

INTERNATIONAL ENERGY WORKSHOP
Part III: Individual Poll Responses, “Business-as-Usual” Cases

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Organization/Project: ABARE; Australian Bureau of Agriculture and Resource Economics

Country/Region: Australia (AUS)

Reference (including date) of most recent report: "Australian energy consumption and production: historical trends and projections to 2009-10", Canberra, February 1995.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	20.9	15.8	20.0	
2. Real GNP (or GDP) Index 1990 = 100	100.0	136.0	176.0	
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	94.2	115.0	131.5	
4. Total Production	167.4	231.7	263.6	
5. Oil Consumption	35.3	41.1	45.7	
6. Oil Production	30.7	29.0	18.6	
7. Oil Exports - Imports	-4.4	-12.8	-27.2	
8. Natural Gas Consumption	16.4	23.5	30.3	
9. Natural Gas Production	19.0	36.5	53.0	
10. Gas Exports - Imports	2.6	13.0	22.6	
11. Coal Consumption	37.8	45.3	50.2	
12. Coal Production	111.9	159.8	185.2	
13. Coal Exports - Imports	70.8	114.5	135.3	
14. Renewables, Electric	1.3	1.4	1.5	
15. Nuclear Energy	0.0	0.0	0.0	
16. Renewables, Nonelectric	4.3	5.0	5.1	
17. Electricity Generation Terawatt Hours (TWh)	154.8	195.9	230.7	
18. Carbon Emissions Million Tons (MtC)	82.6	99.8	111.8	
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Organization/Project: ACREF; Institute of General Energy Research ASCR

Country/Region: Czech Republic, "Conventional Wisdom" scenario (CHREP)

Reference (including date) of most recent report: Submitted to CHALLENGE,
January 1993.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	20.0	20.0	30.0	40.0
2. Real GNP (or GDP) Index 1990 = 100	100.0	95.5	126.9	168.7
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	46.3	39.3	44.8	50.4
4. Total Production	39.3	27.2	27.5	28.3
5. Oil Consumption	8.0	5.5	7.0	8.2
6. Oil Production	0.1	0.1	0.1	0.1
7. Oil Exports - Imports	-7.9	-5.4	-6.9	-8.1
8. Natural Gas Consumption	5.0	7.5	10.1	13.7
9. Natural Gas Production	0.2	0.2	0.2	0.2
10. Gas Exports - Imports	-4.8	-7.3	-9.8	-13.5
11. Coal Consumption	30.1	20.4	20.1	18.3
12. Coal Production	35.8	21.0	19.7	17.9
13. Coal Exports - Imports	5.7	0.6	-0.4	-0.4
14. Renewables, Electric	0.1	0.1	0.1	0.1
15. Nuclear Energy	3.1	5.8	7.5	10.1
16. Renewables, Nonelectric				
17. Electricity Generation Terawatt Hours (TWh)	62.6	63.2	87.7	121.2
18. Carbon Emissions Million Tons (MtC)	44.4	32.8	35.7	37.2
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Notes:

14 includes item 16.

Organization/Project: ADLMN; Center for Energy & Environmental Policy
Research, MIT.

Country/Region: World (A8)

Reference (including date) of most recent report: M.A. Adelman, "The Genie
Out of the Bottle: World Oil Since 1970", Cambridge,
Massachusetts, MIT Press, 1995.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	14.9	14.0	13.0	
2. Real GNP (or GDP) Index 1990 = 100				
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption				
4. Total Production				
5. Oil Consumption				
6. Oil Production				
7. Oil Exports - Imports				
8. Natural Gas Consumption				
9. Natural Gas Production				
10. Gas Exports - Imports				
11. Coal Consumption				
12. Coal Production				
13. Coal Exports - Imports				
14. Renewables, Electric				
15. Nuclear Energy				
16. Renewables, Nonelectric				
17. Electricity Generation Terawatt Hours (TWh)				
18. Carbon Emissions Million Tons (MtC)				
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Organization/Project: AMOCH; Amoco Corporation

Country/Region: 1. Former USSR and Eastern Europe (A1)

Reference (including date) of most recent report: "World Oil and Energy Outlook", High Demand scenario, May 1993

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel				
2. Real GNP (or GDP) Index 1990 = 100	100.0	101.0	150.0	
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	1720.0	1754.0	2160.0	
4. Total Production				
5. Oil Consumption	488.0	440.0	565.0	
6. Oil Production				
7. Oil Exports - Imports				
8. Natural Gas Consumption	639.0	761.0	1015.0	
9. Natural Gas Production				
10. Gas Exports - Imports				
11. Coal Consumption	445.0	370.0	360.0	
12. Coal Production				
13. Coal Exports - Imports				
14. Renewables, Electric	78.0	87.0	120.0	
15. Nuclear Energy	70.0	96.0	100.0	
16. Renewables, Nonelectric				
17. Electricity Generation Terawatt Hours (TWh)	2169.0	2599.0	3506.0	
18. Carbon Emissions Million Tons (MtC)	1246.0	1207.0	1455.0	
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Notes:

18: Carbon emissions based on the following factors:
oil, 0.78; gas, 0.63; and coal, 1.04 tons C/toe.

Organization/Project: AMOCH; Amoco Corporation

Country/Region: 2. China (A2)

Reference (including date) of most recent report: "World Oil and Energy Outlook", High Demand scenario, May 1993

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel				
2. Real GNP (or GDP) Index 1990 = 100	100.0	236.0	496.0	
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	673.0	1050.0	1418.0	
4. Total Production				
5. Oil Consumption	115.0	188.0	224.0	
6. Oil Production				
7. Oil Exports - Imports				
8. Natural Gas Consumption	13.0	45.0	200.0	
9. Natural Gas Production				
10. Gas Exports - Imports				
11. Coal Consumption	516.0	750.0	890.0	
12. Coal Production				
13. Coal Exports - Imports				
14. Renewables, Electric	30.0	63.0	94.0	
15. Nuclear Energy	0.0	5.0	10.0	
16. Renewables, Nonelectric				
17. Electricity Generation Terawatt Hours (TWh)	621.0	1300.0	2550.0	
18. Carbon Emissions Million Tons (MtC)	635.0	955.0	1226.0	
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Notes:

18: Carbon emissions based on the following factors:
oil, 0.78; gas, 0.63; and coal, 1.04 tons C/toe.

