.7
Automobile ownership rates <sup>6</sup>	18	20	31	34	49	65	84	2.6	4.2	2.8	2.7	3.2

\*1 Trade of electricity and heat are not shown, \*2 Excludes emission reduction by CCS, \*3 toe/\$2010 million,

\*4 t/\$2010 million, \*5 t/toe, \*6 Vehicles per 1,000 people



Table 33 Thailand

Primary energy consumption	Mtoe							Shares (%)			CAGR (%)				
	1980	1990	2000	2011	2020	2030	2040	1990	2011	2040	1990/2011	2011/2020	2020/2030	2030/2040	2011/2040
<b>Total<sup>1</sup></b>	22	42	72	119	158	205	263	100	100	100	5.1	3.2	2.6	2.5	2.8
Coal	0.5	3.8	7.7	18	24	32	42	9.1	15	16	7.7	3.0	2.9	2.9	2.9
Oil	11	18	32	47	68	78	88	43	39	33	4.7	4.2	1.3	1.2	2.2
Natural gas	-	5.0	17	31	43	67	100	12	26	38	9.0	3.8	4.5	4.1	4.1
Nuclear	-	-	-	-	-	0.2	0.7	-	-	0.3	n.a.	n.a.	n.a.	11.6	n.a.
Hydro	0.1	0.4	0.5	0.7	0.8	0.8	0.8	1.0	0.6	0.3	2.4	1.0	0.9	0.0	0.6
Geothermal	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	19.8	5.5	3.5	9.0
Solar, wind, etc.	-	-	-	0.0	0.1	0.2	0.5	-	0.0	0.2	n.a.	28.1	6.5	12.7	15.0
Biomass and waste	11	15	15	22	20	24	28	35	18	11	1.9	-1.0	2.0	1.5	0.9

Final energy consumption	Mtoe							Shares (%)			CAGR (%)				
	1980	1990	2000	2011	2020	2030	2040	1990	2011	2040	1990/2011	2011/2020	2020/2030	2030/2040	2011/2040
<b>Total</b>	15	29	51	88	116	147	184	100	100	100	5.5	3.1	2.4	2.3	2.6
By sector															
Industry	4.0	8.7	17	27	35	51	72	30	31	39	5.6	2.8	4.0	3.5	3.4
Transport	3.2	9.0	15	21	25	28	31	31	23	17	4.0	2.2	0.9	1.1	1.4
Buildings, etc.	7.8	11	14	21	25	32	41	37	23	22	3.1	2.3	2.5	2.4	2.4
Non-energy use	0.2	0.4	5.6	20	31	36	40	1.5	23	22	20.1	5.0	1.4	1.2	2.4
By energy															
Coal	0.1	1.3	3.5	9.4	11	14	17	4.5	11	9.1	9.8	2.2	2.0	1.9	2.0
Oil	7.3	15	29	46	60	68	78	52	52	42	5.5	2.8	1.4	1.3	1.8
Natural gas	-	0.1	1.1	5.8	8.4	16	27	0.5	6.6	15	19.5	4.2	6.7	5.3	5.4
Electricity	1.1	3.3	7.6	13	19	28	40	11	14	22	6.7	4.3	4.2	3.6	4.0
Heat	-	-	-	-	-	-	-	-	-	-	n.a.	n.a.	n.a.	n.a.	n.a.
Renewables	6.7	9.2	9.4	14	18	20	22	32	16	12	2.1	2.6	1.2	1.0	1.5

Electricity generation	(TWh)							Shares (%)			CAGR (%)				
	1980	1990	2000	2011	2020	2030	2040	1990	2011	2040	1990/2011	2011/2020	2020/2030	2030/2040	2011/2040
<b>Total</b>	14	44	96	156	217	324	476	100	100	100	6.2	3.7	4.1	3.9	3.9
Coal	1.4	11	18	35	48	70	99	25	22	21	5.6	3.7	3.7	3.6	3.7
Oil	12	10	10	2.1	2.9	4.1	5.9	23	1.3	1.2	-7.4	3.7	3.7	3.6	3.7
Natural gas	-	18	62	107	148	214	304	40	68	64	8.9	3.7	3.7	3.6	3.7
Nuclear	-	-	-	-	-	9.8	29	-	-	6.2	n.a.	n.a.	n.a.	11.6	n.a.
Hydro	1.3	5.0	6.0	8.2	8.9	9.7	9.7	11	5.2	2.0	2.4	1.0	0.9	0.0	0.6
Geothermal	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	19.8	5.5	3.5	9.0
Other renewables	-	-	0.5	4.4	8.1	16	27	-	2.8	5.7	n.a.	7.0	7.3	5.1	6.5

Energy and economic indicators										CAGR (%)				
	1980	1990	2000	2011	2020	2030	2040	1990/2011	2011/2020	2020/2030	2030/2040	2011/2040		
GDP (\$2010 billion)	63	135	209	319	485	697	937	4.2	4.8	3.7	3.0	3.8		
Population (million)	47	57	63	70	71	71	68	0.9	0.2	0.0	-0.3	-0.1		
CO <sub>2</sub> emissions <sup>2</sup> (Mt)	34	81	152	228	310	412	549	5.1	3.5	2.9	2.9	3.1		
GDP per capita (\$2010 thousand)	1.3	2.4	3.3	4.6	6.8	9.9	14	3.2	4.5	3.7	3.3	3.8		
Primary energy consump. per capita (toe)	0.5	0.7	1.1	1.7	2.2	2.9	3.8	4.1	2.9	2.7	2.9	2.8		
Primary energy consumption per GDP <sup>3</sup>	347	311	346	373	325	294	280	0.9	-1.5	-1.0	-0.5	-1.0		
CO <sub>2</sub> emissions per GDP <sup>2, 4</sup>	537	598	727	713	639	592	586	0.8	-1.2	-0.8	-0.1	-0.7		
CO <sub>2</sub> per primary energy consumption <sup>2, 5</sup>	1.5	1.9	2.1	1.9	2.0	2.0	2.1	0.0	0.3	0.2	0.4	0.3		
Automobile ownership (million)	0.9	2.8	6.1	11	15	18	20	6.9	2.7	2.0	1.4	2.0		
Automobile ownership rates <sup>6</sup>	19	49	97	164	205	250	297	5.9	2.5	2.0	1.7	2.1		

\*1 Trade of electricity and heat are not shown, \*2 Excludes emission reduction by CCS, \*3 toe/\$2010 million,

\*4 t/\$2010 million, \*5 t/toe, \*6 Vehicles per 1,000 people

Table 34 Vietnam

Primary energy consumption	Mtoe							Shares (%)			CAGR (%)				
	1980	1990	2000	2011	2020	2030	2040	1990/2011	2011/2020	2020/2030	2030/2040	2011/2040			
<b>Total<sup>1</sup></b>	14	18	29	61	91	144	207	100	100	100	6.0	4.5	4.7	3.7	4.3
Coal	2.3	2.2	4.4	16	26	42	67	12	25	32	9.7	5.7	5.1	4.8	5.2
Oil	1.8	2.7	7.8	21	31	47	64	15	33	31	10.1	4.7	4.2	3.2	4.0
Natural gas	-	0.0	1.1	7.4	13	23	35	0.0	12	17	45.8	6.5	5.6	4.4	5.4
Nuclear	-	-	-	-	-	6.6	12	-	-	5.6	n.a.	n.a.	n.a.	5.9	n.a.
Hydro	0.1	0.5	1.3	2.6	4.0	5.3	6.0	2.6	4.2	2.9	8.5	5.0	2.9	1.2	2.9
Geothermal	-	-	-	-	-	-	-	-	-	-	n.a.	n.a.	n.a.	n.a.	n.a.
Solar, wind, etc.	-	-	-	0.0	0.0	0.0	0.1	-	0.0	0.0	n.a.	12.5	3.8	6.4	7.3
Biomass and waste	10	12	14	15	17	20	23	70	24	11	0.8	1.5	1.7	1.4	1.5

Final energy consumption	Mtoe							Shares (%)			CAGR (%)				
	1980	1990	2000	2011	2020	2030	2040	1990/2011	2011/2020	2020/2030	2030/2040	2011/2040			
<b>Total</b>	13	16	25	51	75	115	160	100	100	100	5.7	4.4	4.3	3.4	4.0
By sector															
Industry	3.8	4.5	7.9	18	28	44	63	28	35	39	6.8	4.8	4.9	3.5	4.4
Transport	0.6	1.4	3.5	11	18	25	33	8.6	22	21	10.4	5.3	3.6	2.8	3.9
Buildings, etc.	8.6	10	14	19	25	38	54	63	37	34	3.0	3.4	4.1	3.6	3.7
Non-energy use	0.0	0.0	0.1	3.2	4.7	7.2	10	0.2	6.3	6.3	25.4	4.4	4.3	3.4	4.0
By energy															
Coal	1.5	1.3	3.2	10	16	27	39	8.3	20	24	10.3	4.9	5.2	3.9	4.7
Oil	1.7	2.3	6.5	19	30	46	63	15	37	40	10.5	5.3	4.4	3.3	4.3
Natural gas	-	-	0.0	0.5	0.6	0.8	1.1	-	0.9	0.7	n.a.	3.0	3.0	3.0	3.0
Electricity	0.2	0.5	1.9	7.8	13	22	35	3.3	15	22	13.7	5.6	5.8	4.5	5.3
Heat	-	-	-	-	-	-	-	-	-	-	n.a.	n.a.	n.a.	n.a.	n.a.
Renewables	9.7	12	13	14	16	19	22	74	27	14	0.7	1.6	1.7	1.5	1.6

Electricity generation	(TWh)							Shares (%)			CAGR (%)				
	1980	1990	2000	2011	2020	2030	2040	1990/2011	2011/2020	2020/2030	2030/2040	2011/2040			
<b>Total</b>	3.6	8.7	27	99	163	285	444	100	100	100	12.3	5.7	5.8	4.5	5.3
Coal	1.4	2.0	3.1	21	41	69	130	23	21	29	11.8	7.6	5.4	6.6	6.5
Oil	0.7	1.3	4.5	4.7	4.3	3.9	3.5	15	4.8	0.8	6.3	-1.0	-1.0	-1.0	-1.0
Natural gas	-	0.0	4.4	44	72	125	195	0.1	44	44	52.7	5.7	5.8	4.5	5.3
Nuclear	-	-	-	-	-	25	45	-	-	10	n.a.	n.a.	n.a.	5.9	n.a.
Hydro	1.5	5.4	15	30	46	61	69	62	30	16	8.5	5.0	2.9	1.2	2.9
Geothermal	-	-	-	-	-	-	-	-	-	-	n.a.	n.a.	n.a.	n.a.	n.a.
Other renewables	-	-	-	0.1	0.4	0.5	0.9	-	0.1	0.2	n.a.	11.0	4.2	5.5	6.7

Energy and economic indicators									CAGR (%)				
	1980	1990	2000	2011	2020	2030	2040	1990/2011	2011/2020	2020/2030	2030/2040	2011/2040	
GDP (\$2010 billion)	15	25	53	113	185	344	549	7.3	5.7	6.4	4.8	5.6	
Population (million)	54	66	78	88	95	99	102	1.4	0.9	0.5	0.2	0.5	
CO <sub>2</sub> emissions <sup>2</sup> (Mt)	15	17	43	132	213	342	514	10.2	5.4	4.8	4.2	4.8	
GDP per capita (\$2010 thousand)	0.3	0.4	0.7	1.3	1.9	3.5	5.4	5.9	4.8	5.9	4.5	5.1	
Primary energy consump. per capita (toe)	0.3	0.3	0.4	0.7	1.0	1.4	2.0	4.6	3.6	4.2	3.5	3.8	
Primary energy consumption per GDP <sup>3</sup>	985	702	544	543	493	418	378	-1.2	-1.1	-1.6	-1.0	-1.2	
CO <sub>2</sub> emissions per GDP <sup>2, 4</sup>	995	670	824	1,172	1,151	993	937	2.7	-0.2	-1.5	-0.6	-0.8	
CO <sub>2</sub> per primary energy consumption <sup>2, 5</sup>	1.0	1.0	1.5	2.2	2.3	2.4	2.5	4.0	0.9	0.2	0.4	0.5	
Automobile ownership (million)	0.2	0.2	0.4	1.3	2.4	5.2	8.8	8.5	7.1	7.9	5.4	6.8	
Automobile ownership rates <sup>6</sup>	4.0	3.6	4.8	15	26	52	86	7.0	6.2	7.3	5.2	6.2	

\*1 Trade of electricity and heat are not shown, \*2 Excludes emission reduction by CCS, \*3 toe/\$2010 million,

\*4 t/\$2010 million, \*5 t/toe, \*6 Vehicles per 1,000 people

Table 35 North America

Primary energy consumption	Mtoe							Shares (%)			CAGR (%)				
	1980	1990	2000	2011	2020	2030	2040	1990	2011	2040	1990/2011	2011/2020	2020/2030	2030/2040	2011/2040
<b>Total<sup>1</sup></b>	1,997	2,124	2,525	2,443	2,494	2,580	2,625	100	100	100	0.7	0.2	0.3	0.2	0.2
Coal	397	484	565	499	444	410	378	23	20	14	0.1	-1.3	-0.8	-0.8	-0.9
Oil	885	833	958	868	827	818	801	39	36	31	0.2	-0.5	-0.1	-0.2	-0.3
Natural gas	522	493	622	652	728	791	835	23	27	32	1.3	1.2	0.8	0.5	0.9
Nuclear	80	179	227	238	260	276	275	8.4	9.8	10	1.4	1.0	0.6	0.0	0.5
Hydro	46	49	53	60	60	62	64	2.3	2.5	2.4	1.0	0.0	0.4	0.2	0.2
Geothermal	4.6	14	13	8.6	14	19	25	0.7	0.4	1.0	-2.4	5.2	3.6	2.6	3.8
Solar, wind, etc.	-	0.3	2.1	13	30	49	65	0.0	0.5	2.5	19.4	9.5	4.9	2.9	5.6
Biomass and waste	62	70	85	104	133	157	184	3.3	4.2	7.0	1.9	2.8	1.6	1.6	2.0

Final energy consumption	Mtoe							Shares (%)			CAGR (%)				
	1980	1990	2000	2011	2020	2030	2040	1990	2011	2040	1990/2011	2011/2020	2020/2030	2030/2040	2011/2040
<b>Total</b>	1,466	1,452	1,736	1,708	1,761	1,829	1,871	100	100	100	0.8	0.3	0.4	0.2	0.3
By sector															
Industry	437	331	387	343	338	339	332	23	20	18	0.2	-0.2	0.0	-0.2	-0.1
Transport	470	531	640	648	650	654	654	37	38	35	1.0	0.0	0.1	0.0	0.0
Buildings, etc.	446	457	535	559	608	655	691	31	33	37	1.0	0.9	0.7	0.5	0.7
Non-energy use	114	134	173	157	164	181	194	9.2	9.2	10	0.7	0.5	1.0	0.7	0.7
By energy															
Coal	60	59	36	28	25	24	24	4.0	1.6	1.3	-3.5	-1.3	-0.3	-0.1	-0.5
Oil	769	752	874	837	800	793	777	52	49	42	0.5	-0.5	-0.1	-0.2	-0.3
Natural gas	374	346	413	383	421	437	441	24	22	24	0.5	1.1	0.4	0.1	0.5
Electricity	200	262	342	371	407	452	488	18	22	26	1.7	1.1	1.0	0.8	1.0
Heat	1.0	2.8	6.1	7.2	6.8	6.7	6.4	0.2	0.4	0.3	4.6	-0.6	-0.2	-0.4	-0.4
Renewables	62	30	64	82	101	117	136	2.1	4.8	7.3	4.9	2.3	1.5	1.5	1.7

Electricity generation	(TWh)							Shares (%)			CAGR (%)				
	1980	1990	2000	2011	2020	2030	2040	1990	2011	2040	1990/2011	2011/2020	2020/2030	2030/2040	2011/2040
<b>Total</b>	2,801	3,685	4,631	4,964	5,426	5,998	6,452	100	100	100	1.4	1.0	1.0	0.7	0.9
Coal	1,303	1,782	2,247	1,952	1,826	1,739	1,644	48	39	25	0.4	-0.7	-0.5	-0.6	-0.6
Oil	277	147	133	46	48	51	55	4.0	0.9	0.8	-5.4	0.6	0.5	0.7	0.6
Natural gas	380	391	668	1,107	1,368	1,678	1,970	11	22	31	5.1	2.4	2.1	1.6	2.0
Nuclear	304	685	871	915	997	1,059	1,055	19	18	16	1.4	1.0	0.6	0.0	0.5
Hydro	530	570	612	697	697	722	739	15	14	11	1.0	0.0	0.4	0.2	0.2
Geothermal	5.4	16	15	18	29	41	53	0.4	0.4	0.8	0.5	5.4	3.6	2.7	3.8
Other renewables	1.8	94	87	228	462	709	936	2.6	4.6	15	4.3	8.2	4.4	2.8	5.0

Energy and economic indicators										CAGR (%)				
	1980	1990	2000	2011	2020	2030	2040	1990/2011	2011/2020	2020/2030	2030/2040	2011/2040		
GDP (\$2010 billion)	7,178	9,820	13,694	16,309	20,695	26,310	31,675	2.4	2.7	2.4	1.9	2.3		
Population (million)	252	277	313	346	372	399	422	1.1	0.8	0.7	0.6	0.7		
CO <sub>2</sub> emissions <sup>2</sup> (Mt)	5,169	5,235	6,125	5,699	5,515	5,457	5,350	0.4	-0.4	-0.1	-0.2	-0.2		
GDP per capita (\$2010 thousand)	29	35	44	47	56	66	75	1.4	1.9	1.7	1.3	1.6		
Primary energy consump. per capita (toe)	7.9	7.7	8.1	7.1	6.7	6.5	6.2	-0.4	-0.6	-0.4	-0.4	-0.4		
Primary energy consumption per GDP <sup>3</sup>	278	216	184	150	121	98	83	-1.7	-2.4	-2.0	-1.7	-2.0		
CO <sub>2</sub> emissions per GDP <sup>2, 4</sup>	720	533	447	349	266	207	169	-2.0	-3.0	-2.5	-2.0	-2.5		
CO <sub>2</sub> per primary energy consumption <sup>2, 5</sup>	2.6	2.5	2.4	2.3	2.2	2.1	2.0	-0.3	-0.6	-0.4	-0.4	-0.5		
Automobile ownership (million)	169	205	239	266	296	330	358	1.2	1.2	1.1	0.8	1.0		
Automobile ownership rates <sup>6</sup>	671	740	764	769	797	827	847	0.2	0.4	0.4	0.2	0.3		

\*1 Trade of electricity and heat are not shown, \*2 Excludes emission reduction by CCS, \*3 toe/\$2010 million,

\*4 t/\$2010 million, \*5 t/toe, \*6 Vehicles per 1,000 people

Table 36 United States

Primary energy consumption	Mtoe							Shares (%)			CAGR (%)				
	1980	1990	2000	2011	2020	2030	2040	1990	2011	2040	1990/2011	2011/2020	2020/2030	2030/2040	2011/2040
<b>Total<sup>1</sup></b>	1,805	1,915	2,273	2,191	2,234	2,299	2,327	100	100	100	0.6	0.2	0.3	0.1	0.2
Coal	376	460	534	479	429	401	369	24	22	16	0.2	-1.2	-0.7	-0.8	-0.9
Oil	797	757	871	786	744	730	707	40	36	30	0.2	-0.6	-0.2	-0.3	-0.4
Natural gas	477	438	548	569	631	687	723	23	26	31	1.2	1.2	0.8	0.5	0.8
Nuclear	69	159	208	214	238	244	243	8.3	9.8	10	1.4	1.2	0.3	0.0	0.4
Hydro	24	23	22	28	28	28	28	1.2	1.3	1.2	0.8	0.0	0.0	0.0	0.0
Geothermal	4.6	14	13	8.6	14	19	25	0.7	0.4	1.1	-2.4	5.2	3.6	2.6	3.8
Solar, wind, etc.	-	0.3	2.1	12	28	46	61	0.0	0.6	2.6	19.0	9.4	5.0	2.9	5.6
Biomass and waste	54	62	73	91	120	141	167	3.3	4.2	7.2	1.8	3.0	1.7	1.7	2.1