Organization/Project: AMOCH; Amoco Corporation

Country/Region: 4. OECD (A4)

Reference (including date) of most recent report: "World Oil and Energy Outlook", High Demand scenario, May 1993

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel				
2. Real GNP (or GDP) Index 1990 = 100	100.0	131.0	175.0	
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	4274.0	5104.0	5720.0	
4. Total Production				
5. Oil Consumption	1724.0	2018.0	2168.0	
6. Oil Production				
7. Oil Exports - Imports				
8. Natural Gas Consumption	782.0	1027.0	1208.0	
9. Natural Gas Production				
10. Gas Exports - Imports				
11. Coal Consumption	1033.0	1160.0	1342.0	
12. Coal Production				
13. Coal Exports - Imports				
14. Renewables, Electric	310.0	399.0	475.0	
15. Nuclear Energy	425.0	502.0	527.0	
16. Renewables, Nonelectric				
17. Electricity Generation Terawatt Hours (TWh)	6851.0	8620.0	10600.0	
18. Carbon Emissions Million Tons (MtC)	2912.0	3427.0	3848.0	
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Notes:

18: Carbon emissions based on the following factors:
oil, 0.78; gas, 0.63; and coal, 1.04 tons C/toe.

Organization/Project: AMOCH; Amoco Corporation

Country/Region: 8. World (A8)

Reference (including date) of most recent report: "World Oil and Energy Outlook", High Demand scenario, May 1993

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel				
2. Real GNP (or GDP) Index 1990 = 100	100.0	138.0	203.0	
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	8155.0	10472.0	13292.0	
4. Total Production				
5. Oil Consumption	3065.0	3869.0	4717.0	
6. Oil Production				
7. Oil Exports - Imports				
8. Natural Gas Consumption	1677.0	2367.0	3393.0	
9. Natural Gas Production				
10. Gas Exports - Imports				
11. Coal Consumption	2297.0	2781.0	3459.0	
12. Coal Production				
13. Coal Exports - Imports				
14. Renewables, Electric	593.0	811.0	1036.0	
15. Nuclear Energy	524.0	646.0	688.0	
16. Renewables, Nonelectric				
17. Electricity Generation Terawatt Hours (TWh)	11594.0	16307.0	23206.0	
18. Carbon Emissions Million Tons (MtC)	5836.0	7401.0	9414.0	
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Notes:

18: Carbon emissions based on the following factors:
oil, 0.78; gas, 0.63; and coal, 1.04 tons C/toe.

Organization/Project: AMOCH; Amoco Corporation

Country/Region: Canada (CAN)

Reference (including date) of most recent report: "World Oil and Energy Outlook", High Demand scenario, May 1993

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel				
2. Real GNP (or GDP) Index 1990 = 100	100.0	130.0	178.0	
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	253.0	319.0	359.0	
4. Total Production				
5. Oil Consumption	78.0	95.0	105.0	
6. Oil Production				
7. Oil Exports - Imports				
8. Natural Gas Consumption	56.0	67.0	78.0	
9. Natural Gas Production				
10. Gas Exports - Imports				
11. Coal Consumption	33.0	42.0	52.0	
12. Coal Production				
13. Coal Exports - Imports				
14. Renewables, Electric	68.0	85.0	93.0	
15. Nuclear Energy	19.0	30.0	32.0	
16. Renewables, Nonelectric				
17. Electricity Generation Terawatt Hours (TWh)	482.0	720.0	900.0	
18. Carbon Emissions Million Tons (MtC)	130.0	160.0	185.0	
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Notes:

18: Carbon emissions based on the following factors:
oil, 0.78; gas, 0.63; and coal, 1.04 tons C/toe.

Organization/Project: AMOCH; Amoco Corporation

Country/Region: USA (USA)

Reference (including date) of most recent report: "World Oil and Energy Outlook", High Demand scenario, May 1993

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel				
2. Real GNP (or GDP) Index 1990 = 100	100.0	125.0	162.0	
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	1971.0	2278.0	2526.0	
4. Total Production				
5. Oil Consumption	757.0	903.0	1018.0	
6. Oil Production				
7. Oil Exports - Imports				
8. Natural Gas Consumption	436.0	505.0	495.0	
9. Natural Gas Production				
10. Gas Exports - Imports				
11. Coal Consumption	530.0	622.0	777.0	
12. Coal Production				
13. Coal Exports - Imports				
14. Renewables, Electric	89.0	83.0	92.0	
15. Nuclear Energy	160.0	167.0	145.0	
16. Renewables, Nonelectric				
17. Electricity Generation Terawatt Hours (TWh)	2979.0	3450.0	4000.0	
18. Carbon Emissions Million Tons (MtC)	1416.0	1669.0	1914.0	
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Notes:

18: Carbon emissions based on the following factors:
oil, 0.78; gas, 0.63; and coal, 1.04 tons C/toe.

Organization/Project: AMOCH; Amoco Corporation

Country/Region: Former USSR (USSR)

Reference (including date) of most recent report: "World Oil and Energy Outlook", High Demand scenario, May 1993

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel				
2. Real GNP (or GDP) Index 1990 = 100	100.0	94.0	144.0	
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	1380.0	1403.0	1701.0	
4. Total Production				
5. Oil Consumption	407.0	350.0	450.0	
6. Oil Production				
7. Oil Exports - Imports				
8. Natural Gas Consumption	572.0	680.0	875.0	
9. Natural Gas Production				
10. Gas Exports - Imports				
11. Coal Consumption	285.0	225.0	200.0	
12. Coal Production				
13. Coal Exports - Imports				
14. Renewables, Electric	61.0	68.0	96.0	
15. Nuclear Energy	55.0	80.0	80.0	
16. Renewables, Nonelectric				
17. Electricity Generation Terawatt Hours (TWh)	1727.0	1999.0	2746.0	
18. Carbon Emissions Million Tons (MtC)	974.0	935.0	1110.0	
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Notes:

18: Carbon emissions based on the following factors:
oil, 0.78; gas, 0.63; and coal, 1.04 tons C/toe.

Organization/Project: AMOCL; Amoco Corporation

Country/Region: 1. Former USSR and Eastern Europe (A1)

Reference (including date) of most recent report: "World Oil and Energy Outlook", Low Demand scenario, May 1993

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel				
2. Real GNP (or GDP) Index 1990 = 100	100.0	89.0	118.0	
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	1720.0	1562.0	1858.0	
4. Total Production				
5. Oil Consumption	488.0	385.0	475.0	
6. Oil Production				
7. Oil Exports - Imports				
8. Natural Gas Consumption	639.0	705.0	850.0	
9. Natural Gas Production				
10. Gas Exports - Imports				
11. Coal Consumption	445.0	360.0	345.0	
12. Coal Production				
13. Coal Exports - Imports				
14. Renewables, Electric	78.0	87.0	93.0	
15. Nuclear Energy	70.0	80.0	95.0	
16. Renewables, Nonelectric				
17. Electricity Generation Terawatt Hours (TWh)	2169.0	2432.0	3201.0	
18. Carbon Emissions Million Tons (MtC)	1246.0	1119.0	1265.0	
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Notes:

18: Carbon emissions based on the following factors:
oil, 0.78; gas, 0.63; and coal, 1.04 tons C/toe.

Organization/Project: AMOCL; Amoco Corporation

Country/Region: 2. China (A2)

Reference (including date) of most recent report: "World Oil and Energy Outlook", Low Demand scenario, May 1993

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel				
2. Real GNP (or GDP) Index 1990 = 100	100.0	218.0	428.0	
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	673.0	1045.0	1417.0	
4. Total Production				
5. Oil Consumption	115.0	177.0	208.0	
6. Oil Production				
7. Oil Exports - Imports				
8. Natural Gas Consumption	13.0	50.0	175.0	
9. Natural Gas Production				
10. Gas Exports - Imports				
11. Coal Consumption	516.0	750.0	930.0	
12. Coal Production				
13. Coal Exports - Imports				
14. Renewables, Electric	30.0	63.0	94.0	
15. Nuclear Energy	0.0	5.0	10.0	
16. Renewables, Nonelectric				
17. Electricity Generation Terawatt Hours (TWh)	621.0	1200.0	2150.0	
18. Carbon Emissions Million Tons (MtC)	635.0	950.0	1240.0	
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Notes:

18: Carbon emissions based on the following factors:
oil, 0.78; gas, 0.63; and coal, 1.04 tons C/toe.

Organization/Project: AMOCL; Amoco Corporation

Country/Region: 4. OECD (A4)

Reference (including date) of most recent report: "World Oil and Energy Outlook", Low Demand scenario, May 1993

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel				
2. Real GNP (or GDP) Index 1990 = 100	100.0	127.0	167.0	
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	4274.0	4883.0	5240.0	
4. Total Production				
5. Oil Consumption	1724.0	1841.0	1860.0	
6. Oil Production				
7. Oil Exports - Imports				
8. Natural Gas Consumption	782.0	1034.0	1186.0	
9. Natural Gas Production				
10. Gas Exports - Imports				
11. Coal Consumption	1033.0	1113.0	1169.0	
12. Coal Production				
13. Coal Exports - Imports				
14. Renewables, Electric	310.0	398.0	481.0	
15. Nuclear Energy	425.0	497.0	544.0	
16. Renewables, Nonelectric				
17. Electricity Generation Terawatt Hours (TWh)	6851.0	8180.0	9750.0	
18. Carbon Emissions Million Tons (MtC)	2912.0	3245.0	3414.0	
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Notes:

18: Carbon emissions based on the following factors:
oil, 0.78; gas, 0.63; and coal, 1.04 tons C/toe.

Organization/Project: AMOCL; Amoco Corporation

Country/Region: 8. World (A8)

Reference (including date) of most recent report: "World Oil and Energy Outlook", Low Demand scenario, May 1993

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel				
2. Real GNP (or GDP) Index 1990 = 100	100.0	131.0	184.0	
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	8155.0	9949.0	12068.0	
4. Total Production				
5. Oil Consumption	3065.0	3519.0	4118.0	
6. Oil Production				
7. Oil Exports - Imports				
8. Natural Gas Consumption	1677.0	2281.0	3043.0	
9. Natural Gas Production				
10. Gas Exports - Imports				
11. Coal Consumption	2297.0	2722.0	3208.0	
12. Coal Production				
13. Coal Exports - Imports				
14. Renewables, Electric	593.0	802.0	999.0	
15. Nuclear Energy	524.0	625.0	700.0	
16. Renewables, Nonelectric				
17. Electricity Generation Terawatt Hours (TWh)	11594.0	15208.0	20849.0	
18. Carbon Emissions Million Tons (MtC)	5836.0	7013.0	8466.0	
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Notes:

18: Carbon emissions based on the following factors:
oil, 0.78; gas, 0.63; and coal, 1.04 tons C/toe.

Organization/Project: AMOCL; Amoco Corporation

Country/Region: Canada (CAN)

Reference (including date) of most recent report: "World Oil and Energy Outlook", Low Demand scenario, May 1993

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel				
2. Real GNP (or GDP) Index 1990 = 100	100.0	124.0	166.0	
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	253.0	295.0	341.0	
4. Total Production				
5. Oil Consumption	78.0	89.0	99.0	
6. Oil Production				
7. Oil Exports - Imports				
8. Natural Gas Consumption	56.0	63.0	73.0	
9. Natural Gas Production				
10. Gas Exports - Imports				
11. Coal Consumption	33.0	39.0	52.0	
12. Coal Production				
13. Coal Exports - Imports				
14. Renewables, Electric	68.0	79.0	87.0	
15. Nuclear Energy	19.0	25.0	31.0	
16. Renewables, Nonelectric				
17. Electricity Generation Terawatt Hours (TWh)	482.0	700.0	850.0	
18. Carbon Emissions Million Tons (MtC)	130.0	150.0	177.0	
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Notes:

18: Carbon emissions based on the following factors:

oil, 0.78; gas, 0.63; and coal, 1.04 tons C/toe.

Organization/Project: AMOCL; Amoco Corporation

Country/Region: USA (USA)

Reference (including date) of most recent report: "World Oil and Energy Outlook", Low Demand scenario, May 1993

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel				
2. Real GNP (or GDP) Index 1990 = 100	100.0	124.0	161.0	
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	1971.0	2146.0	2259.0	
4. Total Production				
5. Oil Consumption	757.0	778.0	802.0	
6. Oil Production				
7. Oil Exports - Imports				
8. Natural Gas Consumption	436.0	513.0	515.0	
9. Natural Gas Production				
10. Gas Exports - Imports				
11. Coal Consumption	530.0	596.0	661.0	
12. Coal Production				
13. Coal Exports - Imports				
14. Renewables, Electric	89.0	92.0	113.0	
15. Nuclear Energy	160.0	167.0	168.0	
16. Renewables, Nonelectric				
17. Electricity Generation Terawatt Hours (TWh)	2979.0	3300.0	3900.0	
18. Carbon Emissions Million Tons (MtC)	1416.0	1550.0	1637.0	
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Notes:

18: Carbon emissions based on the following factors:
oil, 0.78; gas, 0.63; and coal, 1.04 tons C/toe.