Final energy consumption	Mtoe							Shares (%)			CAGR (%)				
	1980	1990	2000	2011	2020	2030	2040	1990	2011	2040	1990/2011	2011/2020	2020/2030	2030/2040	2011/2040
<b>Total</b>	1,311	1,294	1,546	1,504	1,549	1,602	1,630	100	100	100	0.7	0.3	0.3	0.2	0.3
By sector															
Industry	387	284	332	287	281	278	267	22	19	16	0.1	-0.2	-0.1	-0.4	-0.2
Transport	425	488	588	589	591	593	591	38	39	36	0.9	0.0	0.0	0.0	0.0
Buildings, etc.	397	403	473	495	539	580	611	31	33	37	1.0	0.9	0.7	0.5	0.7
Non-energy use	102	119	153	132	138	152	161	9.2	8.8	9.9	0.5	0.5	1.0	0.6	0.7
By energy															
Coal	56	56	33	25	21	21	20	4.3	1.6	1.3	-3.8	-1.6	-0.3	-0.1	-0.6
Oil	689	683	793	747	708	695	673	53	50	41	0.4	-0.6	-0.2	-0.3	-0.4
Natural gas	337	303	360	327	361	372	373	23	22	23	0.4	1.1	0.3	0.0	0.5
Electricity	174	226	301	326	361	401	433	18	22	27	1.7	1.1	1.1	0.8	1.0
Heat	-	2.2	5.3	6.6	6.3	6.1	5.7	0.2	0.4	0.4	5.5	-0.6	-0.3	-0.6	-0.5
Renewables	54	23	54	72	92	107	125	1.8	4.8	7.7	5.6	2.6	1.5	1.6	1.9

Electricity generation	(TWh)							Shares (%)			CAGR (%)				
	1980	1990	2000	2011	2020	2030	2040	1990	2011	2040	1990/2011	2011/2020	2020/2030	2030/2040	2011/2040
<b>Total</b>	2,427	3,203	4,026	4,327	4,761	5,273	5,672	100	100	100	1.4	1.1	1.0	0.7	0.9
Coal	1,243	1,700	2,129	1,875	1,748	1,677	1,580	53	43	28	0.5	-0.8	-0.4	-0.6	-0.6
Oil	263	131	118	40	41	44	47	4.1	0.9	0.8	-5.5	0.4	0.8	0.5	0.6
Natural gas	370	382	634	1,045	1,289	1,597	1,866	12	24	33	4.9	2.4	2.2	1.6	2.0
Nuclear	266	612	798	821	913	938	934	19	19	16	1.4	1.2	0.3	0.0	0.4
Hydro	279	273	253	322	322	322	322	8.5	7.4	5.7	0.8	0.0	0.0	0.0	0.0
Geothermal	5.4	16	15	18	29	41	53	0.5	0.4	0.9	0.5	5.4	3.6	2.7	3.8
Other renewables	0.5	90	78	205	420	654	870	2.8	4.7	15	4.0	8.3	4.5	2.9	5.1

Energy and economic indicators										CAGR (%)				
	1980	1990	2000	2011	2020	2030	2040	1990/2011	2011/2020	2020/2030	2030/2040	2011/2040		
GDP (\$2010 billion)	6,433	8,837	12,384	14,693	18,739	23,903	28,790	2.5	2.7	2.5	1.9	2.3		
Population (million)	227	250	282	312	334	359	379	1.1	0.8	0.7	0.6	0.7		
CO <sub>2</sub> emissions <sup>2</sup> (Mt)	4,743	4,820	5,617	5,247	5,057	4,997	4,866	0.4	-0.4	-0.1	-0.3	-0.3		
GDP per capita (\$2010 thousand)	28	35	44	47	56	67	76	1.4	1.9	1.7	1.3	1.7		
Primary energy consump. per capita (toe)	7.9	7.7	8.1	7.0	6.7	6.4	6.1	-0.4	-0.6	-0.4	-0.4	-0.5		
Primary energy consumption per GDP <sup>3</sup>	281	217	184	149	119	96	81	-1.8	-2.5	-2.1	-1.7	-2.1		
CO <sub>2</sub> emissions per GDP <sup>2, 4</sup>	737	545	454	357	270	209	169	-2.0	-3.1	-2.5	-2.1	-2.5		
CO <sub>2</sub> per primary energy consumption <sup>2, 5</sup>	2.6	2.5	2.5	2.4	2.3	2.2	2.1	-0.2	-0.6	-0.4	-0.4	-0.5		
Automobile ownership (million)	156	189	221	245	272	303	328	1.2	1.2	1.1	0.8	1.0		
Automobile ownership rates <sup>6</sup>	686	756	785	786	814	845	865	0.2	0.4	0.4	0.2	0.3		

\*1 Trade of electricity and heat are not shown, \*2 Excludes emission reduction by CCS, \*3 toe/\$2010 million,

\*4 t/\$2010 million, \*5 t/toe, \*6 Vehicles per 1,000 people

Table 37 Latin Americas

Primary energy consumption	Mtoe							Shares (%)			CAGR (%)				
	1980	1990	2000	2011	2020	2030	2040	1990	2011	2040	1990/2011	2011/2020	2020/2030	2030/2040	2011/2040
<b>Total<sup>1</sup></b>	386	467	599	809	1,024	1,284	1,508	100	100	100	2.7	2.7	2.3	1.6	2.2
Coal	13	20	27	38	53	71	91	4.4	4.7	6.0	3.0	3.9	3.0	2.5	3.1
Oil	223	237	303	372	443	517	567	51	46	38	2.2	2.0	1.6	0.9	1.5
Natural gas	51	76	116	189	254	347	436	16	23	29	4.4	3.4	3.2	2.3	2.9
Nuclear	0.6	3.2	5.3	8.4	12	17	22	0.7	1.0	1.4	4.6	4.5	3.4	2.2	3.3
Hydro	19	33	50	66	76	85	95	7.1	8.2	6.3	3.4	1.5	1.2	1.0	1.2
Geothermal	1.2	5.1	6.3	8.3	25	43	61	1.1	1.0	4.1	2.4	13.0	5.6	3.6	7.1
Solar, wind, etc.	-	0.0	0.2	1.1	1.7	3.0	5.4	0.0	0.1	0.4	21.7	4.9	6.2	5.9	5.7
Biomass and waste	79	92	90	126	159	200	232	20	16	15	1.5	2.6	2.3	1.5	2.1

Final energy consumption	Mtoe							Shares (%)			CAGR (%)				
	1980	1990	2000	2011	2020	2030	2040	1990	2011	2040	1990/2011	2011/2020	2020/2030	2030/2040	2011/2040
<b>Total</b>	290	346	453	592	749	924	1,065	100	100	100	2.6	2.6	2.1	1.4	2.0
By sector															
Industry	99	115	150	197	255	330	401	33	33	38	2.6	2.9	2.6	2.0	2.5
Transport	85	103	141	203	269	328	363	30	34	34	3.3	3.1	2.0	1.0	2.0
Buildings, etc.	89	102	121	149	170	197	220	30	25	21	1.8	1.5	1.5	1.1	1.4
Non-energy use	16	26	41	43	55	70	81	7.4	7.3	7.6	2.5	2.7	2.4	1.5	2.2
By energy															
Coal	6.1	8.5	11	14	17	20	23	2.5	2.4	2.2	2.6	1.6	1.9	1.3	1.6
Oil	159	179	241	295	366	435	481	52	50	45	2.4	2.4	1.7	1.0	1.7
Natural gas	28	39	57	83	112	147	178	11	14	17	3.6	3.4	2.8	1.9	2.7
Electricity	27	44	70	100	134	176	215	13	17	20	4.0	3.2	2.8	2.1	2.7
Heat	-	-	-	-	-	-	-	-	-	-	n.a.	n.a.	n.a.	n.a.	n.a.
Renewables	69	75	74	99	120	147	167	22	17	16	1.4	2.2	2.0	1.3	1.8

Electricity generation	(TWh)							Shares (%)			CAGR (%)				
	1980	1990	2000	2011	2020	2030	2040	1990	2011	2040	1990/2011	2011/2020	2020/2030	2030/2040	2011/2040
<b>Total</b>	380	623	1,003	1,469	1,927	2,513	3,076	100	100	100	4.2	3.1	2.7	2.0	2.6
Coal	7.8	23	44	76	141	224	327	3.8	5.2	11	5.8	7.1	4.8	3.8	5.2
Oil	111	128	194	194	218	269	309	21	13	10	2.0	1.3	2.1	1.4	1.6
Natural gas	35	60	138	329	511	751	966	9.6	22	31	8.5	5.0	3.9	2.6	3.8
Nuclear	2.3	12	20	32	48	67	83	2.0	2.2	2.7	4.6	4.5	3.4	2.2	3.3
Hydro	218	386	584	773	881	992	1,100	62	53	36	3.4	1.5	1.2	1.0	1.2
Geothermal	1.4	5.9	7.8	9.7	29	50	71	1.0	0.7	2.3	2.4	12.8	5.6	3.6	7.1
Other renewables	4.0	7.6	14	56	100	161	220	1.2	3.8	7.1	10.0	6.7	4.8	3.2	4.8

Energy and economic indicators										CAGR (%)				
	1980	1990	2000	2011	2020	2030	2040	1990/2011	2011/2020	2020/2030	2030/2040	2011/2040		
GDP (\$2010 billion)	2,343	2,704	3,642	5,264	7,291	10,104	12,978	3.2	3.7	3.3	2.5	3.2		
Population (million)	358	439	516	591	649	703	742	1.4	1.0	0.8	0.5	0.8		
CO <sub>2</sub> emissions <sup>2</sup> (Mt)	808	912	1,197	1,613	2,014	2,492	2,898	2.8	2.5	2.2	1.5	2.0		
GDP per capita (\$2010 thousand)	6.5	6.2	7.1	8.9	11	14	17	1.8	2.6	2.5	2.0	2.4		
Primary energy consump. per capita (toe)	1.1	1.1	1.2	1.4	1.6	1.8	2.0	1.2	1.6	1.5	1.1	1.4		
Primary energy consumption per GDP <sup>3</sup>	165	173	164	154	140	127	116	-0.6	-1.0	-1.0	-0.9	-1.0		
CO <sub>2</sub> emissions per GDP <sup>2, 4</sup>	345	337	329	306	276	247	223	-0.5	-1.1	-1.1	-1.0	-1.1		
CO <sub>2</sub> per primary energy consumption <sup>2, 5</sup>	2.1	2.0	2.0	2.0	2.0	1.9	1.9	0.1	-0.1	-0.1	-0.1	-0.1		
Automobile ownership (million)	28	38	55	101	147	191	223	4.7	4.2	2.7	1.6	2.8		
Automobile ownership rates <sup>6</sup>	79	88	106	171	227	272	301	3.2	3.2	1.9	1.0	2.0		

\*1 Trade of electricity and heat are not shown, \*2 Excludes emission reduction by CCS, \*3 toe/\$2010 million,

\*4 t/\$2010 million, \*5 t/toe, \*6 Vehicles per 1,000 people

Table 38 OECD Europe

Primary energy consumption	Mtoe							Shares (%)			CAGR (%)				
	1980	1990	2000	2011	2020	2030	2040	1990	2011	2040	1990/2011	2011/2020	2020/2030	2030/2040	2011/2040
<b>Total<sup>1</sup></b>	1,494	1,619	1,747	1,756	1,806	1,847	1,860	100	100	100	0.4	0.3	0.2	0.1	0.2
Coal	464	449	331	304	277	262	245	28	17	13	-1.8	-1.0	-0.6	-0.6	-0.7
Oil	688	606	650	579	540	521	497	37	33	27	-0.2	-0.8	-0.4	-0.5	-0.5
Natural gas	206	260	393	428	480	512	525	16	24	28	2.4	1.3	0.6	0.2	0.7
Nuclear	60	205	245	236	237	227	219	13	13	12	0.7	0.0	-0.4	-0.4	-0.3
Hydro	36	38	47	43	45	47	48	2.4	2.5	2.6	0.6	0.5	0.4	0.2	0.4
Geothermal	3.0	4.7	7.2	12	20	29	37	0.3	0.7	2.0	4.6	5.5	3.8	2.7	3.9
Solar, wind, etc.	0.1	0.3	2.7	22	33	42	51	0.0	1.3	2.8	23.1	4.3	2.6	1.9	2.9
Biomass and waste	36	54	71	129	174	207	237	3.4	7.4	13	4.2	3.3	1.8	1.4	2.1

Final energy consumption	Mtoe							Shares (%)			CAGR (%)				
	1980	1990	2000	2011	2020	2030	2040	1990	2011	2040	1990/2011	2011/2020	2020/2030	2030/2040	2011/2040
<b>Total</b>	1,081	1,123	1,226	1,222	1,272	1,304	1,315	100	100	100	0.4	0.4	0.2	0.1	0.3
By sector															
Industry	356	322	324	294	303	311	317	29	24	24	-0.4	0.4	0.3	0.2	0.3
Transport	209	266	316	331	320	313	298	24	27	23	1.1	-0.4	-0.2	-0.5	-0.4
Buildings, etc.	425	436	473	488	532	555	569	39	40	43	0.5	1.0	0.4	0.3	0.5
Non-energy use	90	100	112	110	117	125	130	8.9	9.0	9.9	0.5	0.7	0.6	0.4	0.6
By energy															
Coal	156	126	62	53	51	47	45	11	4.3	3.4	-4.1	-0.4	-0.7	-0.5	-0.6
Oil	551	518	568	518	485	467	444	46	42	34	0.0	-0.7	-0.4	-0.5	-0.5
Natural gas	161	201	268	260	294	311	322	18	21	25	1.2	1.4	0.6	0.4	0.7
Electricity	147	192	233	261	284	307	325	17	21	25	1.5	0.9	0.8	0.6	0.8
Heat	35	40	39	47	49	50	50	3.5	3.8	3.8	0.8	0.5	0.1	0.0	0.2
Renewables	31	47	54	84	109	122	129	4.2	6.9	9.8	2.8	3.0	1.1	0.6	1.5

Electricity generation	(TWh)							Shares (%)			CAGR (%)				
	1980	1990	2000	2011	2020	2030	2040	1990	2011	2040	1990/2011	2011/2020	2020/2030	2030/2040	2011/2040
<b>Total</b>	2,049	2,662	3,223	3,558	3,818	4,087	4,275	100	100	100	1.4	0.8	0.7	0.5	0.6
Coal	887	1,030	967	896	826	819	798	39	25	19	-0.7	-0.9	-0.1	-0.3	-0.4
Oil	364	206	179	66	67	70	70	7.7	1.9	1.6	-5.3	0.2	0.5	0.0	0.2
Natural gas	138	168	512	786	883	970	993	6.3	22	23	7.6	1.3	0.9	0.2	0.8
Nuclear	230	787	939	905	909	871	839	30	25	20	0.7	0.0	-0.4	-0.4	-0.3
Hydro	416	446	546	504	529	550	558	17	14	13	0.6	0.5	0.4	0.2	0.4
Geothermal	2.7	3.6	6.2	11	22	35	47	0.1	0.3	1.1	5.6	7.8	4.6	3.2	5.1
Other renewables	11	22	73	389	581	771	968	0.8	11	23	14.6	4.6	2.9	2.3	3.2

Energy and economic indicators								CAGR (%)				
	1980	1990	2000	2011	2020	2030	2040	1990/2011	2011/2020	2020/2030	2030/2040	2011/2040
GDP (\$2010 billion)	9,565	12,147	15,255	17,943	20,335	23,998	27,309	1.9	1.4	1.7	1.3	1.5
Population (million)	476	499	521	555	573	586	592	0.5	0.4	0.2	0.1	0.2
CO <sub>2</sub> emissions <sup>2</sup> (Mt)	4,164	3,952	3,893	3,659	3,530	3,465	3,340	-0.4	-0.4	-0.2	-0.4	-0.3
GDP per capita (\$2010 thousand)	20	24	29	32	35	41	46	1.4	1.0	1.4	1.2	1.2
Primary energy consump. per capita (toe)	3.1	3.2	3.3	3.2	3.2	3.2	3.1	-0.1	0.0	0.0	0.0	0.0
Primary energy consumption per GDP <sup>3</sup>	156	133	115	98	89	77	68	-1.5	-1.1	-1.4	-1.2	-1.2
CO <sub>2</sub> emissions per GDP <sup>2, 4</sup>	435	325	255	204	174	144	122	-2.2	-1.8	-1.8	-1.6	-1.7
CO <sub>2</sub> per primary energy consumption <sup>2, 5</sup>	2.8	2.4	2.2	2.1	2.0	1.9	1.8	-0.7	-0.7	-0.4	-0.4	-0.5
Automobile ownership (million)	124	179	238	301	313	345	362	2.5	0.5	1.0	0.5	0.6
Automobile ownership rates <sup>6</sup>	261	360	457	542	546	589	612	2.0	0.1	0.8	0.4	0.4

\*1 Trade of electricity and heat are not shown, \*2 Excludes emission reduction by CCS, \*3 toe/\$2010 million,

\*4 t/\$2010 million, \*5 t/toe, \*6 Vehicles per 1,000 people

Table 39 Non-OECD Europe

Primary energy consumption	Mtoe							Shares (%)			CAGR (%)				
	1980	1990	2000	2011	2020	2030	2040	1990	2011	2040	1990/2011	2011/2020	2020/2030	2030/2040	2011/2040
<b>Total<sup>1</sup></b>	1,241	1,537	1,003	1,176	1,273	1,380	1,464	100	100	100	-1.3	0.9	0.8	0.6	0.8
Coal	362	367	209	233	235	244	250	24	20	17	-2.2	0.1	0.4	0.3	0.2
Oil	464	468	203	244	269	291	304	30	21	21	-3.0	1.1	0.8	0.5	0.8
Natural gas	355	602	488	577	628	661	683	39	49	47	-0.2	0.9	0.5	0.3	0.6
Nuclear	21	59	64	77	90	123	146	3.9	6.6	10.0	1.2	1.7	3.2	1.7	2.2
Hydro	20	23	24	24	26	27	27	1.5	2.1	1.9	0.3	0.5	0.3	0.3	0.4
Geothermal	-	0.0	0.1	0.5	1.4	2.3	3.3	0.0	0.0	0.2	16.0	10.9	5.4	3.5	6.4
Solar, wind, etc.	-	-	0.0	0.4	1.2	2.3	4.3	-	0.0	0.3	n.a.	13.9	6.3	6.4	8.6
Biomass and waste	21	17	16	20	25	32	48	1.1	1.7	3.3	0.9	2.2	2.4	4.2	3.0