Organization/Project: AMOCL; Amoco Corporation

Country/Region: Former USSR (USSR)

Reference (including date) of most recent report: "World Oil and Energy Outlook", Low Demand scenario, May 1993

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel				
2. Real GNP (or GDP) Index 1990 = 100	100.0	87.0	116.0	
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	1380.0	1298.0	1463.0	
4. Total Production				
5. Oil Consumption	407.0	310.0	375.0	
6. Oil Production				
7. Oil Exports - Imports				
8. Natural Gas Consumption	572.0	630.0	750.0	
9. Natural Gas Production				
10. Gas Exports - Imports				
11. Coal Consumption	285.0	225.0	195.0	
12. Coal Production				
13. Coal Exports - Imports				
14. Renewables, Electric	61.0	68.0	68.0	
15. Nuclear Energy	55.0	65.0	75.0	
16. Renewables, Nonelectric				
17. Electricity Generation Terawatt Hours (TWh)	1727.0	1882.0	2501.0	
18. Carbon Emissions Million Tons (MtC)	974.0	873.0	968.0	
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Notes:

18: Carbon emissions based on the following factors:
oil, 0.78; gas, 0.63; and coal, 1.04 tons C/toe.

Organization/Project: BGTUH; Technical University, Sofia

Country/Region: Bulgaria (BULG)

Reference (including date) of most recent report: G. Moundjian, T. Balabanov, B. Bonev; submitted to CHALLENGE, June 1993.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	20.0	20.0	30.0	40.0
2. Real GNP (or GDP) Index 1990 = 100	100.0	102.0	124.0	165.0
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	31.5	31.8	34.5	38.0
4. Total Production	10.1	12.3	16.0	20.0
5. Oil Consumption	12.4	11.5	11.6	11.5
6. Oil Production	0.0	1.0	1.0	1.5
7. Oil Exports - Imports	-12.4	-10.5	-10.6	-10.0
8. Natural Gas Consumption	3.1	4.1	4.5	5.0
9. Natural Gas Production	0.0	1.5	3.0	3.5
10. Gas Exports - Imports	-3.1	-2.6	-1.5	-1.5
11. Coal Consumption	12.8	13.4	15.2	17.3
12. Coal Production	6.9	7.0	8.8	10.8
13. Coal Exports - Imports	-5.8	-6.4	-6.4	-6.5
14. Renewables, Electric	0.1	0.1	0.2	0.4
15. Nuclear Energy	3.1	2.7	3.0	3.8
16. Renewables, Nonelectric	0.0	0.0	0.0	0.0
17. Electricity Generation Terawatt Hours (TWh)	46.0	47.0	54.5	62.5
18. Carbon Emissions Million Tons (MtC)	23.1	23.4	25.4	27.5
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Organization/Project: BGTUL; Technical University, Sofia

Country/Region: Bulgaria (BULG)

Reference (including date) of most recent report: G. Moundjian, T. Balabanov, B. Bonev; submitted to CHALLENGE, June 1993.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	20.0	20.0	30.0	40.0
2. Real GNP (or GDP) Index 1990 = 100	100.0	102.0	124.0	165.0
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	31.5	31.5	33.1	34.9
4. Total Production	10.1	12.2	15.9	18.8
5. Oil Consumption	12.4	11.3	11.4	11.5
6. Oil Production	0.0	1.0	1.0	1.5
7. Oil Exports - Imports	-12.4	-10.3	-10.4	-10.0
8. Natural Gas Consumption	3.1	4.1	4.2	4.6
9. Natural Gas Production	0.0	1.5	3.0	3.5
10. Gas Exports - Imports	-3.1	-2.6	-1.2	-1.1
11. Coal Consumption	12.8	13.3	14.3	14.6
12. Coal Production	6.9	6.9	8.7	9.6
13. Coal Exports - Imports	-5.8	-6.4	-5.6	-5.0
14. Renewables, Electric	0.1	0.1	0.2	0.4
15. Nuclear Energy	3.1	2.7	3.0	3.8
16. Renewables, Nonelectric	0.0	0.0	0.0	0.0
17. Electricity Generation Terawatt Hours (TWh)	46.0	46.3	52.2	58.0
18. Carbon Emissions Million Tons (MtC)	23.1	23.1	23.9	24.5
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Organization/Project: BNREF; Brookhaven National Laboratory, Reference Scenario

Country/Region: USA (USA)

Reference (including date) of most recent report: US MARKAL-MAKRO runs, Photovoltaic Energy Impacts on U.S. CO2 emissions, June 1995.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	22.0	17.5	21.5	27.0
2. Real GNP (or GDP) Index 1990 = 100	100.0	128.0	157.0	183.0
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	2014.9	2175.8	2280.1	2546.9
4. Total Production	1637.2	1366.8	1519.9	1686.0
5. Oil Consumption	841.8	936.3	1036.1	1109.8
6. Oil Production	439.5	119.7	227.1	201.3
7. Oil Exports - Imports	-402.3	-816.6	-809.0	-908.5
8. Natural Gas Consumption	466.8	459.3	466.0	493.3
9. Natural Gas Production	429.0	385.9	374.1	378.1
10. Gas Exports - Imports	-37.8	-73.4	-91.9	-115.2
11. Coal Consumption	405.0	450.3	425.0	588.5
12. Coal Production	467.4	531.3	565.7	751.3
13. Coal Exports - Imports	62.4	81.0	140.7	162.8
14. Renewables, Electric	100.2	116.6	140.2	176.6
15. Nuclear Energy	151.0	151.1	138.0	91.2
16. Renewables, Nonelectric	50.1	62.2	74.8	87.5
17. Electricity Generation Terawatt Hours (TWh)	3045.0	3257.0	3397.0	3800.0
18. Carbon Emissions Million Tons (MtC)	1348.0	1487.0	1601.0	1847.0
19. Marginal Reduction Costs 1990 \$ per ton of carbon	0.0	16.0	27.0	45.0

Organization/Project: CECO; Cambridge Econometrics

Country/Region: United Kingdom (UK)

Reference (including date) of most recent report: United Kingdom Energy and the Environment, July 1995.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	22.9	18.6		
2. Real GNP (or GDP) Index 1990 = 100	100.0	120.6		
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	197.8	224.1		
4. Total Production				
5. Oil Consumption	69.7	70.5		
6. Oil Production	91.6	111.0		
7. Oil Exports - Imports	21.9	30.5		
8. Natural Gas Consumption	49.9	99.3		
9. Natural Gas Production	43.2	66.5		
10. Gas Exports - Imports	-6.7	-32.8		
11. Coal Consumption	63.7	28.2		
12. Coal Production	55.0	17.5		
13. Coal Exports - Imports	-8.7	-10.7		
14. Renewables, Electric	1.4	3.1		
15. Nuclear Energy	13.2	20.9		
16. Renewables, Nonelectric				
17. Electricity Generation Terawatt Hours (TWh)	331.7	367.2		
18. Carbon Emissions Million Tons (MtC)	157.7	149.8		
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Notes:

Row 1: Brent

Row 2: GDP at factor cost

Row 17: Includes own generation

Organization/Project: CETA; Stephen Peck, CETA model, base scenario

Country/Region: World (A8)

Reference (including date) of most recent report: CETA: A Model for Carbon Emissions Trajectory Assessment, Energy Journal, Vol. 13, No. 1(1992), pp55-77. Projection submitted June 1995.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel				
2. Real GNP (or GDP) Index 1990 = 100	100.0	131.0	163.0	202.0
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	7697.0	8454.0	9784.0	11206.0
4. Total Production	7697.0	8454.0	9784.0	11206.0
5. Oil Consumption				
6. Oil Production				
7. Oil Exports - Imports				
8. Natural Gas Consumption				
9. Natural Gas Production				
10. Gas Exports - Imports				
11. Coal Consumption	2154.0	2704.0	2991.0	3271.0
12. Coal Production	2154.0	2704.0	2991.0	3271.0
13. Coal Exports - Imports				
14. Renewables, Electric	496.0	496.0	636.0	1059.0
15. Nuclear Energy	421.0	421.0	412.0	211.0
16. Renewables, Nonelectric	0.0	0.0	0.0	0.0
17. Electricity Generation Terawatt Hours (TWh)				
18. Carbon Emissions Million Tons (MtC)	5763.0	6509.0	7496.0	8481.0
19. Marginal Reduction Costs 1990 \$ per ton of carbon	9.1	11.7	14.5	17.6

Organization/Project: CHEE; Centre for Human Ecology, Edinburgh, UK.

Country/Region: United Kingdom (UK)

Reference (including date) of most recent report: Slessor, King, Crane:
"Non-Monetary Indicators of Sustainability Edinburgh, 1994.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel				
2. Real GNP (or GDP) Index 1990 = 100				
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	227.0	270.0	292.0	318.0
4. Total Production				
5. Oil Consumption				
6. Oil Production				
7. Oil Exports - Imports				
8. Natural Gas Consumption				
9. Natural Gas Production				
10. Gas Exports - Imports				
11. Coal Consumption				
12. Coal Production				
13. Coal Exports - Imports				
14. Renewables, Electric				
15. Nuclear Energy				
16. Renewables, Nonelectric				
17. Electricity Generation Terawatt Hours (TWh)				
18. Carbon Emissions Million Tons (MtC)				
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Organization/Project: CNREF; ECN-PS, IEA-ETSAP/Annex IV, High Growth, No Nuclear, Reference Case (with CO2 reNetherlands)

Country/Region: Netherlands (NLAND)

Reference (including date) of most recent report: Submitted to CHALLENGE, September 1993. ECN-PS IEA/ETSAP, Annex IV, September 1993

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	22.7	26.0	33.0	40.0
2. Real GNP (or GDP) Index 1990 = 100	100.0	124.0	154.0	188.0
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	68.5	69.6	76.4	81.0
4. Total Production	62.7	50.6	31.7	23.8
5. Oil Consumption	23.2	24.6	27.1	28.7
6. Oil Production	4.0	0.0	0.0	0.0
7. Oil Exports - Imports	-19.2	-24.6	-27.1	-28.7
8. Natural Gas Consumption	34.4	33.2	32.0	27.9
9. Natural Gas Production	58.2	50.6	31.7	23.8
10. Gas Exports - Imports	23.8	17.4	-0.3	-4.1
11. Coal Consumption	8.8	9.6	15.8	21.5
12. Coal Production	0.0	0.0	0.0	0.0
13. Coal Exports - Imports	-8.8	-9.6	-15.8	-21.5
14. Renewables, Electric	0.2	0.4	0.8	1.5
15. Nuclear Energy	1.4	1.4	0.0	0.0
16. Renewables, Nonelectric	0.1	0.4	0.7	1.4
17. Electricity Generation Terawatt Hours (TWh)	78.5	87.3	100.2	113.6
18. Carbon Emissions Million Tons (MtC)	44.0	45.0	51.0	55.4
19. Marginal Reduction Costs 1990 \$ per ton of carbon	0.0	0.0	0.0	0.0

Notes:

14 - Includes import hydro-electricity;

15 - Includes import nuclear electricity: 0.7 mtoe in 1990/2000;

17 - Includes imports: 1990 9.5 TWh; 2000 7.8 TWh; 2010/20 2.5 TWh.

Organization/Project: CUREF; Chalmers University of Technology, Reference Case

Country/Region: Sweden (SWEDN)

Reference (including date) of most recent report: Markal-Macro Studies for Sweden, May 1995

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	20.0	25.0	30.0	34.0
2. Real GNP (or GDP) Index 1990 = 100	100.0	120.0	146.0	179.0
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	56.0	61.0	68.0	72.0
4. Total Production				
5. Oil Consumption	16.0	19.0	24.0	32.0
6. Oil Production	0.0	0.0	0.0	0.0
7. Oil Exports - Imports	-16.0	-19.0	-24.0	-32.0
8. Natural Gas Consumption	1.0	1.0	1.0	1.0
9. Natural Gas Production	0.0	0.0	0.0	0.0
10. Gas Exports - Imports	-1.0	-1.0	-1.0	-1.0
11. Coal Consumption	3.0	2.0	1.0	2.0
12. Coal Production	0.0	0.0	0.0	0.0
13. Coal Exports - Imports	-3.0	-2.0	-1.0	-2.0
14. Renewables, Electric	14.0	14.0	14.0	15.0
15. Nuclear Energy	15.0	15.0	15.0	11.0
16. Renewables, Nonelectric	7.0	8.0	9.0	9.0
17. Electricity Generation Terawatt Hours (TWh)	139.0	142.0	149.0	141.0
18. Carbon Emissions Million Tons (MtC)	17.0	18.0	23.0	29.0
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Organization/Project: CWREF; Global 2100, Reference Case

Country/Region: USA (USA)

Reference (including date) of most recent report: "Harmonized Conventional" CHALLENGE Scenario Alan Manne and Leo Schrattenholzer, April 1993

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	21.0	31.0	37.0	44.0
2. Real GNP (or GDP) Index 1990 = 100	100.0	127.0	154.0	186.0
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	1938.0	2162.0	2401.0	2723.0
4. Total Production				
5. Oil Consumption	825.0	957.0	1021.0	1023.0
6. Oil Production	409.0	401.0	347.0	296.0
7. Oil Exports - Imports	-416.0	-555.0	-674.0	-727.0
8. Natural Gas Consumption	433.0	415.0	350.0	276.0
9. Natural Gas Production				
10. Gas Exports - Imports				
11. Coal Consumption	465.0	569.0	757.0	1008.0
12. Coal Production				
13. Coal Exports - Imports				
14. Renewables, Electric	72.0	72.0	72.0	72.0
15. Nuclear Energy	143.0	143.0	143.0	96.0
16. Renewables, Nonelectric	0.0	6.0	57.0	235.0
17. Electricity Generation Terawatt Hours (TWh)	2808.0	3181.0	3732.0	4512.0
18. Carbon Emissions Million Tons (MtC)	1430.0	1638.0	1849.0	2081.0
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Organization/Project: CWREF; Global 2100, Reference Case