Final energy consumption	Mtoe							Shares (%)			CAGR (%)				
	1980	1990	2000	2011	2020	2030	2040	1990	2011	2040	1990/2011	2011/2020	2020/2030	2030/2040	2011/2040
<b>Total</b>	869	1,073	654	742	825	914	981	100	100	100	-1.7	1.2	1.0	0.7	1.0
By sector															
Industry	394	396	206	214	249	284	310	37	29	32	-2.9	1.7	1.3	0.9	1.3
Transport	107	172	110	148	172	191	205	16	20	21	-0.7	1.7	1.1	0.7	1.1
Buildings, etc.	301	439	289	293	311	339	361	41	39	37	-1.9	0.7	0.9	0.6	0.7
Non-energy use	67	66	49	87	92	101	105	6.2	12	11	1.3	0.7	0.8	0.4	0.7
By energy															
Coal	152	114	37	46	55	63	68	11	6.2	6.9	-4.2	2.0	1.3	0.8	1.3
Oil	310	280	146	189	213	234	248	26	25	25	-1.9	1.4	1.0	0.5	0.9
Natural gas	215	261	201	230	261	286	303	24	31	31	-0.6	1.4	0.9	0.6	1.0
Electricity	95	126	87	106	126	150	172	12	14	17	-0.8	1.9	1.7	1.4	1.7
Heat	78	279	172	156	155	167	176	26	21	18	-2.7	-0.1	0.8	0.5	0.4
Renewables	21	13	12	14	14	15	15	1.2	1.9	1.5	0.5	0.0	0.2	0.2	0.1

Electricity generation	(TWh)							Shares (%)			CAGR (%)				
	1980	1990	2000	2011	2020	2030	2040	1990	2011	2040	1990/2011	2011/2020	2020/2030	2030/2040	2011/2040
<b>Total</b>	1,461	1,894	1,432	1,725	2,020	2,352	2,652	100	100	100	-0.4	1.8	1.5	1.2	1.5
Coal	471	429	338	419	499	574	648	23	24	24	-0.1	2.0	1.4	1.2	1.5
Oil	357	270	70	39	30	34	41	14	2.3	1.5	-8.8	-2.7	1.1	1.9	0.2
Natural gas	295	702	504	681	825	919	993	37	40	37	-0.1	2.2	1.1	0.8	1.3
Nuclear	79	226	242	294	342	470	557	12	17	21	1.3	1.7	3.2	1.7	2.2
Hydro	232	267	274	284	298	308	318	14	16	12	0.3	0.5	0.3	0.3	0.4
Geothermal	-	0.0	0.1	0.5	1.5	2.6	3.6	0.0	0.0	0.1	14.9	12.2	5.6	3.6	6.9
Other renewables	27	0.0	2.6	7.1	23	45	91	0.0	0.4	3.4	26.8	14.2	6.8	7.3	9.2

Energy and economic indicators										CAGR (%)				
	1980	1990	2000	2011	2020	2030	2040	1990/2011	2011/2020	2020/2030	2030/2040	2011/2040		
GDP (\$2010 billion)	1,742	2,128	1,481	2,524	3,456	4,703	5,879	0.8	3.6	3.1	2.3	3.0		
Population (million)	319	344	341	340	340	334	325	-0.1	0.0	-0.2	-0.3	-0.1		
CO <sub>2</sub> emissions <sup>2</sup> (Mt)	3,497	4,123	2,461	2,793	2,982	3,141	3,248	-1.8	0.7	0.5	0.3	0.5		
GDP per capita (\$2010 thousand)	5.5	6.2	4.3	7.4	10	14	18	0.9	3.5	3.3	2.5	3.1		
Primary energy consump. per capita (toe)	3.9	4.5	2.9	3.5	3.7	4.1	4.5	-1.2	0.9	1.0	0.9	0.9		
Primary energy consumption per GDP <sup>3</sup>	713	722	678	466	368	293	249	-2.1	-2.6	-2.3	-1.6	-2.1		
CO <sub>2</sub> emissions per GDP <sup>2, 4</sup>	2,008	1,938	1,662	1,107	863	668	552	-2.6	-2.7	-2.5	-1.9	-2.4		
CO <sub>2</sub> per primary energy consumption <sup>2, 5</sup>	2.8	2.7	2.5	2.4	2.3	2.3	2.2	-0.6	-0.2	-0.3	-0.3	-0.2		
Automobile ownership (million)	22	33	47	84	108	129	141	4.5	2.7	1.8	0.9	1.8		
Automobile ownership rates <sup>6</sup>	69	97	137	249	317	385	433	4.6	2.7	2.0	1.2	1.9		

\*1 Trade of electricity and heat are not shown, \*2 Excludes emission reduction by CCS, \*3 toe/\$2010 million,

\*4 t/\$2010 million, \*5 t/toe, \*6 Vehicles per 1,000 people



Table 40 European Union

Primary energy consumption	Mtoe							Shares (%)			CAGR (%)				
	1980	1990	2000	2011	2020	2030	2040	1990/2011	2011/2020	2020/2030	2030/2040	2011/2040			
<b>Total<sup>1</sup></b>	n.a.	1,636	1,685	1,654	1,699	1,737	1,753	100	100	100	0.1	0.3	0.2	0.1	0.2
Coal	n.a.	455	321	286	261	250	236	28	17	13	-2.2	-1.0	-0.5	-0.6	-0.7
Oil	n.a.	601	619	547	515	498	478	37	33	27	-0.4	-0.7	-0.3	-0.4	-0.5
Natural gas	n.a.	295	394	401	448	480	496	18	24	28	1.5	1.2	0.7	0.3	0.7
Nuclear	n.a.	207	246	236	236	226	217	13	14	12	0.6	0.0	-0.4	-0.4	-0.3
Hydro	n.a.	25	30	26	28	29	29	1.5	1.6	1.7	0.3	0.6	0.3	0.2	0.4
Geothermal	n.a.	3.2	4.7	6.2	7.5	9.1	11	0.2	0.4	0.6	3.2	2.1	2.0	1.7	1.9
Solar, wind, etc.	n.a.	0.3	2.4	22	32	42	53	0.0	1.3	3.0	23.5	4.6	2.7	2.2	3.1
Biomass and waste	n.a.	46	66	128	171	202	232	2.8	7.8	13	5.0	3.2	1.7	1.4	2.1

Final energy consumption	Mtoe							Shares (%)			CAGR (%)				
	1980	1990	2000	2011	2020	2030	2040	1990/2011	2011/2020	2020/2030	2030/2040	2011/2040			
<b>Total</b>	n.a.	1,124	1,169	1,144	1,194	1,227	1,241	100	100	100	0.1	0.5	0.3	0.1	0.3
By sector															
Industry	n.a.	341	307	269	279	287	294	30	24	24	-1.1	0.4	0.3	0.2	0.3
Transport	n.a.	257	302	316	309	305	292	23	28	24	1.0	-0.3	-0.1	-0.4	-0.3
Buildings, etc.	n.a.	428	450	454	495	517	532	38	40	43	0.3	1.0	0.4	0.3	0.6
Non-energy use	n.a.	98	110	104	111	118	123	8.7	9.1	9.9	0.3	0.7	0.6	0.4	0.6
By energy															
Coal	n.a.	123	52	40	39	36	34	11	3.5	2.8	-5.2	-0.4	-0.7	-0.5	-0.5
Oil	n.a.	499	537	485	458	443	423	44	42	34	-0.1	-0.6	-0.3	-0.5	-0.5
Natural gas	n.a.	224	271	250	282	298	309	20	22	25	0.5	1.4	0.6	0.4	0.7
Electricity	n.a.	185	217	238	258	281	299	16	21	24	1.2	0.9	0.8	0.6	0.8
Heat	n.a.	54	44	49	51	51	52	4.8	4.3	4.2	-0.5	0.5	0.1	0.0	0.2
Renewables	n.a.	39	49	82	106	117	125	3.4	7.2	10	3.6	2.9	1.0	0.6	1.5

Electricity generation	(TWh)							Shares (%)			CAGR (%)				
	1980	1990	2000	2011	2020	2030	2040	1990/2011	2011/2020	2020/2030	2030/2040	2011/2040			
<b>Total</b>	n.a.	2,568	2,995	3,251	3,498	3,774	4,004	100	100	100	1.1	0.8	0.8	0.6	0.7
Coal	n.a.	1,050	966	882	819	820	808	41	27	20	-0.8	-0.8	0.0	-0.2	-0.3
Oil	n.a.	221	180	73	79	86	90	8.6	2.3	2.2	-5.1	0.8	0.9	0.4	0.7
Natural gas	n.a.	191	478	693	782	876	926	7.4	21	23	6.3	1.4	1.1	0.6	1.0
Nuclear	n.a.	795	945	907	906	868	834	31	28	21	0.6	0.0	-0.4	-0.4	-0.3
Hydro	n.a.	286	351	307	324	335	340	11	9.4	8.5	0.3	0.6	0.3	0.2	0.4
Geothermal	n.a.	3.2	4.8	5.9	7.1	8.8	10	0.1	0.2	0.3	2.9	2.1	2.1	1.8	2.0
Other renewables	n.a.	21	71	382	581	779	995	0.8	12	25	14.8	4.8	3.0	2.5	3.4

Energy and economic indicators								CAGR (%)				
	1980	1990	2000	2011	2020	2030	2040	1990/2011	2011/2020	2020/2030	2030/2040	2011/2040
GDP (\$2010 billion)	n.a.	11,369	14,141	16,479	20,371	24,101	27,483	1.8	2.4	1.7	1.3	1.8
Population (million)	n.a.	473	484	504	517	525	528	0.3	0.3	0.2	0.1	0.2
CO <sub>2</sub> emissions <sup>2</sup> (Mt)	n.a.	4,047	3,767	3,443	3,338	3,295	3,202	-0.8	-0.3	-0.1	-0.3	-0.2
GDP per capita (\$2010 thousand)	n.a.	24	29	33	39	46	52	1.5	2.1	1.5	1.3	1.6
Primary energy consump. per capita (toe)	n.a.	3.5	3.5	3.3	3.3	3.3	3.3	-0.2	0.0	0.1	0.0	0.0
Primary energy consumption per GDP <sup>3</sup>	n.a.	144	119	100	83	72	64	-1.7	-2.0	-1.4	-1.2	-1.6
CO <sub>2</sub> emissions per GDP <sup>2, 4</sup>	n.a.	356	266	209	164	137	117	-2.5	-2.7	-1.8	-1.6	-2.0
CO <sub>2</sub> per primary energy consumption <sup>2, 5</sup>	n.a.	2.5	2.2	2.1	2.0	1.9	1.8	-0.8	-0.6	-0.3	-0.4	-0.4
Automobile ownership (million)	n.a.	177	235	288	308	339	356	2.3	0.7	1.0	0.5	0.7
Automobile ownership rates <sup>6</sup>	n.a.	375	486	572	595	645	673	2.0	0.4	0.8	0.4	0.6

\*1 Trade of electricity and heat are not shown, \*2 Excludes emission reduction by CCS, \*3 toe/\$2010 million,

\*4 t/\$2010 million, \*5 t/toe, \*6 Vehicles per 1,000 people



Table 41 Africa

Primary energy consumption	Mtoe							Shares (%)			CAGR (%)				
	1980	1990	2000	2011	2020	2030	2040	1990/2011	2011/2040	2040	1990/2011	2011/2020	2020/2030	2030/2040	2011/2040
<b>Total<sup>1</sup></b>	278	392	502	700	850	1,037	1,252	100	100	100	2.8	2.2	2.0	1.9	2.0
Coal	52	74	90	107	121	140	162	19	15	13	1.8	1.4	1.4	1.4	1.4
Oil	61	87	98	148	187	235	295	22	21	24	2.6	2.7	2.3	2.3	2.4
Natural gas	12	30	47	94	125	173	237	7.5	13	19	5.7	3.3	3.3	3.2	3.3
Nuclear	-	2.2	3.4	3.5	3.4	7.2	7.4	0.6	0.5	0.6	2.3	-0.5	7.9	0.3	2.6
Hydro	4.1	4.8	6.4	9.6	10	11	12	1.2	1.4	1.0	3.3	0.9	0.9	0.8	0.9
Geothermal	-	0.3	0.4	1.3	3.7	6.4	9.1	0.1	0.2	0.7	7.6	12.3	5.6	3.6	6.9
Solar, wind, etc.	-	0.0	0.0	0.3	1.1	2.5	5.8	0.0	0.0	0.5	36.1	14.6	8.4	8.9	10.5
Biomass and waste	149	195	255	336	397	461	524	50	48	42	2.6	1.8	1.5	1.3	1.5

Final energy consumption	Mtoe							Shares (%)			CAGR (%)				
	1980	1990	2000	2011	2020	2030	2040	1990/2011	2011/2040	2040	1990/2011	2011/2020	2020/2030	2030/2040	2011/2040
<b>Total</b>	225	294	380	525	633	767	919	100	100	100	2.8	2.1	1.9	1.8	1.9
By sector															
Industry	52	61	66	92	113	141	177	21	17	19	2.0	2.3	2.3	2.3	2.3
Transport	27	38	54	83	102	125	151	13	16	16	3.8	2.2	2.0	1.9	2.1
Buildings, etc.	141	184	243	334	402	484	575	63	64	63	2.9	2.1	1.9	1.7	1.9
Non-energy use	5.4	11	16	16	16	16	16	3.8	3.1	1.8	1.8	0.0	0.0	0.0	0.0
By energy															
Coal	21	20	19	20	22	26	31	6.7	3.7	3.4	0.0	1.5	1.7	1.7	1.7
Oil	54	71	89	130	155	188	229	24	25	25	3.0	2.0	2.0	2.0	2.0
Natural gas	2.8	8.6	14	28	39	50	63	2.9	5.4	6.9	5.9	3.6	2.6	2.3	2.8
Electricity	14	22	31	49	65	92	129	7.5	9.3	14	3.9	3.2	3.5	3.5	3.4
Heat	-	-	-	-	-	-	-	-	-	-	n.a.	n.a.	n.a.	n.a.	n.a.
Renewables	133	173	227	298	352	410	466	59	57	51	2.6	1.9	1.5	1.3	1.5

Electricity generation	(TWh)							Shares (%)			CAGR (%)				
	1980	1990	2000	2011	2020	2030	2040	1990/2011	2011/2040	2040	1990/2011	2011/2020	2020/2030	2030/2040	2011/2040
<b>Total</b>	184	316	441	692	902	1,272	1,790	100	100	100	3.8	3.0	3.5	3.5	3.3
Coal	100	165	209	262	319	396	489	52	38	27	2.2	2.2	2.2	2.1	2.2
Oil	22	41	52	70	110	176	269	13	10	15	2.6	5.0	4.8	4.3	4.7
Natural gas	14	45	91	229	320	501	778	14	33	43	8.0	3.8	4.6	4.5	4.3
Nuclear	-	8.4	13	14	13	27	28	2.7	2.0	1.6	2.3	-0.5	7.9	0.3	2.6
Hydro	47	56	75	111	121	133	144	18	16	8.1	3.3	0.9	0.9	0.8	0.9
Geothermal	-	0.3	0.4	1.5	4.3	7.4	11	0.1	0.2	0.6	7.6	12.3	5.6	3.6	6.9
Other renewables	0.2	0.2	0.9	3.8	14	31	71	0.1	0.5	4.0	13.9	16.0	8.0	8.6	10.6

Energy and economic indicators										CAGR (%)				
	1980	1990	2000	2011	2020	2030	2040	1990/2011	2011/2020	2020/2030	2030/2040	2011/2040		
GDP (\$2010 billion)	638	807	1,063	1,709	2,644	4,067	6,059	3.6	5.0	4.4	4.1	4.5		
Population (million)	481	633	809	1,044	1,296	1,614	1,973	2.4	2.4	2.2	2.0	2.2		
CO <sub>2</sub> emissions <sup>2</sup> (Mt)	402	593	719	1,052	1,303	1,634	2,056	2.8	2.4	2.3	2.3	2.3		
GDP per capita (\$2010 thousand)	1.3	1.3	1.3	1.6	2.0	2.5	3.1	1.2	2.5	2.1	2.0	2.2		
Primary energy consump. per capita (toe)	0.6	0.6	0.6	0.7	0.7	0.6	0.6	0.4	-0.3	-0.2	-0.1	-0.2		
Primary energy consumption per GDP <sup>3</sup>	435	486	472	410	321	255	207	-0.8	-2.7	-2.3	-2.1	-2.3		
CO <sub>2</sub> emissions per GDP <sup>2, 4</sup>	630	735	677	615	493	402	339	-0.8	-2.4	-2.0	-1.7	-2.0		
CO <sub>2</sub> per primary energy consumption <sup>2, 5</sup>	1.4	1.5	1.4	1.5	1.5	1.6	1.6	0.0	0.2	0.3	0.4	0.3		
Automobile ownership (million)	20	29	39	64	82	106	137	3.8	2.8	2.7	2.6	2.7		
Automobile ownership rates <sup>6</sup>	41	46	49	61	63	66	70	1.4	0.4	0.4	0.6	0.5		

\*1 Trade of electricity and heat are not shown, \*2 Excludes emission reduction by CCS, \*3 toe/\$2010 million,

\*4 t/\$2010 million, \*5 t/toe, \*6 Vehicles per 1,000 people

Table 42 Middle East

Primary energy consumption	Mtoe							Shares (%)			CAGR (%)				
	1980	1990	2000	2011	2020	2030	2040	1990	2011	2040	1990/2011	2011/2020	2020/2030	2030/2040	2011/2040
<b>Total<sup>1</sup></b>	121	223	376	670	828	1,027	1,223	100	100	100	5.4	2.4	2.2	1.8	2.1
Coal	1.2	3.0	8.0	11	14	21	31	1.3	1.6	2.5	6.2	3.3	3.9	4.0	3.7
Oil	90	146	216	319	389	475	556	65	48	45	3.8	2.3	2.0	1.6	1.9
Natural gas	29	72	150	338	411	505	599	32	50	49	7.6	2.2	2.1	1.7	2.0
Nuclear	-	-	-	0.1	6.4	19	29	-	0.0	2.4	n.a.	59.9	11.6	4.4	21.9
Hydro	0.8	1.0	0.7	1.8	1.8	1.8	1.8	0.5	0.3	0.1	2.6	0.0	0.0	0.0	0.0
Geothermal	-	-	-	-	-	-	-	-	-	-	n.a.	n.a.	n.a.	n.a.	n.a.
Solar, wind, etc.	-	0.4	0.7	1.3	4.6	5.4	6.7	0.2	0.2	0.5	5.5	15.4	1.4	2.2	5.9
Biomass and waste	0.3	0.4	0.4	0.7	0.7	0.7	0.8	0.2	0.1	0.1	1.9	0.4	0.6	0.8	0.6

Final energy consumption	Mtoe							Shares (%)			CAGR (%)				
	1980	1990	2000	2011	2020	2030	2040	1990	2011	2040	1990/2011	2011/2020	2020/2030	2030/2040	2011/2040
<b>Total</b>	84	155	247	446	553	693	836	100	100	100	5.2	2.4	2.3	1.9	2.2
By sector															
Industry	30	43	65	123	151	197	246	28	28	29	5.1	2.3	2.7	2.2	2.4
Transport	26	50	74	126	154	189	224	32	28	27	4.5	2.3	2.1	1.7	2.0
Buildings, etc.	22	40	76	121	160	199	237	26	27	28	5.3	3.2	2.2	1.8	2.4
Non-energy use	5.6	21	32	76	88	108	128	14	17	15	6.3	1.6	2.1	1.7	1.8
By energy															
Coal	0.3	0.2	0.4	1.7	3.0	4.7	6.2	0.1	0.4	0.7	11.1	6.4	4.7	2.7	4.5
Oil	67	107	151	215	270	335	400	69	48	48	3.4	2.6	2.2	1.8	2.2
Natural gas	9.8	30	63	164	187	225	259	19	37	31	8.4	1.5	1.8	1.4	1.6
Electricity	6.5	17	32	63	87	124	165	11	14	20	6.5	3.7	3.5	2.9	3.4
Heat	-	-	-	-	-	-	-	-	-	-	n.a.	n.a.	n.a.	n.a.	n.a.
Renewables	0.2	0.7	1.0	1.8	4.8	5.1	5.6	0.5	0.4	0.7	4.3	11.4	0.6	1.0	4.0

Electricity generation	(TWh)							Shares (%)			CAGR (%)				
	1980	1990	2000	2011	2020	2030	2040	1990	2011	2040	1990/2011	2011/2020	2020/2030	2030/2040	2011/2040
<b>Total</b>	95	240	465	905	1,268	1,784	2,367	100	100	100	6.5	3.8	3.5	2.9	3.4
Coal	0.1	11	30	36	46	69	108	4.4	3.9	4.6	6.0	3.0	4.0	4.6	3.9
Oil	47	108	188	318	415	524	611	45	35	26	5.3	3.0	2.4	1.5	2.3
Natural gas	39	110	238	530	757	1,086	1,495	46	59	63	7.8	4.0	3.7	3.2	3.6
Nuclear	-	-	-	0.4	25	74	113	-	0.0	4.8	n.a.	59.9	11.6	4.4	21.9
Hydro	9.7	12	8.0	20	20	20	20	5.0	2.3	0.9	2.6	0.0	0.0	0.0	0.0
Geothermal	-	-	-	-	-	-	-	-	-	-	n.a.	n.a.	n.a.	n.a.	n.a.
Other renewables	-	0.0	0.0	0.5	5.0	10	20	0.0	0.1	0.8	35.0	27.7	7.6	6.8	13.2

Energy and economic indicators										CAGR (%)				
	1980	1990	2000	2011	2020	2030	2040	1990/2011	2011/2020	2020/2030	2030/2040	2011/2040		
GDP (\$2010 billion)	787	878	1,332	2,190	3,023	4,145	5,307	4.4	3.6	3.2	2.5	3.1		
Population (million)	92	131	167	216	255	292	325	2.4	1.9	1.4	1.1	1.4		
CO <sub>2</sub> emissions <sup>2</sup> (Mt)	332	570	958	1,608	1,975	2,425	2,876	5.1	2.3	2.1	1.7	2.0		
GDP per capita (\$2010 thousand)	8.6	6.7	8.0	10	12	14	16	2.0	1.8	1.8	1.4	1.7		
Primary energy consump. per capita (toe)	1.3	1.7	2.3	3.1	3.2	3.5	3.8	2.9	0.5	0.8	0.7	0.7		
Primary energy consumption per GDP <sup>3</sup>	154	254	282	306	274	248	230	0.9	-1.2	-1.0	-0.7	-1.0		
CO <sub>2</sub> emissions per GDP <sup>2, 4</sup>	422	649	719	734	653	585	542	0.6	-1.3	-1.1	-0.8	-1.0		
CO <sub>2</sub> per primary energy consumption <sup>2, 5</sup>	2.7	2.6	2.5	2.4	2.4	2.4	2.4	-0.3	-0.1	-0.1	0.0	-0.1		
Automobile ownership (million)	5.8	10	14	33	41	57	70	5.7	2.5	3.4	2.0	2.6		
Automobile ownership rates <sup>6</sup>	63	78	85	152	161	196	215	3.2	0.6	2.0	1.0	1.2		

\*1 Trade of electricity and heat are not shown, \*2 Excludes emission reduction by CCS, \*3 toe/\$2010 million,

\*4 t/\$2010 million, \*5 t/toe, \*6 Vehicles per 1,000 people

Table 43 Oceania

Primary energy consumption	Mtoe							Shares (%)			CAGR (%)				
	1980	1990	2000	2011	2020	2030	2040	1990/2011	2011/2020	2020/2030	2030/2040	2011/2040			
<b>Total<sup>1</sup></b>	79	99	125	141	152	160	165	100	100	100	1.7	0.9	0.5	0.3	0.5
Coal	28	36	49	50	52	47	41	36	35	25	1.5	0.4	-0.9	-1.5	-0.7
Oil	34	35	40	47	48	51	53	35	34	32	1.5	0.2	0.6	0.4	0.4
Natural gas	8.3	19	24	30	36	42	47	19	22	28	2.4	2.0	1.3	1.1	1.5
Nuclear	-	-	-	-	-	-	-	-	-	-	n.a.	n.a.	n.a.	n.a.	n.a.
Hydro	2.7	3.2	3.5	3.6	3.6	3.6	3.6	3.2	2.6	2.2	0.5	0.0	0.0	0.0	0.0
Geothermal	1.0	1.5	1.9	3.8	4.4	5.2	6.0	1.5	2.7	3.6	4.6	1.6	1.7	1.4	1.6
Solar, wind, etc.	0.0	0.1	0.1	1.0	2.0	4.7	8.0	0.1	0.7	4.9	12.8	8.0	8.7	5.5	7.4
Biomass and waste	4.1	4.7	6.1	5.3	6.3	6.4	7.0	4.8	3.7	4.2	0.5	2.0	0.2	0.9	1.0

Final energy consumption	Mtoe							Shares (%)			CAGR (%)				
	1980	1990	2000	2011	2020	2030	2040	1990/2011	2011/2020	2020/2030	2030/2040	2011/2040			
<b>Total</b>	54	66	83	91	101	110	118	100	100	100	1.5	1.2	0.9	0.7	0.9
By sector															
Industry	20	23	28	27	30	32	34	34	30	29	0.8	1.2	0.7	0.5	0.8
Transport	19	24	30	35	37	40	42	36	38	36	1.7	0.8	0.8	0.6	0.7
Buildings, etc.	11	15	19	23	26	30	32	22	25	27	2.1	1.5	1.2	0.9	1.2
Non-energy use	3.1	4.6	6.1	5.9	7.1	8.1	9.0	6.9	6.6	7.6	1.2	2.1	1.3	1.0	1.4
By energy															
Coal	5.3	5.1	4.7	4.0	3.9	3.6	3.4	7.8	4.4	2.9	-1.2	-0.3	-0.6	-0.6	-0.5
Oil	31	33	40	45	49	54	56	50	50	48	1.5	0.9	0.9	0.5	0.8
Natural gas	5.4	10	14	15	16	18	20	16	16	17	1.6	1.2	1.1	0.9	1.1
Electricity	8.5	14	18	21	25	29	32	20	24	27	2.2	1.9	1.3	1.1	1.4
Heat	-	-	-	-	-	-	-	-	-	-	n.a.	n.a.	n.a.	n.a.	n.a.
Renewables	4.0	4.1	5.6	5.0	5.9	5.8	5.8	6.2	5.5	4.9	0.9	1.8	0.0	0.0	0.5

Electricity generation	(TWh)							Shares (%)			CAGR (%)				
	1980	1990	2000	2011	2020	2030	2040	1990/2011	2011/2020	2020/2030	2030/2040	2011/2040			
<b>Total</b>	118	187	249	297	352	401	447	100	100	100	2.2	1.9	1.3	1.1	1.4
Coal	70	122	176	175	196	189	168	65	59	38	1.7	1.2	-0.3	-1.2	-0.2
Oil	5.2	3.6	1.8	4.1	4.8	6.0	7.4	1.9	1.4	1.7	0.7	1.8	2.3	2.1	2.1
Natural gas	8.7	20	26	58	80	103	127	11	20	28	5.2	3.6	2.5	2.1	2.7
Nuclear	-	-	-	-	-	-	-	-	-	-	n.a.	n.a.	n.a.	n.a.	n.a.
Hydro	32	37	41	42	42	42	42	20	14	9.4	0.5	0.0	0.0	0.0	0.0
Geothermal	1.2	2.1	2.9	6.1	7.1	8.4	9.7	1.1	2.1	2.2	5.1	1.7	1.7	1.5	1.6
Other renewables	0.7	1.3	1.9	11	22	53	93	0.7	3.8	21	11.1	7.8	9.0	5.9	7.5

Energy and economic indicators								CAGR (%)				
	1980	1990	2000	2011	2020	2030	2040	1990/2011	2011/2020	2020/2030	2030/2040	2011/2040
GDP (\$2010 billion)	517	710	986	1,345	1,799	2,287	2,757	3.1	3.3	2.4	1.9	2.5
Population (million)	18	20	23	27	30	33	36	1.3	1.2	1.0	0.9	1.0
CO <sub>2</sub> emissions <sup>2</sup> (Mt)	227	280	357	396	417	419	408	1.7	0.6	0.1	-0.3	0.1
GDP per capita (\$2010 thousand)	29	35	43	50	60	68	76	1.7	2.1	1.4	1.0	1.5
Primary energy consump. per capita (toe)	4.4	4.9	5.4	5.2	5.1	4.8	4.5	0.3	-0.3	-0.5	-0.5	-0.5
Primary energy consumption per GDP <sup>3</sup>	152	140	127	105	85	70	60	-1.3	-2.3	-1.9	-1.5	-1.9
CO <sub>2</sub> emissions per GDP <sup>2, 4</sup>	439	395	362	294	232	183	148	-1.4	-2.6	-2.3	-2.1	-2.3
CO <sub>2</sub> per primary energy consumption <sup>2, 5</sup>	2.9	2.8	2.9	2.8	2.7	2.6	2.5	0.0	-0.3	-0.4	-0.6	-0.4
Automobile ownership (million)	8.8	12	15	19	22	24	27	2.4	1.5	1.2	0.9	1.2
Automobile ownership rates <sup>6</sup>	495	567	650	703	722	733	738	1.0	0.3	0.2	0.1	0.2

\*1 Trade of electricity and heat are not shown, \*2 Excludes emission reduction by CCS, \*3 toe/\$2010 million,

\*4 t/\$2010 million, \*5 t/toe, \*6 Vehicles per 1,000 people

Table 44 OECD

Primary energy consumption	Mtoe							Shares (%)			CAGR (%)				
	1980	1990	2000	2011	2020	2030	2040	1990/1990	2011/2011	2040/2040	1990/2011	2011/2020	2020/2030	2030/2040	2011/2040
<b>Total<sup>*1</sup></b>	4,060	4,511	5,274	5,282	5,484	5,685	5,795	100	100	100	0.8	0.4	0.4	0.2	0.3
Coal	966	1,078	1,094	1,055	971	934	889	24	20	15	-0.1	-0.9	-0.4	-0.5	-0.6
Oil	1,938	1,861	2,103	1,911	1,819	1,787	1,739	41	36	30	0.1	-0.5	-0.2	-0.3	-0.3
Natural gas	778	843	1,156	1,313	1,464	1,603	1,695	19	25	29	2.1	1.2	0.9	0.6	0.9
Nuclear	162	451	586	544	627	628	611	10	10	11	0.9	1.6	0.0	-0.3	0.4
Hydro	94	102	115	119	122	127	130	2.3	2.3	2.2	0.8	0.3	0.4	0.2	0.3
Geothermal	10	26	30	33	61	94	126	0.6	0.6	2.2	1.0	7.2	4.3	3.0	4.8
Solar, wind, etc.	0.1	1.9	5.8	39	70	104	136	0.0	0.7	2.4	15.5	6.9	4.0	2.8	4.5
Biomass and waste	111	147	183	267	347	408	468	3.3	5.0	8.1	2.9	3.0	1.6	1.4	2.0

Final energy consumption	Mtoe							Shares (%)			CAGR (%)				
	1980	1990	2000	2011	2020	2030	2040	1990/1990	2011/2011	2040/2040	1990/2011	2011/2020	2020/2030	2030/2040	2011/2040
<b>Total</b>	2,937	3,102	3,633	3,637	3,784	3,919	3,990	100	100	100	0.8	0.4	0.3	0.2	0.3
By sector															
Industry	940	827	911	835	860	885	895	27	23	22	0.0	0.3	0.3	0.1	0.2
Transport	781	938	1,143	1,178	1,177	1,180	1,167	30	32	29	1.1	0.0	0.0	-0.1	0.0
Buildings, etc.	972	1,046	1,210	1,265	1,368	1,448	1,503	34	35	38	0.9	0.9	0.6	0.4	0.6
Non-energy use	243	290	370	359	380	407	426	9.3	9.9	11	1.0	0.6	0.7	0.5	0.6
By energy															
Coal	259	235	139	122	118	112	107	7.6	3.4	2.7	-3.1	-0.4	-0.5	-0.5	-0.5
Oil	1,570	1,588	1,843	1,737	1,667	1,642	1,599	51	48	40	0.4	-0.5	-0.2	-0.3	-0.3
Natural gas	559	589	746	730	810	848	864	19	20	22	1.0	1.2	0.5	0.2	0.6
Electricity	408	550	714	799	888	985	1,059	18	22	27	1.8	1.2	1.0	0.7	1.0
Heat	36	43	49	59	63	65	67	1.4	1.6	1.7	1.6	0.7	0.4	0.2	0.4
Renewables	105	97	141	190	238	267	294	3.1	5.2	7.4	3.2	2.6	1.2	1.0	1.5

Electricity generation	(TWh)							Shares (%)			CAGR (%)				
	1980	1990	2000	2011	2020	2030	2040	1990/1990	2011/2011	2040/2040	1990/2011	2011/2020	2020/2030	2030/2040	2011/2040
<b>Total</b>	5,656	7,608	9,686	10,743	11,856	13,083	14,038	100	100	100	1.7	1.1	1.0	0.7	0.9
Coal	2,319	3,082	3,762	3,582	3,407	3,408	3,366	41	33	24	0.7	-0.6	0.0	-0.1	-0.2
Oil	980	687	582	341	309	300	294	9.0	3.2	2.1	-3.3	-1.1	-0.3	-0.2	-0.5
Natural gas	618	770	1,538	2,611	3,052	3,664	4,132	10	24	29	6.0	1.7	1.8	1.2	1.6
Nuclear	621	1,729	2,249	2,087	2,407	2,410	2,346	23	19	17	0.9	1.6	0.0	-0.3	0.4
Hydro	1,093	1,182	1,342	1,388	1,422	1,478	1,510	16	13	11	0.8	0.3	0.4	0.2	0.3
Geothermal	11	29	33	44	85	131	177	0.4	0.4	1.3	2.1	7.5	4.4	3.0	4.9
Other renewables	14	129	180	688	1,173	1,692	2,212	1.7	6.4	16	8.3	6.1	3.7	2.7	4.1

Energy and economic indicators								CAGR (%)				
	1980	1990	2000	2011	2020	2030	2040	1990/2011	2011/2020	2020/2030	2030/2040	2011/2040
GDP (\$2010 billion)	20,890	28,305	36,725	43,404	52,419	64,203	75,414	2.1	2.1	2.0	1.6	1.9
Population (million)	981	1,061	1,147	1,237	1,298	1,351	1,386	0.7	0.5	0.4	0.3	0.4
CO <sub>2</sub> emissions <sup>*2</sup> (Mt)	10,863	11,095	12,398	12,047	11,734	11,734	11,577	0.4	-0.3	0.0	-0.1	-0.1
GDP per capita (\$2010 thousand)	21	27	32	35	40	48	54	1.3	1.6	1.6	1.4	1.5
Primary energy consump. per capita (toe)	4.1	4.3	4.6	4.3	4.2	4.2	4.2	0.0	-0.1	0.0	-0.1	-0.1
Primary energy consumption per GDP <sup>*3</sup>	194	159	144	122	105	89	77	-1.3	-1.7	-1.7	-1.4	-1.6
CO <sub>2</sub> emissions per GDP <sup>*2, *4</sup>	520	392	338	278	224	183	154	-1.6	-2.4	-2.0	-1.7	-2.0
CO <sub>2</sub> per primary energy consumption <sup>*2, *5</sup>	2.7	2.5	2.4	2.3	2.1	2.1	2.0	-0.4	-0.7	-0.4	-0.3	-0.5
Automobile ownership (million)	347	468	593	715	779	860	915	2.0	1.0	1.0	0.6	0.9
Automobile ownership rates <sup>*6</sup>	354	441	517	578	600	637	660	1.3	0.4	0.6	0.4	0.5

\*1 Trade of electricity and heat are not shown, \*2 Excludes emission reduction by CCS, \*3 toe/\$2010 million,

\*4 t/\$2010 million, \*5 t/toe, \*6 Vehicles per 1,000 people

Table 45 Non-OECD

Primary energy consumption	Mtoe							Shares (%)			CAGR (%)				
	1980	1990	2000	2011	2020	2030	2040	1990	2011	2040	1990/2011	2011/2020	2020/2030	2030/2040	2011/2040
<b>Total<sup>1</sup></b>	2,980	4,070	4,537	7,471	9,283	11,294	13,234	100	100	100	2.9	2.4	2.0	1.6	2.0
Coal	822	1,152	1,264	2,721	3,102	3,546	3,988	28	36	30	4.2	1.5	1.3	1.2	1.3
Oil	986	1,169	1,282	1,865	2,426	2,962	3,436	29	25	26	2.2	3.0	2.0	1.5	2.1
Natural gas	456	825	916	1,474	1,963	2,570	3,174	20	20	24	2.8	3.2	2.7	2.1	2.7
Nuclear	24	74	89	130	263	422	563	1.8	1.7	4.3	2.7	8.2	4.8	2.9	5.2
Hydro	54	83	110	181	222	247	270	2.0	2.4	2.0	3.8	2.3	1.1	0.9	1.4
Geothermal	2.2	7.6	22	33	51	80	109	0.2	0.4	0.8	7.3	4.9	4.6	3.1	4.2
Solar, wind, etc.	-	0.5	2.1	23	47	70	103	0.0	0.3	0.8	20.2	8.6	4.0	4.0	5.4
Biomass and waste	637	760	850	1,045	1,207	1,394	1,588	19	14	12	1.5	1.6	1.5	1.3	1.5

Final energy consumption	Mtoe							Shares (%)			CAGR (%)				
	1980	1990	2000	2011	2020	2030	2040	1990	2011	2040	1990/2011	2011/2020	2020/2030	2030/2040	2011/2040
<b>Total</b>	2,274	2,990	3,189	4,919	6,139	7,467	8,734	100	100	100	2.4	2.5	2.0	1.6	2.0
By sector															
Industry	841	987	995	1,722	2,078	2,475	2,861	33	35	33	2.7	2.1	1.8	1.5	1.8
Transport	289	442	545	906	1,269	1,626	1,943	15	18	22	3.5	3.8	2.5	1.8	2.7
Buildings, etc.	1,033	1,374	1,399	1,831	2,205	2,648	3,103	46	37	36	1.4	2.1	1.8	1.6	1.8
Non-energy use	111	188	251	460	587	717	828	6.3	9.4	9.5	4.4	2.7	2.0	1.4	2.0
By energy															
Coal	453	535	438	781	829	845	892	18	16	10	1.8	0.7	0.2	0.5	0.5
Oil	698	820	1,012	1,536	2,022	2,493	2,909	27	31	33	3.0	3.1	2.1	1.6	2.2
Natural gas	257	355	373	651	892	1,177	1,440	12	13	16	2.9	3.6	2.8	2.0	2.8
Electricity	178	283	376	783	1,087	1,493	1,903	9.5	16	22	5.0	3.7	3.2	2.5	3.1
Heat	85	293	198	222	243	272	292	9.8	4.5	3.3	-1.3	1.0	1.2	0.7	1.0
Renewables	603	705	793	947	1,067	1,186	1,297	24	19	15	1.4	1.3	1.1	0.9	1.1

Electricity generation	(TWh)							Shares (%)			CAGR (%)				
	1980	1990	2000	2011	2020	2030	2040	1990	2011	2040	1990/2011	2011/2020	2020/2030	2030/2040	2011/2040
<b>Total</b>	2,626	4,210	5,725	11,383	15,516	21,031	26,633	100	100	100	4.9	3.5	3.1	2.4	3.0
Coal	821	1,343	2,240	5,562	7,047	9,378	11,473	32	49	43	7.0	2.7	2.9	2.0	2.5
Oil	673	645	619	717	892	1,154	1,409	15	6.3	5.3	0.5	2.5	2.6	2.0	2.4
Natural gas	381	960	1,202	2,241	3,336	4,928	6,791	23	20	25	4.1	4.5	4.0	3.3	3.9
Nuclear	93	283	341	497	1,009	1,626	2,184	6.7	4.4	8.2	2.7	8.2	4.9	3.0	5.2
Hydro	624	963	1,279	2,102	2,580	2,872	3,138	23	18	12	3.8	2.3	1.1	0.9	1.4
Geothermal	2.6	7.8	19	25	55	88	121	0.2	0.2	0.5	5.7	9.2	4.8	3.2	5.6
Other renewables	31	7.6	24	239	597	985	1,516	0.2	2.1	5.7	17.8	10.7	5.1	4.4	6.6