Country/Region: OECD excluding USA (OECD)

Reference (including date) of most recent report: "Harmonized Conventional" CHALLENGE Scenario Alan Manne and Leo Schrattenholzer, April 1993

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	21.0	31.0	37.0	44.0
2. Real GNP (or GDP) Index 1990 = 100	100.0	128.0	157.0	192.0
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	2067.0	2240.0	2427.0	2694.0
4. Total Production				
5. Oil Consumption	944.0	883.0	844.0	775.0
6. Oil Production	319.0	372.0	359.0	329.0
7. Oil Exports - Imports	-624.0	-510.0	-484.0	-445.0
8. Natural Gas Consumption	319.0	436.0	471.0	459.0
9. Natural Gas Production				
10. Gas Exports - Imports				
11. Coal Consumption	377.0	435.0	492.0	569.0
12. Coal Production				
13. Coal Exports - Imports				
14. Renewables, Electric	197.0	240.0	284.0	331.0
15. Nuclear Energy	229.0	240.0	278.0	315.0
16. Renewables, Nonelectric	0.0	6.0	57.0	235.0
17. Electricity Generation Terawatt Hours (TWh)	3844.0	3774.0	4058.0	4645.0
18. Carbon Emissions Million Tons (MtC)	1375.0	1451.0	1498.0	1522.0
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Organization/Project: CWREF; Global 2100, Reference Case

Country/Region: Eastern Europe and former Soviet Union (A1)

Reference (including date) of most recent report: "Harmonized Conventional" CHALLENGE Scenario Alan Manne and Leo Schrattenholzer, April 1993

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	21.0	31.0	37.0	44.0
2. Real GNP (or GDP) Index 1990 = 100	100.0	108.0	140.0	176.0
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	1838.0	1781.0	1980.0	2206.0
4. Total Production				
5. Oil Consumption	530.0	461.0	461.0	496.0
6. Oil Production	655.0	555.0	531.0	543.0
7. Oil Exports - Imports	125.0	94.0	70.0	47.0
8. Natural Gas Consumption	644.0	639.0	788.0	955.0
9. Natural Gas Production				
10. Gas Exports - Imports				
11. Coal Consumption	499.0	496.0	518.0	460.0
12. Coal Production				
13. Coal Exports - Imports				
14. Renewables, Electric	78.0	104.0	130.0	156.0
15. Nuclear Energy	87.0	81.0	83.0	136.0
16. Renewables, Nonelectric	0.0	0.0	0.0	2.0
17. Electricity Generation Terawatt Hours (TWh)	2024.0	1879.0	2320.0	3020.0
18. Carbon Emissions Million Tons (MtC)	1338.0	1273.0	1383.0	1452.0
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Organization/Project: CWREF; Global 2100, Reference Case

Country/Region: China (A2)

Reference (including date) of most recent report: "Harmonized Conventional" CHALLENGE Scenario Alan Manne and Leo Schrattenholzer, April 1993

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	21.0	31.0	37.0	44.0
2. Real GNP (or GDP) Index 1990 = 100	100.0	164.0	262.0	401.0
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	692.0	916.0	1298.0	1868.0
4. Total Production				
5. Oil Consumption	122.0	194.0	236.0	285.0
6. Oil Production	135.0	207.0	249.0	298.0
7. Oil Exports - Imports	13.0	13.0	13.0	13.0
8. Natural Gas Consumption	12.0	58.0	101.0	120.0
9. Natural Gas Production				
10. Gas Exports - Imports				
11. Coal Consumption	517.0	601.0	812.0	1067.0
12. Coal Production				
13. Coal Exports - Imports				
14. Renewables, Electric	41.0	60.0	86.0	124.0
15. Nuclear Energy	0.0	3.0	15.0	49.0
16. Renewables, Nonelectric	0.0	0.0	38.0	175.0
17. Electricity Generation Terawatt Hours (TWh)	618.0	1012.0	1773.0	2877.0
18. Carbon Emissions Million Tons (MtC)	641.0	815.0	1105.0	1469.0
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Organization/Project: CWREF; Global 2100, Reference Case

Country/Region: Developing Countries excluding China (DC)

Reference (including date) of most recent report: "Harmonized Conventional" CHALLENGE Scenario Alan Manne and Leo Schrattenholzer, April 1993

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	21.0	31.0	37.0	44.0
2. Real GNP (or GDP) Index 1990 = 100	100.0	148.0	211.0	293.0
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	1662.0	2151.0	2758.0	3657.0
4. Total Production				
5. Oil Consumption	733.0	896.0	1080.0	1146.0
6. Oil Production	1635.0	1854.0	2154.0	2258.0
7. Oil Exports - Imports	902.0	958.0	1075.0	1112.0
8. Natural Gas Consumption	303.0	477.0	511.0	899.0
9. Natural Gas Production				
10. Gas Exports - Imports				
11. Coal Consumption	408.0	508.0	817.0	1075.0
12. Coal Production				
13. Coal Exports - Imports				
14. Renewables, Electric	184.0	232.0	292.0	368.0
15. Nuclear Energy	33.0	39.0	50.0	115.0
16. Renewables, Nonelectric	0.0	0.0	7.0	43.0
17. Electricity Generation Terawatt Hours (TWh)	1908.0	2413.0	3596.0	5148.0
18. Carbon Emissions Million Tons (MtC)	1218.0	1560.0	2055.0	2615.0
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Organization/Project: CWREF; Global 2100, Reference Case

Country/Region: World (A8)

Reference (including date) of most recent report: "Harmonized Conventional" CHALLENGE Scenario Alan Manne and Leo Schrattenholzer, April 1993

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	21.0	31.0	37.0	44.0
2. Real GNP (or GDP) Index 1990 = 100	100.0	130.0	167.0	213.0
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	8197.0	9251.0	10864.0	13148.0
4. Total Production				
5. Oil Consumption	3153.0	3390.0	3641.0	3725.0
6. Oil Production	3153.0	3390.0	3641.0	3725.0
7. Oil Exports - Imports				
8. Natural Gas Consumption	1713.0	2026.0	2222.0	2709.0
9. Natural Gas Production				
10. Gas Exports - Imports				
11. Coal Consumption	2266.0	2609.0	3397.0	4178.0
12. Coal Production				
13. Coal Exports - Imports				
14. Renewables, Electric	572.0	707.0	864.0	1051.0
15. Nuclear Energy	493.0	507.0	569.0	712.0
16. Renewables, Nonelectric	0.0	12.0	159.0	691.0
17. Electricity Generation Terawatt Hours (TWh)	11202.0	12259.0	15479.0	20202.0
18. Carbon Emissions Million Tons (MtC)	6002.0	6738.0	7890.0	9139.0
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Organization/Project: CWREF; Global 2100, Reference Case