Energy and economic indicators								CAGR (%)				
	1980	1990	2000	2011	2020	2030	2040	1990/2011	2011/2020	2020/2030	2030/2040	2011/2040
GDP (\$2010 billion)	6,219	8,274	11,360	21,757	35,327	53,894	74,803	4.7	5.5	4.3	3.3	4.4
Population (million)	3,463	4,228	4,962	5,726	6,377	7,025	7,596	1.5	1.2	1.0	0.8	1.0
CO <sub>2</sub> emissions <sup>2</sup> (Mt)	7,025	9,533	10,351	18,616	22,628	27,079	31,378	3.2	2.2	1.8	1.5	1.8
GDP per capita (\$2010 thousand)	1.8	2.0	2.3	3.8	5.5	7.7	9.8	3.2	4.3	3.3	2.5	3.3
Primary energy consump. per capita (toe)	0.9	1.0	0.9	1.3	1.5	1.6	1.7	1.5	1.2	1.0	0.8	1.0
Primary energy consumption per GDP <sup>3</sup>	479	492	399	343	263	210	177	-1.7	-2.9	-2.2	-1.7	-2.3
CO <sub>2</sub> emissions per GDP <sup>2, 4</sup>	1,130	1,152	911	856	641	502	419	-1.4	-3.2	-2.4	-1.8	-2.4
CO <sub>2</sub> per primary energy consumption <sup>2, 5</sup>	2.4	2.3	2.3	2.5	2.4	2.4	2.4	0.3	-0.2	-0.2	-0.1	-0.2
Automobile ownership (million)	79	125	193	419	645	911	1,200	5.9	4.9	3.5	2.8	3.7
Automobile ownership rates <sup>6</sup>	23	30	39	73	101	130	158	4.4	3.7	2.5	2.0	2.7

\*1 Trade of electricity and heat are not shown, \*2 Excludes emission reduction by CCS, \*3 toe/\$2010 million,

\*4 t/\$2010 million, \*5 t/toe, \*6 Vehicles per 1,000 people

Table 46 World, Unconventional Resources Development Scenario

Primary energy consumption	Mtoe							Shares (%)			CAGR (%)				
	1980	1990	2000	2011	2020	2030	2040	1990	2011	2040	1990/2011	2011/2020	2020/2030	2030/2040	2011/2040
<b>Total<sup>1</sup></b>	7,217	8,782	10,082	13,113	15,233	17,576	19,776	100	100	100	1.9	1.7	1.4	1.2	1.4
Coal	1,788	2,230	2,358	3,776	4,016	4,318	4,533	25	29	23	2.5	0.7	0.7	0.5	0.6
Oil	3,101	3,230	3,657	4,136	4,689	5,250	5,712	37	32	29	1.2	1.4	1.1	0.8	1.1
Natural gas	1,234	1,668	2,072	2,787	3,542	4,514	5,547	19	21	28	2.5	2.7	2.5	2.1	2.4
Nuclear	186	526	676	674	861	993	1,090	6.0	5.1	5.5	1.2	2.8	1.4	0.9	1.7
Hydro	148	184	225	300	344	374	400	2.1	2.3	2.0	2.3	1.5	0.8	0.7	1.0
Geothermal	12	34	52	66	105	146	209	0.4	0.5	1.1	3.2	5.3	3.3	3.7	4.1
Solar, wind, etc.	0.1	2.4	7.9	61	117	170	217	0.0	0.5	1.1	16.8	7.5	3.8	2.5	4.5
Biomass and waste	748	907	1,033	1,312	1,556	1,808	2,065	10	10	10	1.8	1.9	1.5	1.3	1.6

Final energy consumption	Mtoe							Shares (%)			CAGR (%)				
	1980	1990	2000	2011	2020	2030	2040	1990	2011	2040	1990/2011	2011/2020	2020/2030	2030/2040	2011/2040
<b>Total</b>	5,388	6,293	7,094	8,918	10,405	12,020	13,518	100	100	100	1.7	1.7	1.5	1.2	1.4
By sector															
Industry	1,782	1,814	1,905	2,557	2,950	3,394	3,815	29	29	28	1.6	1.6	1.4	1.2	1.4
Transport	1,247	1,581	1,959	2,445	2,898	3,357	3,756	25	27	28	2.1	1.9	1.5	1.1	1.5
Buildings, etc.	2,005	2,421	2,609	3,096	3,586	4,134	4,672	38	35	35	1.2	1.6	1.4	1.2	1.4
Non-energy use	354	478	621	819	970	1,135	1,275	7.6	9.2	9.4	2.6	1.9	1.6	1.2	1.5
By energy															
Coal	712	770	578	904	947	960	1,005	12	10	7.4	0.8	0.5	0.1	0.5	0.4
Oil	2,445	2,608	3,126	3,633	4,135	4,647	5,071	41	41	38	1.6	1.4	1.2	0.9	1.2
Natural gas	816	944	1,119	1,380	1,730	2,124	2,492	15	15	18	1.8	2.5	2.1	1.6	2.1
Electricity	586	833	1,090	1,582	1,978	2,488	2,981	13	18	22	3.1	2.5	2.3	1.8	2.2
Heat	121	335	247	281	307	342	367	5.3	3.2	2.7	-0.8	1.0	1.1	0.7	0.9
Renewables	708	802	935	1,137	1,307	1,460	1,601	13	13	12	1.7	1.6	1.1	0.9	1.2

Electricity generation	(TWh)							Shares (%)			CAGR (%)				
	1980	1990	2000	2011	2020	2030	2040	1990	2011	2040	1990/2011	2011/2020	2020/2030	2030/2040	2011/2040
<b>Total</b>	8,282	11,818	15,411	22,126	27,406	34,248	40,919	100	100	100	3.0	2.4	2.3	1.8	2.1
Coal	3,141	4,426	6,002	9,144	10,214	12,082	13,286	37	41	32	3.5	1.2	1.7	1.0	1.3
Oil	1,653	1,332	1,200	1,058	1,188	1,399	1,575	11	4.8	3.8	-1.1	1.3	1.6	1.2	1.4
Natural gas	999	1,730	2,740	4,852	6,806	9,796	13,503	15	22	33	5.0	3.8	3.7	3.3	3.6
Nuclear	713	2,013	2,591	2,584	3,303	3,809	4,180	17	12	10	1.2	2.8	1.4	0.9	1.7
Hydro	1,717	2,144	2,620	3,490	4,002	4,350	4,648	18	16	11	2.3	1.5	0.8	0.7	1.0
Geothermal	14	36	52	69	130	181	263	0.3	0.3	0.6	3.1	7.2	3.4	3.8	4.7
Other renewables	45	137	204	927	1,763	2,631	3,464	1.2	4.2	8.5	9.5	7.4	4.1	2.8	4.7

Energy and economic indicators								CAGR (%)				
	1980	1990	2000	2011	2020	2030	2040	1990/2011	2011/2020	2020/2030	2030/2040	2011/2040
GDP (\$2010 billion)	27,110	36,580	48,085	65,161	87,745	118,097	150,216	2.8	3.4	3.0	2.4	2.9
Population (million)	4,444	5,289	6,109	6,963	7,675	8,376	8,982	1.3	1.1	0.9	0.7	0.9
CO <sub>2</sub> emissions <sup>2</sup> (Mt)	18,431	21,244	23,582	31,770	35,756	40,484	44,773	1.9	1.3	1.2	1.0	1.2
GDP per capita (\$2010 thousand)	6.1	6.9	7.9	9.4	11	14	17	1.5	2.2	2.1	1.7	2.0
Primary energy consump. per capita (toe)	1.6	1.7	1.7	1.9	2.0	2.1	2.2	0.6	0.6	0.6	0.5	0.5
Primary energy consumption per GDP <sup>3</sup>	266	240	210	201	174	149	132	-0.8	-1.6	-1.5	-1.2	-1.5
CO <sub>2</sub> emissions per GDP <sup>2, 4</sup>	680	581	490	488	408	343	298	-0.8	-2.0	-1.7	-1.4	-1.7
CO <sub>2</sub> per primary energy consumption <sup>2, 5</sup>	2.6	2.4	2.3	2.4	2.3	2.3	2.3	0.0	-0.4	-0.2	-0.2	-0.2
Automobile ownership (million)	426	593	787	1,134	1,422	1,768	2,110	3.1	2.5	2.2	1.8	2.2
Automobile ownership rates <sup>6</sup>	96	112	129	163	185	211	235	1.8	1.4	1.3	1.1	1.3

\*1 Trade of electricity and heat are not shown, \*2 Excludes emission reduction by CCS, \*3 toe/\$2010 million,

\*4 t/\$2010 million, \*5 t/toe, \*6 Vehicles per 1,000 people

Table 47 Asia, Unconventional Resources Development Scenario

Primary energy consumption	Mtoe							Shares (%)			CAGR (%)				
	1980	1990	2000	2011	2020	2030	2040	1990	2011	2040	1990/2011	2011/2020	2020/2030	2030/2040	2011/2040
<b>Total<sup>1</sup></b>	1,444	2,120	2,934	5,058	6,345	7,678	8,966	100	100	100	4.2	2.6	1.9	1.6	2.0
Coal	471	796	1,078	2,536	2,842	3,181	3,443	38	50	38	5.7	1.3	1.1	0.8	1.1
Oil	478	618	918	1,198	1,544	1,840	2,099	29	24	23	3.2	2.9	1.8	1.3	2.0
Natural gas	51	116	231	478	815	1,283	1,812	5.4	9.5	20	7.0	6.1	4.6	3.5	4.7
Nuclear	25	77	132	110	273	369	458	3.6	2.2	5.1	1.7	10.6	3.1	2.2	5.0
Hydro	20	32	41	91	122	136	148	1.5	1.8	1.7	5.1	3.3	1.1	0.9	1.7
Geothermal	2.6	8.2	23	31	42	59	83	0.4	0.6	0.9	6.6	3.3	3.5	3.5	3.4
Solar, wind, etc.	-	1.2	2.1	21	43	64	90	0.1	0.4	1.0	14.5	8.2	3.9	3.6	5.1
Biomass and waste	397	472	510	590	661	742	829	22	12	9.2	1.1	1.3	1.2	1.1	1.2

Final energy consumption	Mtoe							Shares (%)			CAGR (%)				
	1980	1990	2000	2011	2020	2030	2040	1990	2011	2040	1990/2011	2011/2020	2020/2030	2030/2040	2011/2040
<b>Total</b>	1,142	1,582	2,044	3,232	4,041	4,871	5,679	100	100	100	3.5	2.5	1.9	1.5	2.0
By sector															
Industry	392	523	678	1,267	1,502	1,735	1,956	33	39	34	4.3	1.9	1.5	1.2	1.5
Transport	127	197	321	510	743	970	1,186	12	16	21	4.6	4.3	2.7	2.0	3.0
Buildings, etc.	570	748	853	1,131	1,369	1,650	1,946	47	35	34	2.0	2.1	1.9	1.7	1.9
Non-energy use	54	115	192	324	427	515	591	7.3	10	10	5.1	3.1	1.9	1.4	2.1
By energy															
Coal	310	439	408	737	771	771	803	28	23	14	2.5	0.5	0.0	0.4	0.3
Oil	328	468	745	1,043	1,351	1,626	1,867	30	32	33	3.9	2.9	1.9	1.4	2.0
Natural gas	21	47	88	217	377	573	766	3.0	6.7	13	7.6	6.3	4.3	2.9	4.4
Electricity	88	156	277	610	848	1,151	1,443	9.8	19	25	6.7	3.7	3.1	2.3	3.0
Heat	7.5	14	30	71	95	114	127	0.9	2.2	2.2	8.0	3.2	1.9	1.1	2.0
Renewables	388	459	497	553	599	636	673	29	17	12	0.9	0.9	0.6	0.6	0.7

Electricity generation	(TWh)							Shares (%)			CAGR (%)				
	1980	1990	2000	2011	2020	2030	2040	1990	2011	2040	1990/2011	2011/2020	2020/2030	2030/2040	2011/2040
<b>Total</b>	1,195	2,212	3,966	8,517	11,670	15,747	19,707	100	100	100	6.6	3.6	3.0	2.3	2.9
Coal	302	864	1,991	5,329	6,446	8,327	9,612	39	63	49	9.1	2.1	2.6	1.4	2.1
Oil	470	429	382	321	312	329	355	19	3.8	1.8	-1.4	-0.3	0.5	0.7	0.3
Natural gas	90	235	563	1,131	1,852	3,147	4,879	11	13	25	7.8	5.6	5.4	4.5	5.2
Nuclear	97	294	505	424	1,047	1,417	1,756	13	5.0	8.9	1.7	10.6	3.1	2.2	5.0
Hydro	232	370	481	1,059	1,414	1,583	1,725	17	12	8.8	5.1	3.3	1.1	0.9	1.7
Geothermal	3.0	8.3	20	22	44	63	90	0.4	0.3	0.5	4.8	7.8	3.7	3.7	5.0
Other renewables	0.0	11	25	232	555	881	1,290	0.5	2.7	6.5	15.5	10.2	4.7	3.9	6.1

Energy and economic indicators								CAGR (%)				
	1980	1990	2000	2011	2020	2030	2040	1990/2011	2011/2020	2020/2030	2030/2040	2011/2040
GDP (\$2010 billion)	4,340	7,386	10,632	17,878	28,502	42,484	58,253	4.3	5.3	4.1	3.2	4.2
Population (million)	2,448	2,946	3,419	3,843	4,159	4,414	4,566	1.3	0.9	0.6	0.3	0.6
CO <sub>2</sub> emissions <sup>2</sup> (Mt)	3,289	4,962	7,038	13,844	16,607	19,694	22,538	5.0	2.0	1.7	1.4	1.7
GDP per capita (\$2010 thousand)	1.8	2.5	3.1	4.7	6.9	9.6	13	3.0	4.4	3.5	2.9	3.5
Primary energy consump. per capita (toe)	0.6	0.7	0.9	1.3	1.5	1.7	2.0	2.9	1.7	1.3	1.2	1.4
Primary energy consumption per GDP <sup>3</sup>	333	287	276	283	223	181	154	-0.1	-2.6	-2.1	-1.6	-2.1
CO <sub>2</sub> emissions per GDP <sup>2, 4</sup>	758	672	662	774	583	464	387	0.7	-3.1	-2.3	-1.8	-2.4
CO <sub>2</sub> per primary energy consumption <sup>2, 5</sup>	2.3	2.3	2.4	2.7	2.6	2.6	2.5	0.7	-0.5	-0.2	-0.2	-0.3
Automobile ownership (million)	48	86	140	266	413	584	791	5.5	5.0	3.5	3.1	3.8
Automobile ownership rates <sup>6</sup>	20	29	41	69	99	132	173	4.2	4.1	2.9	2.7	3.2

\*1 Trade of electricity and heat are not shown, \*2 Excludes emission reduction by CCS, \*3 toe/\$2010 million,

\*4 t/\$2010 million, \*5 t/toe, \*6 Vehicles per 1,000 people



Table 48 China, Unconventional Resources Development Scenario

Primary energy consumption	Mtoe							Shares (%)			CAGR (%)				
	1980	1990	2000	2011	2020	2030	2040	1990	2011	2040	1990/2011	2011/2020	2020/2030	2030/2040	2011/2040
<b>Total<sup>1</sup></b>	598	871	1,161	2,728	3,436	4,012	4,416	100	100	100	5.6	2.6	1.6	1.0	1.7
Coal	313	528	691	1,859	2,035	2,105	2,054	61	68	47	6.2	1.0	0.3	-0.2	0.3
Oil	89	119	221	442	644	780	857	14	16	19	6.5	4.3	1.9	1.0	2.3
Natural gas	12	13	21	108	301	561	826	1.5	4.0	19	10.7	12.1	6.4	3.9	7.3
Nuclear	-	-	4.4	23	109	181	249	-	0.8	5.6	n.a.	19.2	5.2	3.2	8.6
Hydro	5.0	11	19	60	83	89	94	1.3	2.2	2.1	8.5	3.7	0.7	0.5	1.6
Geothermal	-	-	1.6	4.0	4.5	5.5	6.3	-	0.1	0.1	n.a.	1.4	1.9	1.4	1.6
Solar, wind, etc.	-	0.0	1.0	17	31	45	65	0.0	0.6	1.5	34.8	6.7	3.8	3.7	4.7
Biomass and waste	180	200	204	216	229	245	266	23	7.9	6.0	0.4	0.6	0.7	0.8	0.7

Final energy consumption	Mtoe							Shares (%)			CAGR (%)				
	1980	1990	2000	2011	2020	2030	2040	1990	2011	2040	1990/2011	2011/2020	2020/2030	2030/2040	2011/2040
<b>Total</b>	494	664	816	1,635	2,061	2,420	2,684	100	100	100	4.4	2.6	1.6	1.0	1.7
By sector															
Industry	188	244	329	783	871	915	927	37	48	35	5.7	1.2	0.5	0.1	0.6
Transport	24	34	83	211	365	484	569	5.1	13	21	9.1	6.3	2.8	1.6	3.5
Buildings, etc.	272	344	342	513	633	781	915	52	31	34	1.9	2.4	2.1	1.6	2.0
Non-energy use	10	43	62	127	191	240	274	6.5	7.8	10	5.3	4.6	2.3	1.3	2.7
By energy															
Coal	220	318	304	551	532	481	455	48	34	17	2.7	-0.4	-1.0	-0.5	-0.7
Oil	59	85	180	400	576	699	769	13	24	29	7.7	4.1	1.9	1.0	2.3
Natural gas	6.4	8.9	12	71	180	302	408	1.3	4.4	15	10.4	10.8	5.3	3.1	6.2
Electricity	21	39	89	332	468	614	709	5.9	20	26	10.7	3.9	2.8	1.5	2.7
Heat	7.4	13	25	65	87	104	114	2.0	4.0	4.3	7.9	3.2	1.8	1.0	2.0
Renewables	180	200	205	215	218	221	228	30	13	8.5	0.3	0.1	0.2	0.3	0.2

Electricity generation	(TWh)							Shares (%)			CAGR (%)				
	1980	1990	2000	2011	2020	2030	2040	1990	2011	2040	1990/2011	2011/2020	2020/2030	2030/2040	2011/2040
<b>Total</b>	301	621	1,356	4,716	6,529	8,472	9,716	100	100	100	10.1	3.7	2.6	1.4	2.5
Coal	164	443	1,062	3,723	4,474	5,328	5,265	71	79	54	10.7	2.1	1.8	-0.1	1.2
Oil	78	49	46	7.9	7.6	7.5	7.4	7.9	0.2	0.1	-8.3	-0.3	-0.2	-0.2	-0.2
Natural gas	0.7	2.8	5.8	84	376	943	1,694	0.4	1.8	17	17.7	18.1	9.6	6.0	10.9
Nuclear	-	-	17	86	418	695	954	-	1.8	9.8	n.a.	19.2	5.2	3.2	8.6
Hydro	58	127	222	699	969	1,039	1,096	20	15	11	8.5	3.7	0.7	0.5	1.6
Geothermal	-	-	-	0.2	0.5	0.8	1.2	-	0.0	0.0	n.a.	13.4	5.6	3.6	7.3
Other renewables	-	0.0	3.1	115	284	458	698	0.0	2.4	7.2	63.1	10.5	4.9	4.3	6.4