Country/Region: 4. OECD (A4)

Reference (including date) of most recent report: "Harmonized Conventional" CHALLENGE Scenario Alan Manne and Leo Schrattenholzer, April 1993

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	21.0	31.0	37.0	44.0
2. Real GNP (or GDP) Index 1990 = 100	100.0	128.0	156.0	190.0
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	4004.0	4402.0	4828.0	5417.0
4. Total Production				
5. Oil Consumption	1769.0	1839.0	1864.0	1798.0
6. Oil Production	728.0	774.0	706.0	626.0
7. Oil Exports - Imports	-1041.0	-1065.0	-1158.0	-1172.0
8. Natural Gas Consumption	753.0	852.0	821.0	735.0
9. Natural Gas Production				
10. Gas Exports - Imports				
11. Coal Consumption	842.0	1004.0	1249.0	1576.0
12. Coal Production				
13. Coal Exports - Imports				
14. Renewables, Electric	269.0	312.0	356.0	403.0
15. Nuclear Energy	372.0	383.0	421.0	411.0
16. Renewables, Nonelectric	0.0	12.0	114.0	470.0
17. Electricity Generation Terawatt Hours (TWh)	6652.0	6955.0	7791.0	9157.0
18. Carbon Emissions Million Tons (MtC)	2805.0	3089.0	3347.0	3603.0
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Organization/Project: DRI; DRI/McGraw-Hill

Country/Region: 8. World (A8)

Reference (including date) of most recent report: World Energy Forecast
Report - December 1993

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	22.0	23.0	32.0	
2. Real GNP (or GDP) Index 1990 = 100				
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	7929.0	9307.0	11700.0	
4. Total Production				
5. Oil Consumption	3097.0	3534.0	4399.0	
6. Oil Production	3122.0	3533.0	4303.0	
7. Oil Exports - Imports				
8. Natural Gas Consumption	1731.0	2152.0	2747.0	
9. Natural Gas Production	1746.0	2113.0	2723.0	
10. Gas Exports - Imports				
11. Coal Consumption	2363.0	2693.0	3463.0	
12. Coal Production	2409.0	2688.0	3447.0	
13. Coal Exports - Imports				
14. Renewables, Electric				
15. Nuclear Energy				
16. Renewables, Nonelectric				
17. Electricity Generation Terawatt Hours (TWh)				
18. Carbon Emissions Million Tons (MtC)				
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Organization/Project: DRI; DRI/McGraw-Hill

Country/Region: Asia Pacific (ASPAC)

Reference (including date) of most recent report: World Energy Forecast
Report - December 1993

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	22.0	23.0	32.0	
2. Real GNP (or GDP) Index 1990 = 100				
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	1741.0	2558.0	3674.0	
4. Total Production	1389.0	1949.0	2639.0	
5. Oil Consumption	665.0	937.0	1322.0	
6. Oil Production	332.0	387.0	435.0	
7. Oil Exports - Imports	-333.0	-550.0	-886.0	
8. Natural Gas Consumption	130.0	209.0	365.0	
9. Natural Gas Production	128.0	209.0	327.0	
10. Gas Exports - Imports	-2.0	0.0	-38.0	
11. Coal Consumption	837.0	1213.0	1701.0	
12. Coal Production	820.0	1155.0	1591.0	
13. Coal Exports - Imports	-17.0	-58.0	-111.0	
14. Renewables, Electric				
15. Nuclear Energy				
16. Renewables, Nonelectric				
17. Electricity Generation Terawatt Hours (TWh)	2453.0	3749.0	5703.0	
18. Carbon Emissions Million Tons (MtC)				
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Organization/Project: DRI; DRI/McGraw-Hill

Country/Region: OECDE (OECDE)

Reference (including date) of most recent report: World Energy Forecast
Report - December 1993

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	22.0	23.0	32.0	
2. Real GNP (or GDP) Index 1990 = 100	100.0	115.5	147.2	
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	1423.0	1536.0	1697.0	
4. Total Production	853.0	827.0	727.0	
5. Oil Consumption	609.0	652.0	687.0	
6. Oil Production	203.0	184.0	109.0	
7. Oil Exports - Imports	-407.0	-417.0	-521.0	
8. Natural Gas Consumption	225.0	314.0	403.0	
9. Natural Gas Production	157.0	216.0	215.0	
10. Gas Exports - Imports	-72.0	-97.0	-187.0	
11. Coal Consumption	353.0	307.0	349.0	
12. Coal Production	259.0	162.0	144.0	
13. Coal Exports - Imports	-88.0	-97.0	-187.0	
14. Renewables, Electric				
15. Nuclear Energy				
16. Renewables, Nonelectric				
17. Electricity Generation Terawatt Hours (TWh)	2333.0	2660.0	3091.0	
18. Carbon Emissions Million Tons (MtC)				
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Organization/Project: EBREF; VITO and CES/KU Leuven, IEA-ETSAP/Annex IV,
Reference Case (revised)

Country/Region: Belgium (BELGM)

Reference (including date) of most recent report: Submitted to CHALLENGE,
September 1993.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	20.1	24.3	34.9	38.2
2. Real GNP (or GDP) Index 1990 = 100	100.0	126.0	157.0	186.0
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	46.1	50.7	52.1	53.3
4. Total Production	0.0	0.4	1.6	2.4
5. Oil Consumption	20.7	23.0	23.6	23.4
6. Oil Production	0.0	0.0	0.0	0.0
7. Oil Exports - Imports	-20.7	-23.0	-23.6	-23.4
8. Natural Gas Consumption	7.0	8.4	9.8	10.1
9. Natural Gas Production	0.0	0.4	1.6	2.4
10. Gas Exports - Imports	-7.0	-8.0	-8.2	-7.7
11. Coal Consumption	9.8	9.3	7.4	8.2
12. Coal Production	0.0	0.0	0.0	0.0
13. Coal Exports - Imports	-9.8	-9.3	-7.4	-8.2
14. Renewables, Electric	0.2	0.2	0.7	0.8
15. Nuclear Energy	9.1	9.4	10.1	10.2
16. Renewables, Nonelectric	0.1	0.4	0.5	0.6
17. Electricity Generation Terawatt Hours (TWh)	62.5	73.6	80.1	85.4
18. Carbon Emissions Million Tons (MtC)	28.5	31.1	30.6	31.4
19. Marginal Reduction Costs 1990 \$ per ton of carbon	0.0	0.0	0.0	0.0