Energy and economic indicators										CAGR (%)				
	1980	1990	2000	2011	2020	2030	2040	1990/2011	2011/2020	2020/2030	2030/2040	2011/2040		
GDP (\$2010 billion)	334	812	2,190	6,482	12,567	19,986	27,875	10.4	7.6	4.7	3.4	5.2		
Population (million)	981	1,135	1,263	1,344	1,407	1,427	1,410	0.8	0.5	0.1	-0.1	0.2		
CO <sub>2</sub> emissions <sup>2</sup> (Mt)	1,506	2,338	3,258	8,558	10,142	11,297	11,845	6.4	1.9	1.1	0.5	1.1		
GDP per capita (\$2010 thousand)	0.3	0.7	1.7	4.8	8.9	14	20	9.5	7.1	4.6	3.5	5.0		
Primary energy consump. per capita (toe)	0.6	0.8	0.9	2.0	2.4	2.8	3.1	4.7	2.1	1.4	1.1	1.5		
Primary energy consumption per GDP <sup>3</sup>	1,790	1,072	530	421	273	201	158	-4.4	-4.7	-3.0	-2.3	-3.3		
CO <sub>2</sub> emissions per GDP <sup>2, 4</sup>	4,507	2,879	1,488	1,320	807	565	425	-3.6	-5.3	-3.5	-2.8	-3.8		
CO <sub>2</sub> per primary energy consumption <sup>2, 5</sup>	2.5	2.7	2.8	3.1	3.0	2.8	2.7	0.7	-0.7	-0.5	-0.5	-0.5		
Automobile ownership (million)	1.8	5.5	16	94	192	284	363	14.4	8.3	4.0	2.5	4.8		
Automobile ownership rates <sup>6</sup>	1.8	4.9	13	70	136	199	258	13.5	7.7	3.9	2.6	4.6		

\*1 Trade of electricity and heat are not shown, \*2 Excludes emission reduction by CCS, \*3 toe/\$2010 million,

\*4 t/\$2010 million, \*5 t/toe, \*6 Vehicles per 1,000 people

Table 49 United States, Unconventional Resources Development Scenario

Primary energy consumption	Mtoe							Shares (%)			CAGR (%)				
	1980	1990	2000	2011	2020	2030	2040	1990/2011	2011/2020	2020/2030	2030/2040	2011/2040			
<b>Total<sup>*1</sup></b>	1,805	1,915	2,273	2,191	2,241	2,316	2,359	100	100	100	0.6	0.3	0.3	0.2	0.3
Coal	376	460	534	479	420	371	322	24	22	14	0.2	-1.5	-1.2	-1.4	-1.4
Oil	797	757	871	786	746	725	698	40	36	30	0.2	-0.6	-0.3	-0.4	-0.4
Natural gas	477	438	548	569	650	747	840	23	26	36	1.2	1.5	1.4	1.2	1.4
Nuclear	69	159	208	214	236	242	229	8.3	9.8	9.7	1.4	1.1	0.3	-0.5	0.2
Hydro	24	23	22	28	28	28	28	1.2	1.3	1.2	0.8	0.0	0.0	0.0	0.0
Geothermal	4.6	14	13	8.6	12	15	21	0.7	0.4	0.9	-2.4	4.1	1.8	3.7	3.2
Solar, wind, etc.	-	0.3	2.1	12	28	45	52	0.0	0.6	2.2	19.0	9.4	4.7	1.5	5.0
Biomass and waste	54	62	73	91	119	141	167	3.3	4.2	7.1	1.8	3.0	1.7	1.7	2.1

Final energy consumption	Mtoe							Shares (%)			CAGR (%)				
	1980	1990	2000	2011	2020	2030	2040	1990/2011	2011/2020	2020/2030	2030/2040	2011/2040			
<b>Total</b>	1,311	1,294	1,546	1,504	1,559	1,626	1,670	100	100	100	0.7	0.4	0.4	0.3	0.4
By sector															
Industry	387	284	332	287	284	283	274	22	19	16	0.1	-0.1	0.0	-0.3	-0.2
Transport	425	488	588	589	594	600	605	38	39	36	0.9	0.1	0.1	0.1	0.1
Buildings, etc.	397	403	473	495	541	586	618	31	33	37	1.0	1.0	0.8	0.5	0.8
Non-energy use	102	119	153	132	139	157	172	9.2	8.8	10	0.5	0.6	1.2	0.9	0.9
By energy															
Coal	56	56	33	25	20	19	18	4.3	1.6	1.1	-3.8	-2.1	-0.8	-0.4	-1.1
Oil	689	683	793	747	710	689	663	53	50	40	0.4	-0.6	-0.3	-0.4	-0.4
Natural gas	337	303	360	327	369	402	421	23	22	25	0.4	1.4	0.8	0.5	0.9
Electricity	174	226	301	326	361	404	436	18	22	26	1.7	1.2	1.1	0.8	1.0
Heat	-	2.2	5.3	6.6	6.2	6.0	5.7	0.2	0.4	0.3	5.5	-0.7	-0.4	-0.6	-0.6
Renewables	54	23	54	72	91	107	125	1.8	4.8	7.5	5.6	2.6	1.6	1.6	1.9

Electricity generation	(TWh)							Shares (%)			CAGR (%)				
	1980	1990	2000	2011	2020	2030	2040	1990/2011	2011/2020	2020/2030	2030/2040	2011/2040			
<b>Total</b>	2,427	3,203	4,026	4,327	4,771	5,301	5,715	100	100	100	1.4	1.1	1.1	0.8	1.0
Coal	1,243	1,700	2,129	1,875	1,708	1,542	1,355	53	43	24	0.5	-1.0	-1.0	-1.3	-1.1
Oil	263	131	118	40	41	45	50	4.1	0.9	0.9	-5.5	0.5	0.9	0.9	0.8
Natural gas	370	382	634	1,045	1,350	1,792	2,307	12	24	40	4.9	2.9	2.9	2.6	2.8
Nuclear	266	612	798	821	904	929	879	19	19	15	1.4	1.1	0.3	-0.5	0.2
Hydro	279	273	253	322	322	322	322	8.5	7.4	5.6	0.8	0.0	0.0	0.0	0.0
Geothermal	5.4	16	15	18	26	31	45	0.5	0.4	0.8	0.5	4.3	1.8	3.7	3.2
Other renewables	0.5	90	78	205	420	640	757	2.8	4.7	13	4.0	8.3	4.3	1.7	4.6

Energy and economic indicators								CAGR (%)				
	1980	1990	2000	2011	2020	2030	2040	1990/2011	2011/2020	2020/2030	2030/2040	2011/2040
GDP (\$2010 billion)	6,433	8,837	12,384	14,693	18,739	23,903	28,790	2.5	2.7	2.5	1.9	2.3
Population (million)	227	250	282	312	334	359	379	1.1	0.8	0.7	0.6	0.7
CO <sub>2</sub> emissions <sup>*2</sup> (Mt)	4,743	4,820	5,617	5,247	5,065	4,988	4,892	0.4	-0.4	-0.2	-0.2	-0.2
GDP per capita (\$2010 thousand)	28	35	44	47	56	67	76	1.4	1.9	1.7	1.3	1.7
Primary energy consump. per capita (toe)	7.9	7.7	8.1	7.0	6.7	6.5	6.2	-0.4	-0.5	-0.4	-0.4	-0.4
Primary energy consumption per GDP <sup>*3</sup>	281	217	184	149	120	97	82	-1.8	-2.4	-2.1	-1.7	-2.0
CO <sub>2</sub> emissions per GDP <sup>*2, *4</sup>	737	545	454	357	270	209	170	-2.0	-3.0	-2.6	-2.0	-2.5
CO <sub>2</sub> per primary energy consumption <sup>*2, *5</sup>	2.6	2.5	2.5	2.4	2.3	2.2	2.1	-0.2	-0.6	-0.5	-0.4	-0.5
Automobile ownership (million)	156	189	221	245	272	303	328	1.2	1.2	1.1	0.8	1.0
Automobile ownership rates <sup>*6</sup>	686	756	785	786	814	845	865	0.2	0.4	0.4	0.2	0.3

\*1 Trade of electricity and heat are not shown, \*2 Excludes emission reduction by CCS, \*3 toe/\$2010 million,

\*4 t/\$2010 million, \*5 t/toe, \*6 Vehicles per 1,000 people

Table 50 World, Advanced Technologies Scenario

Primary energy consumption	Mtoe							Shares (%)			CAGR (%)				
	1980	1990	2000	2011	2020	2030	2040	1990/2011	2011/2040	2040	1990/2011	2011/2020	2020/2030	2030/2040	2011/2040
<b>Total<sup>*1</sup></b>	7,217	8,782	10,082	13,113	14,449	15,825	16,910	100	100	100	1.9	1.1	0.9	0.7	0.9
Coal	1,788	2,230	2,358	3,776	3,578	3,436	3,333	25	29	20	2.5	-0.6	-0.4	-0.3	-0.4
Oil	3,101	3,230	3,657	4,136	4,431	4,674	4,725	37	32	28	1.2	0.8	0.5	0.1	0.5
Natural gas	1,234	1,668	2,072	2,787	3,170	3,539	3,782	19	21	22	2.5	1.4	1.1	0.7	1.1
Nuclear	186	526	676	674	966	1,315	1,633	6.0	5.1	9.7	1.2	4.1	3.1	2.2	3.1
Hydro	148	184	225	300	361	394	423	2.1	2.3	2.5	2.3	2.1	0.9	0.7	1.2
Geothermal	12	34	52	66	172	307	437	0.4	0.5	2.6	3.2	11.2	6.0	3.6	6.7
Solar, wind, etc.	0.1	2.4	7.9	61	165	299	465	0.0	0.5	2.8	16.8	11.6	6.2	4.5	7.3
Biomass and waste	748	907	1,033	1,312	1,606	1,858	2,109	10	10	12	1.8	2.3	1.5	1.3	1.7

Final energy consumption	Mtoe							Shares (%)			CAGR (%)				
	1980	1990	2000	2011	2020	2030	2040	1990/2011	2011/2040	2040	1990/2011	2011/2020	2020/2030	2030/2040	2011/2040
<b>Total</b>	5,388	6,293	7,094	8,918	9,904	10,842	11,523	100	100	100	1.7	1.2	0.9	0.6	0.9
By sector															
Industry	1,782	1,814	1,905	2,557	2,785	3,016	3,214	29	29	28	1.6	1.0	0.8	0.6	0.8
Transport	1,247	1,581	1,959	2,445	2,736	2,989	3,109	25	27	27	2.1	1.3	0.9	0.4	0.8
Buildings, etc.	2,005	2,421	2,609	3,096	3,422	3,724	3,961	38	35	34	1.2	1.1	0.9	0.6	0.9
Non-energy use	354	478	621	819	962	1,113	1,238	7.6	9.2	11	2.6	1.8	1.5	1.1	1.4
By energy															
Coal	712	770	578	904	893	846	841	12	10	7.3	0.8	-0.1	-0.5	-0.1	-0.2
Oil	2,445	2,608	3,126	3,633	3,911	4,145	4,204	41	41	36	1.6	0.8	0.6	0.1	0.5
Natural gas	816	944	1,119	1,380	1,632	1,860	2,019	15	15	18	1.8	1.9	1.3	0.8	1.3
Electricity	586	833	1,090	1,582	1,870	2,240	2,576	13	18	22	3.1	1.9	1.8	1.4	1.7
Heat	121	335	247	281	290	298	296	5.3	3.2	2.6	-0.8	0.4	0.3	-0.1	0.2
Renewables	708	802	935	1,137	1,307	1,452	1,587	13	13	14	1.7	1.6	1.1	0.9	1.2

Electricity generation	(TWh)							Shares (%)			CAGR (%)				
	1980	1990	2000	2011	2020	2030	2040	1990/2011	2011/2040	2040	1990/2011	2011/2020	2020/2030	2030/2040	2011/2040
<b>Total</b>	8,282	11,818	15,411	22,126	25,917	30,842	35,311	100	100	100	3.0	1.8	1.8	1.4	1.6
Coal	3,141	4,426	6,002	9,144	8,711	8,950	8,736	37	41	25	3.5	-0.5	0.3	-0.2	-0.2
Oil	1,653	1,332	1,200	1,058	1,082	1,155	1,187	11	4.8	3.4	-1.1	0.3	0.7	0.3	0.4
Natural gas	999	1,730	2,740	4,852	5,521	6,364	7,031	15	22	20	5.0	1.4	1.4	1.0	1.3
Nuclear	713	2,013	2,591	2,584	3,704	5,062	6,316	17	12	18	1.2	4.1	3.2	2.2	3.1
Hydro	1,717	2,144	2,620	3,490	4,195	4,587	4,917	18	16	14	2.3	2.1	0.9	0.7	1.2
Geothermal	14	36	52	69	218	394	564	0.3	0.3	1.6	3.1	13.6	6.1	3.6	7.5
Other renewables	45	137	204	927	2,484	4,329	6,559	1.2	4.2	19	9.5	11.6	5.7	4.2	7.0

Energy and economic indicators								CAGR (%)				
	1980	1990	2000	2011	2020	2030	2040	1990/2011	2011/2020	2020/2030	2030/2040	2011/2040
GDP (\$2010 billion)	27,110	36,580	48,085	65,161	87,745	118,097	150,216	2.8	3.4	3.0	2.4	2.9
Population (million)	4,444	5,289	6,109	6,963	7,675	8,376	8,982	1.3	1.1	0.9	0.7	0.9
CO <sub>2</sub> emissions <sup>*2</sup> (Mt)	18,431	21,244	23,582	31,770	32,380	32,992	32,951	1.9	0.2	0.2	0.0	0.1
GDP per capita (\$2010 thousand)	6.1	6.9	7.9	9.4	11	14	17	1.5	2.2	2.1	1.7	2.0
Primary energy consump. per capita (toe)	1.6	1.7	1.7	1.9	1.9	1.9	1.9	0.6	0.0	0.0	0.0	0.0
Primary energy consumption per GDP <sup>*3</sup>	266	240	210	201	165	134	113	-0.8	-2.2	-2.0	-1.7	-2.0
CO <sub>2</sub> emissions per GDP <sup>*2, *4</sup>	680	581	490	488	369	279	219	-0.8	-3.0	-2.7	-2.4	-2.7
CO <sub>2</sub> per primary energy consumption <sup>*2, *5</sup>	2.6	2.4	2.3	2.4	2.2	2.1	1.9	0.0	-0.9	-0.7	-0.7	-0.7
Automobile ownership (million)	426	593	787	1,134	1,422	1,767	2,109	3.1	2.5	2.2	1.8	2.2
Automobile ownership rates <sup>*6</sup>	96	112	129	163	185	211	235	1.8	1.4	1.3	1.1	1.3

\*1 Trade of electricity and heat are not shown, \*2 Excludes emission reduction by CCS, \*3 toe/\$2010 million,

\*4 t/\$2010 million, \*5 t/toe, \*6 Vehicles per 1,000 people

Table 51 Asia, Advanced Technologies Scenario

Primary energy consumption	Mtoe							Shares (%)			CAGR (%)				
	1980	1990	2000	2011	2020	2030	2040	1990	2011	2040	1990/2011	2011/2020	2020/2030	2030/2040	2011/2040
<b>Total<sup>1</sup></b>	1,444	2,120	2,934	5,058	5,976	6,814	7,585	100	100	100	4.2	1.9	1.3	1.1	1.4
Coal	471	796	1,078	2,536	2,532	2,530	2,547	38	50	34	5.7	0.0	0.0	0.1	0.0
Oil	478	618	918	1,198	1,462	1,630	1,711	29	24	23	3.2	2.2	1.1	0.5	1.2
Natural gas	51	116	231	478	690	946	1,167	5.4	9.5	15	7.0	4.2	3.2	2.1	3.1
Nuclear	25	77	132	110	340	534	747	3.6	2.2	9.8	1.7	13.3	4.6	3.4	6.8
Hydro	20	32	41	91	138	156	172	1.5	1.8	2.3	5.1	4.7	1.2	1.0	2.2
Geothermal	2.6	8.2	23	31	65	121	171	0.4	0.6	2.2	6.6	8.6	6.3	3.5	6.0
Solar, wind, etc.	-	1.2	2.1	21	58	113	180	0.1	0.4	2.4	14.5	11.8	6.8	4.8	7.6
Biomass and waste	397	472	510	590	687	779	886	22	12	12	1.1	1.7	1.3	1.3	1.4

Final energy consumption	Mtoe							Shares (%)			CAGR (%)				
	1980	1990	2000	2011	2020	2030	2040	1990	2011	2040	1990/2011	2011/2020	2020/2030	2030/2040	2011/2040
<b>Total</b>	1,142	1,582	2,044	3,232	3,845	4,377	4,833	100	100	100	3.5	1.9	1.3	1.0	1.4
By sector															
Industry	392	523	678	1,267	1,408	1,525	1,638	33	39	34	4.3	1.2	0.8	0.7	0.9
Transport	127	197	321	510	711	872	996	12	16	21	4.6	3.8	2.1	1.3	2.3
Buildings, etc.	570	748	853	1,131	1,305	1,477	1,624	47	35	34	2.0	1.6	1.2	1.0	1.3
Non-energy use	54	115	192	324	421	503	574	7.3	10	12	5.1	2.9	1.8	1.3	2.0
By energy															
Coal	310	439	408	737	727	677	670	28	23	14	2.5	-0.2	-0.7	-0.1	-0.3
Oil	328	468	745	1,043	1,284	1,448	1,534	30	32	32	3.9	2.3	1.2	0.6	1.3
Natural gas	21	47	88	217	352	501	622	3.0	6.7	13	7.6	5.5	3.6	2.2	3.7
Electricity	88	156	277	610	794	1,018	1,223	9.8	19	25	6.7	3.0	2.5	1.8	2.4
Heat	7.5	14	30	71	89	95	94	0.9	2.2	2.0	8.0	2.5	0.7	-0.1	1.0
Renewables	388	459	497	553	599	637	690	29	17	14	0.9	0.9	0.6	0.8	0.8

Electricity generation	(TWh)							Shares (%)			CAGR (%)				
	1980	1990	2000	2011	2020	2030	2040	1990	2011	2040	1990/2011	2011/2020	2020/2030	2030/2040	2011/2040
<b>Total</b>	1,195	2,212	3,966	8,517	10,903	13,868	16,571	100	100	100	6.6	2.8	2.4	1.8	2.3
Coal	302	864	1,991	5,329	5,443	6,129	6,328	39	63	38	9.1	0.2	1.2	0.3	0.6
Oil	470	429	382	321	269	235	204	19	3.8	1.2	-1.4	-1.9	-1.3	-1.4	-1.5
Natural gas	90	235	563	1,131	1,411	1,931	2,482	11	13	15	7.8	2.5	3.2	2.5	2.7
Nuclear	97	294	505	424	1,306	2,068	2,919	13	5.0	18	1.7	13.3	4.7	3.5	6.9
Hydro	232	370	481	1,059	1,608	1,820	2,005	17	12	12	5.1	4.7	1.2	1.0	2.2
Geothermal	3.0	8.3	20	22	71	135	192	0.4	0.3	1.2	4.8	13.8	6.6	3.6	7.7
Other renewables	0.0	11	25	232	794	1,550	2,440	0.5	2.7	15	15.5	14.7	6.9	4.6	8.5

Energy and economic indicators								CAGR (%)				
	1980	1990	2000	2011	2020	2030	2040	1990/2011	2011/2020	2020/2030	2030/2040	2011/2040
GDP (\$2010 billion)	4,340	7,386	10,632	17,878	28,502	42,484	58,253	4.3	5.3	4.1	3.2	4.2
Population (million)	2,448	2,946	3,419	3,843	4,159	4,414	4,566	1.3	0.9	0.6	0.3	0.6
CO <sub>2</sub> emissions <sup>2</sup> (Mt)	3,289	4,962	7,038	13,844	14,853	15,715	16,334	5.0	0.8	0.6	0.4	0.6
GDP per capita (\$2010 thousand)	1.8	2.5	3.1	4.7	6.9	9.6	13	3.0	4.4	3.5	2.9	3.5
Primary energy consump. per capita (toe)	0.6	0.7	0.9	1.3	1.4	1.5	1.7	2.9	1.0	0.7	0.7	0.8
Primary energy consumption per GDP <sup>3</sup>	333	287	276	283	210	160	130	-0.1	-3.3	-2.6	-2.1	-2.6
CO <sub>2</sub> emissions per GDP <sup>2, 4</sup>	758	672	662	774	521	370	280	0.7	-4.3	-3.4	-2.7	-3.4
CO <sub>2</sub> per primary energy consumption <sup>2, 5</sup>	2.3	2.3	2.4	2.7	2.5	2.3	2.2	0.7	-1.1	-0.7	-0.7	-0.8
Automobile ownership (million)	48	86	140	266	413	584	791	5.5	5.0	3.5	3.1	3.8
Automobile ownership rates <sup>6</sup>	20	29	41	69	99	132	173	4.2	4.1	2.9	2.7	3.2

\*1 Trade of electricity and heat are not shown, \*2 Excludes emission reduction by CCS, \*3 toe/\$2010 million,

\*4 t/\$2010 million, \*5 t/toe, \*6 Vehicles per 1,000 people

Table 52 People's Republic of China, Advanced Technologies Scenario

Primary energy consumption	Mtoe							Shares (%)			CAGR (%)				
	1980	1990	2000	2011	2020	2030	2040	1990	2011	2040	1990/2011	2011/2020	2020/2030	2030/2040	2011/2040
<b>Total<sup>1</sup></b>	598	871	1,161	2,728	3,212	3,499	3,649	100	100	100	5.6	1.8	0.9	0.4	1.0
Coal	313	528	691	1,859	1,848	1,735	1,603	61	68	44	6.2	-0.1	-0.6	-0.8	-0.5
Oil	89	119	221	442	609	693	696	14	16	19	6.5	3.6	1.3	0.0	1.6
Natural gas	12	13	21	108	237	380	477	1.5	4.0	13	10.7	9.2	4.8	2.3	5.3
Nuclear	-	-	4.4	23	138	252	366	-	0.8	10	n.a.	22.3	6.2	3.8	10.1
Hydro	5.0	11	19	60	99	107	115	1.3	2.2	3.1	8.5	5.7	0.8	0.7	2.2
Geothermal	-	-	1.6	4.0	4.8	6.0	7.1	-	0.1	0.2	n.a.	2.0	2.2	1.8	2.0
Solar, wind, etc.	-	0.0	1.0	17	40	68	99	0.0	0.6	2.7	34.8	10.0	5.3	3.8	6.2
Biomass and waste	180	200	204	216	237	259	288	23	7.9	7.9	0.4	1.0	0.9	1.1	1.0

Final energy consumption	Mtoe							Shares (%)			CAGR (%)				
	1980	1990	2000	2011	2020	2030	2040	1990	2011	2040	1990/2011	2011/2020	2020/2030	2030/2040	2011/2040
<b>Total</b>	494	664	816	1,635	1,954	2,153	2,236	100	100	100	4.4	2.0	1.0	0.4	1.1
By sector															
Industry	188	244	329	783	813	787	747	37	48	33	5.7	0.4	-0.3	-0.5	-0.2
Transport	24	34	83	211	351	449	496	5.1	13	22	9.1	5.8	2.5	1.0	3.0
Buildings, etc.	272	344	342	513	605	689	736	52	31	33	1.9	1.9	1.3	0.7	1.3
Non-energy use	10	43	62	127	185	228	257	6.5	7.8	11	5.3	4.2	2.1	1.2	2.4
By energy															
Coal	220	318	304	551	507	427	385	48	34	17	2.7	-0.9	-1.7	-1.0	-1.2
Oil	59	85	180	400	545	621	623	13	24	28	7.7	3.5	1.3	0.0	1.5
Natural gas	6.4	8.9	12	71	163	256	316	1.3	4.4	14	10.4	9.6	4.6	2.1	5.3
Electricity	21	39	89	332	441	540	590	5.9	20	26	10.7	3.2	2.0	0.9	2.0
Heat	7.4	13	25	65	80	85	81	2.0	4.0	3.6	7.9	2.4	0.5	-0.4	0.8
Renewables	180	200	205	215	218	225	241	30	13	11	0.3	0.1	0.3	0.7	0.4

Electricity generation	(TWh)							Shares (%)			CAGR (%)				
	1980	1990	2000	2011	2020	2030	2040	1990	2011	2040	1990/2011	2011/2020	2020/2030	2030/2040	2011/2040
<b>Total</b>	301	621	1,356	4,716	6,139	7,411	7,974	100	100	100	10.1	3.0	1.9	0.7	1.8
Coal	164	443	1,062	3,723	3,843	4,071	3,579	71	79	45	10.7	0.4	0.6	-1.3	-0.1
Oil	78	49	46	7.9	7.6	7.5	7.4	7.9	0.2	0.1	-8.3	-0.3	-0.2	-0.2	-0.2
Natural gas	0.7	2.8	5.8	84	191	362	527	0.4	1.8	6.6	17.7	9.6	6.6	3.8	6.5
Nuclear	-	-	17	86	529	968	1,406	-	1.8	18	n.a.	22.3	6.2	3.8	10.1
Hydro	58	127	222	699	1,150	1,247	1,332	20	15	17	8.5	5.7	0.8	0.7	2.2
Geothermal	-	-	-	0.2	0.8	1.6	2.3	-	0.0	0.0	n.a.	20.5	6.6	3.9	9.8
Other renewables	-	0.0	3.1	115	417	755	1,120	0.0	2.4	14	63.1	15.4	6.1	4.0	8.2

Energy and economic indicators										CAGR (%)				
	1980	1990	2000	2011	2020	2030	2040	1990/2011	2011/2020	2020/2030	2030/2040	2011/2040		
GDP (\$2010 billion)	334	812	2,190	6,482	12,567	19,986	27,875	10.4	7.6	4.7	3.4	5.2		
Population (million)	981	1,135	1,263	1,344	1,407	1,427	1,410	0.8	0.5	0.1	-0.1	0.2		
CO <sub>2</sub> emissions <sup>2</sup> (Mt)	1,506	2,338	3,258	8,558	9,161	9,173	8,791	6.4	0.8	0.0	-0.4	0.1		
GDP per capita (\$2010 thousand)	0.3	0.7	1.7	4.8	8.9	14	20	9.5	7.1	4.6	3.5	5.0		
Primary energy consump. per capita (toe)	0.6	0.8	0.9	2.0	2.3	2.5	2.6	4.7	1.3	0.7	0.5	0.8		
Primary energy consumption per GDP <sup>3</sup>	1,790	1,072	530	421	256	175	131	-4.4	-5.4	-3.7	-2.9	-3.9		
CO <sub>2</sub> emissions per GDP <sup>2, 4</sup>	4,507	2,879	1,488	1,320	729	459	315	-3.6	-6.4	-4.5	-3.7	-4.8		
CO <sub>2</sub> per primary energy consumption <sup>2, 5</sup>	2.5	2.7	2.8	3.1	2.9	2.6	2.4	0.7	-1.1	-0.8	-0.8	-0.9		
Automobile ownership (million)	1.8	5.5	16	94	192	284	363	14.4	8.3	4.0	2.5	4.8		
Automobile ownership rates <sup>6</sup>	1.8	4.9	13	70	136	199	258	13.5	7.7	3.9	2.6	4.6		

\*1 Trade of electricity and heat are not shown, \*2 Excludes emission reduction by CCS, \*3 toe/\$2010 million,

\*4 t/\$2010 million, \*5 t/toe, \*6 Vehicles per 1,000 people

Table 53 India, Advanced Technologies Scenario

Primary energy consumption	Mtoe							Shares (%)			CAGR (%)				
	1980	1990	2000	2011	2020	2030	2040	1990	2011	2040	1990/2011	2011/2020	2020/2030	2030/2040	2011/2040
<b>Total<sup>1</sup></b>	205	317	457	749	918	1,202	1,585	100	100	100	4.2	2.3	2.7	2.8	2.6
Coal	49	103	161	326	321	393	515	33	43	32	5.6	-0.2	2.1	2.7	1.6
Oil	33	61	113	166	226	287	352	19	22	22	4.8	3.5	2.4	2.1	2.6
Natural gas	1.3	11	23	50	80	129	205	3.3	6.7	13	7.7	5.3	4.9	4.8	5.0
Nuclear	0.8	1.6	4.4	8.7	39	90	142	0.5	1.2	9.0	8.4	18.2	8.8	4.6	10.1
Hydro	4.0	6.2	6.4	11	14	18	22	1.9	1.5	1.4	2.9	2.5	2.5	1.8	2.3
Geothermal	-	-	-	-	-	-	-	-	-	-	n.a.	n.a.	n.a.	n.a.	n.a.
Solar, wind, etc.	-	0.0	0.2	2.4	11	26	48	0.0	0.3	3.0	29.6	18.5	8.9	6.3	10.9
Biomass and waste	116	133	149	185	227	259	301	42	25	19	1.6	2.3	1.3	1.5	1.7

Final energy consumption	Mtoe							Shares (%)			CAGR (%)				
	1980	1990	2000	2011	2020	2030	2040	1990	2011	2040	1990/2011	2011/2020	2020/2030	2030/2040	2011/2040
<b>Total</b>	179	252	319	493	615	768	975	100	100	100	3.2	2.5	2.2	2.4	2.4
By sector															
Industry	44	70	87	168	208	266	342	28	34	35	4.2	2.4	2.5	2.5	2.5
Transport	17	27	32	58	89	124	170	11	12	17	3.7	4.7	3.4	3.2	3.8
Buildings, etc.	113	143	171	226	268	310	371	57	46	38	2.2	1.9	1.5	1.8	1.7
Non-energy use	5.2	12	29	40	50	68	92	4.6	8.2	9.4	6.1	2.5	3.2	3.0	2.9
By energy															
Coal	28	42	33	86	91	94	101	17	17	10	3.5	0.7	0.3	0.8	0.6
Oil	27	53	96	141	199	256	316	21	29	32	4.8	3.9	2.5	2.1	2.8
Natural gas	0.7	5.6	9.7	26	40	59	83	2.2	5.3	8.6	7.6	4.6	4.1	3.5	4.1
Electricity	7.7	18	32	67	99	170	273	7.2	14	28	6.4	4.5	5.6	4.9	5.0
Heat	-	-	-	-	-	-	-	-	-	-	n.a.	n.a.	n.a.	n.a.	n.a.
Renewables	116	133	148	173	186	189	201	53	35	21	1.2	0.8	0.2	0.6	0.5

Electricity generation	(TWh)							Shares (%)			CAGR (%)				
	1980	1990	2000	2011	2020	2030	2040	1990	2011	2040	1990/2011	2011/2020	2020/2030	2030/2040	2011/2040
<b>Total</b>	119	289	561	1,052	1,490	2,504	3,991	100	100	100	6.3	3.9	5.3	4.8	4.7
Coal	61	192	387	715	754	1,128	1,761	66	68	44	6.5	0.6	4.1	4.5	3.2
Oil	7.6	10	24	12	20	29	43	3.5	1.2	1.1	0.9	5.6	3.8	4.1	4.5
Natural gas	0.6	10.0	56	109	186	336	614	3.4	10	15	12.0	6.2	6.1	6.2	6.2
Nuclear	3.0	6.1	17	33	149	347	544	2.1	3.2	14	8.4	18.2	8.8	4.6	10.1
Hydro	47	72	74	131	163	208	250	25	12	6.3	2.9	2.5	2.5	1.8	2.3
Geothermal	-	-	-	-	-	-	-	-	-	-	n.a.	n.a.	n.a.	n.a.	n.a.
Other renewables	-	0.0	3.0	53	218	456	779	0.0	5.0	20	42.3	17.1	7.7	5.5	9.7

Energy and economic indicators										CAGR (%)				
	1980	1990	2000	2011	2020	2030	2040	1990/2011	2011/2020	2020/2030	2030/2040	2011/2040		
GDP (\$2010 billion)	278	477	819	1,793	3,294	6,113	9,931	6.5	7.0	6.4	5.0	6.1		
Population (million)	700	874	1,054	1,241	1,376	1,501	1,592	1.7	1.1	0.9	0.6	0.9		
CO <sub>2</sub> emissions <sup>2</sup> (Mt)	285	591	958	1,801	2,007	2,543	3,335	5.5	1.2	2.4	2.8	2.1		
GDP per capita (\$2010 thousand)	0.4	0.5	0.8	1.4	2.4	4.1	6.2	4.7	5.8	5.5	4.4	5.2		
Primary energy consump. per capita (toe)	0.3	0.4	0.4	0.6	0.7	0.8	1.0	2.5	1.1	1.8	2.2	1.7		
Primary energy consumption per GDP <sup>3</sup>	739	664	559	418	279	197	160	-2.2	-4.4	-3.4	-2.1	-3.3		
CO <sub>2</sub> emissions per GDP <sup>2, 4</sup>	1,026	1,239	1,170	1,004	609	416	336	-1.0	-5.4	-3.7	-2.1	-3.7		
CO <sub>2</sub> per primary energy consumption <sup>2, 5</sup>	1.4	1.9	2.1	2.4	2.2	2.1	2.1	1.2	-1.0	-0.3	-0.1	-0.5		
Automobile ownership (million)	1.7	4.3	9.4	20	41	87	172	7.7	8.2	7.8	7.1	7.6		
Automobile ownership rates <sup>6</sup>	2.4	4.9	8.9	16	30	58	108	5.9	6.9	6.8	6.5	6.7		

\*1 Trade of electricity and heat are not shown, \*2 Excludes emission reduction by CCS, \*3 toe/\$2010 million,

\*4 t/\$2010 million, \*5 t/toe, \*6 Vehicles per 1,000 people

Table 54 Japan, Advanced Technologies Scenario

Primary energy consumption	Mtoe							Shares (%)			CAGR (%)				
	1980	1990	2000	2011	2020	2030	2040	1990	2011	2040	1990/2011	2011/2020	2020/2030	2030/2040	2011/2040
<b>Total<sup>*1</sup></b>	345	439	519	461	446	402	361	100	100	100	0.2	-0.4	-1.0	-1.1	-0.8
Coal	60	77	97	107	87	76	62	17	23	17	1.6	-2.3	-1.4	-1.9	-1.9
Oil	234	250	255	206	169	137	113	57	45	31	-0.9	-2.2	-2.1	-1.9	-2.1
Natural gas	21	44	66	100	82	71	58	10	22	16	4.0	-2.2	-1.4	-2.0	-1.8
Nuclear	22	53	84	27	77	62	58	12	5.7	16	-3.2	12.6	-2.2	-0.8	2.7
Hydro	7.6	7.7	7.5	7.2	8.5	10	11	1.7	1.6	3.1	-0.3	1.9	1.6	1.1	1.5
Geothermal	0.8	1.6	3.1	2.5	6.5	19	27	0.4	0.5	7.5	2.2	11.3	11.6	3.3	8.6
Solar, wind, etc.	-	1.2	0.8	1.2	3.8	12	17	0.3	0.3	4.7	0.3	13.1	12.7	3.2	9.4
Biomass and waste	-	5.0	5.9	10	12	14	14	1.1	2.3	4.0	3.6	1.9	1.2	0.4	1.1

Final energy consumption	Mtoe							Shares (%)			CAGR (%)				
	1980	1990	2000	2011	2020	2030	2040	1990	2011	2040	1990/2011	2011/2020	2020/2030	2030/2040	2011/2040
<b>Total</b>	232	299	343	314	289	260	234	100	100	100	0.2	-0.9	-1.0	-1.0	-1.0
By sector															
Industry	91	102	98	85	82	77	72	34	27	31	-0.9	-0.4	-0.6	-0.7	-0.6
Transport	54	72	88	76	66	53	44	24	24	19	0.3	-1.6	-2.1	-1.9	-1.9
Buildings, etc.	58	91	116	116	107	96	84	30	37	36	1.2	-1.0	-1.1	-1.2	-1.1
Non-energy use	28	35	42	38	35	35	35	12	12	15	0.4	-0.8	0.0	-0.1	-0.3
By energy															
Coal	25	32	25	26	25	24	22	11	8.4	9.3	-0.9	-0.5	-0.6	-0.8	-0.7
Oil	157	184	210	168	140	115	97	61	53	41	-0.4	-2.0	-1.9	-1.8	-1.9
Natural gas	5.8	15	23	35	33	30	27	5.1	11	12	4.1	-0.8	-0.9	-1.0	-0.9
Electricity	44	64	81	81	83	82	78	22	26	33	1.1	0.3	-0.1	-0.5	-0.1
Heat	0.1	0.2	0.5	0.5	3.2	5.3	7.4	0.1	0.2	3.2	5.2	21.8	5.2	3.4	9.4
Renewables	-	3.9	3.7	3.6	4.0	3.7	3.0	1.3	1.1	1.3	-0.4	1.2	-0.8	-2.0	-0.6

Electricity generation	(TWh)							Shares (%)			CAGR (%)				
	1980	1990	2000	2011	2020	2030	2040	1990	2011	2040	1990/2011	2011/2020	2020/2030	2030/2040	2011/2040
<b>Total</b>	573	836	1,049	1,043	1,061	1,045	995	100	100	100	1.1	0.2	-0.2	-0.5	-0.2
Coal	55	117	232	281	194	153	107	14	27	11	4.3	-4.1	-2.3	-3.5	-3.3
Oil	265	248	137	153	103	68	40	30	15	4.0	-2.3	-4.3	-4.0	-5.2	-4.5
Natural gas	81	167	251	374	281	254	210	20	36	21	3.9	-3.1	-1.0	-1.9	-2.0
Nuclear	83	202	322	102	297	239	221	24	9.8	22	-3.2	12.6	-2.2	-0.8	2.7
Hydro	88	89	87	83	99	116	130	11	8.0	13	-0.3	1.9	1.6	1.1	1.5
Geothermal	0.9	1.7	3.3	2.7	7.3	22	31	0.2	0.3	3.1	2.1	11.9	11.8	3.4	8.8
Other renewables	-	11	16	47	80	192	255	1.3	4.5	26	7.4	6.2	9.2	2.9	6.0

Energy and economic indicators								CAGR (%)				
	1980	1990	2000	2011	2020	2030	2040	1990/2011	2011/2020	2020/2030	2030/2040	2011/2040
GDP (\$2010 billion)	2,896	4,557	5,097	5,450	6,345	7,207	8,055	0.9	1.7	1.3	1.1	1.4
Population (million)	117	124	127	128	126	121	115	0.2	-0.2	-0.4	-0.5	-0.4
CO <sub>2</sub> emissions <sup>*2</sup> (Mt)	916	1,070	1,194	1,178	948	781	624	0.5	-2.4	-1.9	-2.2	-2.2
GDP per capita (\$2010 thousand)	25	37	40	43	50	60	70	0.7	1.9	1.7	1.6	1.7
Primary energy consump. per capita (toe)	3.0	3.6	4.1	3.6	3.5	3.3	3.1	0.1	-0.2	-0.7	-0.6	-0.5
Primary energy consumption per GDP <sup>*3</sup>	119	96	102	85	70	56	45	-0.6	-2.0	-2.3	-2.2	-2.2
CO <sub>2</sub> emissions per GDP <sup>*2, *4</sup>	316	235	234	216	149	108	77	-0.4	-4.0	-3.2	-3.3	-3.5
CO <sub>2</sub> per primary energy consumption <sup>*2, *5</sup>	2.7	2.4	2.3	2.6	2.1	1.9	1.7	0.2	-2.0	-0.9	-1.2	-1.3
Automobile ownership (million)	38	58	72	75	76	72	67	1.3	0.1	-0.6	-0.6	-0.4
Automobile ownership rates <sup>*6</sup>	325	467	570	590	603	591	584	1.1	0.2	-0.2	-0.1	0.0

\*1 Trade of electricity and heat are not shown, \*2 Excludes emission reduction by CCS, \*3 toe/\$2010 million,

\*4 t/\$2010 million, \*5 t/toe, \*6 Vehicles per 1,000 people



Table 55 ASEAN, Advanced Technologies Scenario

Primary energy consumption	Mtoe							Shares (%)			CAGR (%)				
	1980	1990	2000	2011	2020	2030	2040	1990/2011	2011/2040	2040	1990/2011	2011/2020	2020/2030	2030/2040	2011/2040
<b>Total<sup>1</sup></b>	142	233	377	557	764	1,013	1,270	100	100	100	4.2	3.6	2.9	2.3	2.9
Coal	3.6	12	32	90	132	185	239	5.4	16	19	9.9	4.4	3.5	2.6	3.4
Oil	58	88	153	206	272	325	373	38	37	29	4.1	3.1	1.8	1.4	2.1
Natural gas	8.4	29	71	117	167	222	272	13	21	21	6.8	4.0	2.9	2.1	2.9
Nuclear	-	-	-	-	2.0	22	59	-	-	4.6	n.a.	n.a.	27.2	10.2	n.a.
Hydro	0.8	2.3	4.1	6.3	8.0	10	11	1.0	1.1	0.9	4.8	2.8	2.3	0.9	2.0
Geothermal	1.8	6.6	18	25	53	93	133	2.9	4.4	10	6.5	8.8	5.8	3.7	6.0
Solar, wind, etc.	-	-	-	0.0	0.5	1.3	3.9	-	0.0	0.3	n.a.	40.8	9.0	11.8	19.1
Biomass and waste	70	93	98	112	127	151	176	40	20	14	0.9	1.5	1.7	1.6	1.6

Final energy consumption	Mtoe							Shares (%)			CAGR (%)				
	1980	1990	2000	2011	2020	2030	2040	1990/2011	2011/2040	2040	1990/2011	2011/2020	2020/2030	2030/2040	2011/2040
<b>Total</b>	112	173	271	406	545	704	868	100	100	100	4.1	3.3	2.6	2.1	2.7
By sector															
Industry	22	43	77	119	174	245	317	25	29	36	5.0	4.4	3.5	2.6	3.4
Transport	17	32	62	97	135	172	212	19	24	24	5.4	3.7	2.5	2.1	2.7
Buildings, etc.	71	87	112	136	163	201	241	50	33	28	2.1	2.1	2.1	1.9	2.0
Non-energy use	2.4	11	21	54	73	86	98	6.6	13	11	7.7	3.4	1.7	1.3	2.1
By energy															
Coal	2.1	6.1	14	35	58	80	103	3.5	8.6	12	8.7	5.7	3.3	2.6	3.8
Oil	41	67	124	186	242	296	343	38	46	40	5.0	2.9	2.0	1.5	2.1
Natural gas	2.5	7.4	17	33	50	72	96	4.3	8.3	11	7.4	4.5	3.7	2.9	3.7
Electricity	4.7	11	28	53	81	125	175	6.4	13	20	7.7	4.9	4.4	3.5	4.2
Heat	-	-	-	-	-	-	-	-	-	-	n.a.	n.a.	n.a.	n.a.	n.a.
Renewables	62	82	89	98	115	132	151	47	24	17	0.9	1.8	1.4	1.4	1.5

Electricity generation	(TWh)							Shares (%)			CAGR (%)				
	1980	1990	2000	2011	2020	2030	2040	1990/2011	2011/2040	2040	1990/2011	2011/2020	2020/2030	2030/2040	2011/2040
<b>Total</b>	62	154	370	694	1,044	1,597	2,238	100	100	100	7.4	4.6	4.3	3.4	4.1
Coal	3.0	28	79	216	309	472	653	18	31	29	10.3	4.1	4.3	3.3	3.9
Oil	47	66	72	71	69	67	66	43	10	3.0	0.3	-0.4	-0.2	-0.2	-0.2
Natural gas	0.7	26	154	307	463	660	837	17	44	37	12.6	4.7	3.6	2.4	3.5
Nuclear	-	-	-	-	7.7	104	280	-	-	13	n.a.	n.a.	29.7	10.5	n.a.
Hydro	9.8	27	47	73	94	118	129	18	11	5.8	4.8	2.9	2.3	0.9	2.0
Geothermal	2.1	6.6	16	19	61	108	155	4.3	2.8	6.9	5.3	13.7	5.8	3.7	7.4
Other renewables	-	0.6	1.0	7.9	41	69	118	0.4	1.1	5.3	13.1	20.1	5.3	5.5	9.8

Energy and economic indicators										CAGR (%)				
	1980	1990	2000	2011	2020	2030	2040	1990/2011	2011/2020	2020/2030	2030/2040	2011/2040		
GDP (\$2010 billion)	400	694	1,120	1,938	3,124	4,890	7,060	5.0	5.4	4.6	3.7	4.6		
Population (million)	348	430	504	577	635	688	725	1.4	1.1	0.8	0.5	0.8		
CO <sub>2</sub> emissions <sup>2</sup> (Mt)	205	358	703	1,105	1,534	2,000	2,441	5.5	3.7	2.7	2.0	2.8		
GDP per capita (\$2010 thousand)	1.1	1.6	2.2	3.4	4.9	7.1	9.7	3.5	4.3	3.8	3.2	3.7		
Primary energy consump. per capita (toe)	0.4	0.5	0.7	1.0	1.2	1.5	1.8	2.8	2.5	2.1	1.7	2.1		
Primary energy consumption per GDP <sup>3</sup>	356	335	336	287	244	207	180	-0.7	-1.8	-1.6	-1.4	-1.6		
CO <sub>2</sub> emissions per GDP <sup>2, 4</sup>	512	516	628	570	491	409	346	0.5	-1.6	-1.8	-1.7	-1.7		
CO <sub>2</sub> per primary energy consumption <sup>2, 5</sup>	1.4	1.5	1.9	2.0	2.0	2.0	1.9	1.2	0.1	-0.2	-0.3	-0.1		
Automobile ownership (million)	4.5	10	21	45	66	94	133	7.4	4.3	3.7	3.5	3.8		
Automobile ownership rates <sup>6</sup>	13	24	41	78	103	137	183	5.9	3.2	2.9	2.9	3.0		

\*1 Trade of electricity and heat are not shown, \*2 Excludes emission reduction by CCS, \*3 toe/\$2010 million,

\*4 t/\$2010 million, \*5 t/toe, \*6 Vehicles per 1,000 people

Table 56 United States, Advanced Technologies Scenario

Primary energy consumption	Mtoe							Shares (%)			CAGR (%)				
	1980	1990	2000	2011	2020	2030	2040	1990/2011	2011/2020	2020/2030	2030/2040	2011/2040			
<b>Total<sup>1</sup></b>	1,805	1,915	2,273	2,191	2,064	1,992	1,882	100	100	100	0.6	-0.7	-0.4	-0.6	-0.5
Coal	376	460	534	479	365	280	202	24	22	11	0.2	-3.0	-2.6	-3.2	-2.9
Oil	797	757	871	786	663	598	532	40	36	28	0.2	-1.9	-1.0	-1.2	-1.3
Natural gas	477	438	548	569	574	552	499	23	26	27	1.2	0.1	-0.4	-1.0	-0.4
Nuclear	69	159	208	214	238	262	274	8.3	9.8	15	1.4	1.2	1.0	0.4	0.9
Hydro	24	23	22	28	28	28	28	1.2	1.3	1.5	0.8	0.0	0.0	0.0	0.0
Geothermal	4.6	14	13	8.6	21	34	48	0.7	0.4	2.5	-2.4	10.2	5.2	3.4	6.1
Solar, wind, etc.	-	0.3	2.1	12	41	83	132	0.0	0.6	7.0	19.0	14.1	7.4	4.7	8.5
Biomass and waste	54	62	73	91	132	153	167	3.3	4.2	8.9	1.8	4.2	1.4	0.9	2.1

Final energy consumption	Mtoe							Shares (%)			CAGR (%)				
	1980	1990	2000	2011	2020	2030	2040	1990/2011	2011/2020	2020/2030	2030/2040	2011/2040			
<b>Total</b>	1,311	1,294	1,546	1,504	1,433	1,393	1,327	100	100	100	0.7	-0.5	-0.3	-0.5	-0.4
By sector															
Industry	387	284	332	287	269	251	226	22	19	17	0.1	-0.7	-0.7	-1.0	-0.8
Transport	425	488	588	589	527	492	453	38	39	34	0.9	-1.2	-0.7	-0.8	-0.9
Buildings, etc.	397	403	473	495	500	498	486	31	33	37	1.0	0.1	0.0	-0.2	-0.1
Non-energy use	102	119	153	132	138	152	161	9.2	8.8	12	0.5	0.5	1.0	0.6	0.7
By energy															
Coal	56	56	33	25	20	19	17	4.3	1.6	1.3	-3.8	-2.0	-0.8	-0.8	-1.2
Oil	689	683	793	747	632	571	510	53	50	38	0.4	-1.8	-1.0	-1.1	-1.3
Natural gas	337	303	360	327	340	327	304	23	22	23	0.4	0.4	-0.4	-0.7	-0.3
Electricity	174	226	301	326	337	358	371	18	22	28	1.7	0.4	0.6	0.3	0.4
Heat	-	2.2	5.3	6.6	6.0	5.5	4.8	0.2	0.4	0.4	5.5	-1.1	-0.9	-1.3	-1.1
Renewables	54	23	54	72	98	112	120	1.8	4.8	9.1	5.6	3.4	1.3	0.7	1.8

Electricity generation	(TWh)							Shares (%)			CAGR (%)				
	1980	1990	2000	2011	2020	2030	2040	1990/2011	2011/2020	2020/2030	2030/2040	2011/2040			
<b>Total</b>	2,427	3,203	4,026	4,327	4,457	4,730	4,890	100	100	100	1.4	0.3	0.6	0.3	0.4
Coal	1,243	1,700	2,129	1,875	1,467	1,118	771	53	43	16	0.5	-2.7	-2.7	-3.6	-3.0
Oil	263	131	118	40	34	30	23	4.1	0.9	0.5	-5.5	-1.5	-1.5	-2.6	-1.9
Natural gas	370	382	634	1,045	1,082	1,063	909	12	24	19	4.9	0.4	-0.2	-1.6	-0.5
Nuclear	266	612	798	821	913	1,007	1,050	19	19	21	1.4	1.2	1.0	0.4	0.9
Hydro	279	273	253	322	322	322	322	8.5	7.4	6.6	0.8	0.0	0.0	0.0	0.0
Geothermal	5.4	16	15	18	44	73	102	0.5	0.4	2.1	0.5	10.5	5.2	3.4	6.2
Other renewables	0.5	90	78	205	595	1,118	1,713	2.8	4.7	35	4.0	12.5	6.5	4.4	7.6

Energy and economic indicators										CAGR (%)				
	1980	1990	2000	2011	2020	2030	2040	1990/2011	2011/2020	2020/2030	2030/2040	2011/2040		
GDP (\$2010 billion)	6,433	8,837	12,384	14,693	18,739	23,903	28,790	2.5	2.7	2.5	1.9	2.3		
Population (million)	227	250	282	312	334	359	379	1.1	0.8	0.7	0.6	0.7		
CO <sub>2</sub> emissions <sup>2</sup> (Mt)	4,743	4,820	5,617	5,247	4,423	3,796	3,138	0.4	-1.9	-1.5	-1.9	-1.8		
GDP per capita (\$2010 thousand)	28	35	44	47	56	67	76	1.4	1.9	1.7	1.3	1.7		
Primary energy consump. per capita (toe)	7.9	7.7	8.1	7.0	6.2	5.6	5.0	-0.4	-1.4	-1.1	-1.1	-1.2		
Primary energy consumption per GDP <sup>3</sup>	281	217	184	149	110	83	65	-1.8	-3.3	-2.8	-2.4	-2.8		
CO <sub>2</sub> emissions per GDP <sup>2, 4</sup>	737	545	454	357	236	159	109	-2.0	-4.5	-3.9	-3.7	-4.0		
CO <sub>2</sub> per primary energy consumption <sup>2, 5</sup>	2.6	2.5	2.5	2.4	2.1	1.9	1.7	-0.2	-1.2	-1.2	-1.3	-1.2		
Automobile ownership (million)	156	189	221	245	272	303	328	1.2	1.2	1.1	0.8	1.0		
Automobile ownership rates <sup>6</sup>	686	756	785	786	814	845	865	0.2	0.4	0.4	0.2	0.3		

\*1 Trade of electricity and heat are not shown, \*2 Excludes emission reduction by CCS, \*3 toe/\$2010 million,

\*4 t/\$2010 million, \*5 t/toe, \*6 Vehicles per 1,000 people

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Primary energy consumption	Mtoe							Shares (%)			CAGR (%)				
	1980	1990	2000	2011	2020	2030	2040	1990	2011	2040	1990/2011	2011/2020	2020/2030	2030/2040	2011/2040
<b>Total<sup>1</sup></b>	n.a.	1,636	1,685	1,654	1,620	1,579	1,508	100	100	100	0.1	-0.2	-0.3	-0.5	-0.3
Coal	n.a.	455	321	286	218	168	134	28	17	8.9	-2.2	-3.0	-2.6	-2.2	-2.6
Oil	n.a.	601	619	547	490	428	353	37	33	23	-0.4	-1.2	-1.3	-1.9	-1.5
Natural gas	n.a.	295	394	401	404	385	360	18	24	24	1.5	0.1	-0.5	-0.7	-0.4
Nuclear	n.a.	207	246	236	242	272	283	13	14	19	0.6	0.3	1.2	0.4	0.6
Hydro	n.a.	25	30	26	28	29	29	1.5	1.6	1.9	0.3	0.6	0.3	0.2	0.4
Geothermal	n.a.	3.2	4.7	6.2	10	14	19	0.2	0.4	1.3	3.2	5.5	3.8	2.7	3.9
Solar, wind, etc.	n.a.	0.3	2.4	22	49	73	94	0.0	1.3	6.3	23.5	9.6	4.1	2.6	5.2
Biomass and waste	n.a.	46	66	128	178	209	235	2.8	7.8	16	5.0	3.7	1.6	1.2	2.1

Final energy consumption	Mtoe							Shares (%)			CAGR (%)				
	1980	1990	2000	2011	2020	2030	2040	1990	2011	2040	1990/2011	2011/2020	2020/2030	2030/2040	2011/2040
<b>Total</b>	n.a.	1,124	1,169	1,144	1,148	1,119	1,057	100	100	100	0.1	0.0	-0.3	-0.6	-0.3
By sector															
Industry	n.a.	341	307	269	268	264	257	30	24	24	-1.1	0.0	-0.2	-0.3	-0.2
Transport	n.a.	257	302	316	292	262	214	23	28	20	1.0	-0.9	-1.1	-2.0	-1.3
Buildings, etc.	n.a.	428	450	454	476	475	464	38	40	44	0.3	0.5	0.0	-0.2	0.1
Non-energy use	n.a.	98	110	104	111	118	123	8.7	9.1	12	0.3	0.7	0.6	0.4	0.6
By energy															
Coal	n.a.	123	52	40	37	33	29	11	3.5	2.8	-5.2	-0.9	-1.2	-1.1	-1.1
Oil	n.a.	499	537	485	438	383	313	44	42	30	-0.1	-1.1	-1.3	-2.0	-1.5
Natural gas	n.a.	224	271	250	272	276	274	20	22	26	0.5	1.0	0.1	-0.1	0.3
Electricity	n.a.	185	217	238	249	263	274	16	21	26	1.2	0.5	0.6	0.4	0.5
Heat	n.a.	54	44	49	49	48	46	4.8	4.3	4.4	-0.5	0.1	-0.3	-0.4	-0.2
Renewables	n.a.	39	49	82	103	116	120	3.4	7.2	11	3.6	2.6	1.2	0.4	1.3

Electricity generation	(TWh)							Shares (%)			CAGR (%)				
	1980	1990	2000	2011	2020	2030	2040	1990	2011	2040	1990/2011	2011/2020	2020/2030	2030/2040	2011/2040
<b>Total</b>	n.a.	2,568	2,995	3,251	3,379	3,568	3,731	100	100	100	1.1	0.4	0.5	0.4	0.5
Coal	n.a.	1,050	966	882	642	478	367	41	27	9.8	-0.8	-3.5	-2.9	-2.6	-3.0
Oil	n.a.	221	180	73	62	49	39	8.6	2.3	1.0	-5.1	-1.8	-2.3	-2.3	-2.1
Natural gas	n.a.	191	478	693	595	472	358	7.4	21	9.6	6.3	-1.7	-2.3	-2.7	-2.3
Nuclear	n.a.	795	945	907	929	1,045	1,086	31	28	29	0.6	0.3	1.2	0.4	0.6
Hydro	n.a.	286	351	307	324	335	340	11	9.4	9.1	0.3	0.6	0.3	0.2	0.4
Geothermal	n.a.	3.2	4.8	5.9	9.9	15	20	0.1	0.2	0.5	2.9	6.0	4.0	2.9	4.2
Other renewables	n.a.	21	71	382	818	1,174	1,521	0.8	12	41	14.8	8.8	3.7	2.6	4.9

Energy and economic indicators								CAGR (%)				
	1980	1990	2000	2011	2020	2030	2040	1990/2011	2011/2020	2020/2030	2030/2040	2011/2040
GDP (\$2010 billion)	n.a.	11,369	14,141	16,479	20,371	24,101	27,483	1.8	2.4	1.7	1.3	1.8
Population (million)	n.a.	473	484	504	517	525	528	0.3	0.3	0.2	0.1	0.2
CO <sub>2</sub> emissions <sup>2</sup> (Mt)	n.a.	4,047	3,767	3,443	2,985	2,533	2,094	-0.8	-1.6	-1.6	-1.9	-1.7
GDP per capita (\$2010 thousand)	n.a.	24	29	33	39	46	52	1.5	2.1	1.5	1.3	1.6
Primary energy consump. per capita (toe)	n.a.	3.5	3.5	3.3	3.1	3.0	2.9	-0.2	-0.5	-0.4	-0.5	-0.5
Primary energy consumption per GDP <sup>3</sup>	n.a.	144	119	100	80	66	55	-1.7	-2.6	-1.9	-1.8	-2.1
CO <sub>2</sub> emissions per GDP <sup>2, 4</sup>	n.a.	356	266	209	147	105	76	-2.5	-3.9	-3.3	-3.2	-3.4
CO <sub>2</sub> per primary energy consumption <sup>2, 5</sup>	n.a.	2.5	2.2	2.1	1.8	1.6	1.4	-0.8	-1.3	-1.4	-1.4	-1.4
Automobile ownership (million)	n.a.	177	235	288	308	339	356	2.3	0.7	1.0	0.5	0.7
Automobile ownership rates <sup>6</sup>	n.a.	375	486	572	595	645	673	2.0	0.4	0.8	0.4	0.6

\*1 Trade of electricity and heat are not shown, \*2 Excludes emission reduction by CCS, \*3 toe/\$2010 million,

\*4 t/\$2010 million, \*5 t/toe, \*6 Vehicles per 1,000 people