Organization/Project: ECCO; Resource Use Institute, Scotland

Country/Region: Developed world (more than US\$(85) 1700/cap annual GDP),
business as usual (INDUS)

Reference (including date) of most recent report: GLOBECCO Program Guide,
RUI, Edinburgh, contributed to CHALLENGE in March 1993

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel				
2. Real GNP (or GDP) Index 1990 = 100				
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	5820.0	5870.0	5900.0	5900.0
4. Total Production				
5. Oil Consumption		1300.0	1260.0	1200.0
6. Oil Production				
7. Oil Exports - Imports				
8. Natural Gas Consumption		950.0	910.0	860.0
9. Natural Gas Production				
10. Gas Exports - Imports				
11. Coal Consumption		2390.0	2600.0	2770.0
12. Coal Production				
13. Coal Exports - Imports				
14. Renewables, Electric		451.0	726.0	1181.0
15. Nuclear Energy		1376.0	1273.0	1192.0
16. Renewables, Nonelectric				
17. Electricity Generation Terawatt Hours (TWh)		8962.0	9017.0	9195.0
18. Carbon Emissions Million Tons (MtC)	4420.0	4300.0	4520.0	4600.0
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Notes:

B-A-U is not a realistic scenario for the future. It induces economic decline in the First World.

Organization/Project: ECCO; Resource Use Institute, Scotland

Country/Region: Developing world, (less than US\$(85) 1700/cap annual GDP),
business as usual (LDC)

Reference (including date) of most recent report: GLOBECCO Program Guide,
RUI, Edinburgh, contributed to CHALLENGE in March 1993

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel				
2. Real GNP (or GDP) Index 1990 = 100				
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	2840.0	3160.0	3820.0	4160.0
4. Total Production				
5. Oil Consumption		1380.0	1510.0	1550.0
6. Oil Production				
7. Oil Exports - Imports				
8. Natural Gas Consumption		225.0	246.0	252.0
9. Natural Gas Production				
10. Gas Exports - Imports				
11. Coal Consumption		1700.0	2000.0	2420.0
12. Coal Production				
13. Coal Exports - Imports				
14. Renewables, Electric		149.0	142.0	105.0
15. Nuclear Energy		207.0	226.0	165.0
16. Renewables, Nonelectric				
17. Electricity Generation Terawatt Hours (TWh)		3228.0	3994.0	4614.0
18. Carbon Emissions Million Tons (MtC)	3030.0	3200.0	3780.0	4180.0
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Notes:

B-A-U is not a realistic scenario for the future. It induces economic decline in the First World and thus effects the Third World.

Organization/Project: ECCO; M. Slessor, Edinburgh University.

Country/Region: United Kingdom, BAU Scenario (UK)

Reference (including date) of most recent report: UK-ECCO model, M. Slessor, Edinburgh University, 1994.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel				
2. Real GNP (or GDP) Index 1990 = 100	100.0	124.0	145.0	
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	231.0	287.0	362.0	
4. Total Production	208.0	189.0	217.0	
5. Oil Consumption	75.0	102.0	127.0	
6. Oil Production	109.0	77.0	56.0	
7. Oil Exports - Imports	27.0	-37.0	-81.0	
8. Natural Gas Consumption	51.0	76.0	90.0	
9. Natural Gas Production	37.0	55.0	75.0	
10. Gas Exports - Imports	-14.0	-21.0	-15.0	
11. Coal Consumption	61.0	57.0	72.0	
12. Coal Production	54.0	41.0	52.0	
13. Coal Exports - Imports	-7.0	-16.0	-20.0	
14. Renewables, Electric	1.0	1.1	1.3	
15. Nuclear Energy	16.8	14.1	8.5	
16. Renewables, Nonelectric				
17. Electricity Generation Terawatt Hours (TWh)	301.0	354.0	400.0	
18. Carbon Emissions Million Tons (MtC)	157.0	192.0	238.0	
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Notes:

Items 14, 15: Original numbers in TWh; here multiplied by 0.243.

Organization/Project: ECSA; Environmentally Compatible Energy Strategies
(ECS), IIASA, Scenario A1

Country/Region: Eastern Europe (EEUR)

Reference (including date) of most recent report: Global Energy
Perspectives to 2050 and Beyond, WEC and IIASA, October 1995.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	20.0	26.0	31.9	42.2
2. Real GNP (or GDP) Index 1990 = 100	100.0	81.8	115.2	199.0
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	336.7	322.1	358.0	415.3
4. Total Production	240.6	238.1	252.3	266.0
5. Oil Consumption	78.7	59.9	69.8	83.3
6. Oil Production	13.6	11.8	13.6	15.7
7. Oil Exports - Imports	-66.0	-48.2	-56.2	-67.6
8. Natural Gas Consumption	66.4	72.8	88.7	110.0
9. Natural Gas Production	30.8	31.5	33.2	35.3
10. Gas Exports - Imports	-35.6	-41.3	-55.6	-74.7
11. Coal Consumption	159.4	161.0	165.9	183.0
12. Coal Production	165.9	168.0	172.9	176.4
13. Coal Exports - Imports	6.5	7.0	7.0	-6.5
14. Renewables, Electric	9.3	9.7	10.6	12.5
15. Nuclear Energy	12.9	12.0	16.9	20.6
16. Renewables, Nonelectric	7.7	6.5	5.9	6.0
17. Electricity Generation Terawatt Hours (TWh)	464.7	448.8	521.9	670.1
18. Carbon Emissions Million Tons (MtC)	288.1	278.6	302.4	345.5
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Notes:

Rows 3 and 16 include non-commercial energy

Organization/Project: ECSA; Environmentally Compatible Energy Strategies
(ECS), IIASA, Scenario A1

Country/Region: Former Soviet Union (USSR)

Reference (including date) of most recent report: Global Energy
Perspectives to 2050 and Beyond, WEC and IIASA, October 1995.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	20.0	26.0	31.9	42.2
2. Real GNP (or GDP) Index 1990 = 100	100.0	76.7	98.1	144.5
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	1402.1	1362.5	1546.0	1867.1
4. Total Production	1669.6	1530.9	1777.2	2165.9
5. Oil Consumption	408.5	344.9	399.2	544.2
6. Oil Production	573.5	375.3	420.9	564.5
7. Oil Exports - Imports	160.6	30.5	21.8	20.3
8. Natural Gas Consumption	572.1	648.3	751.8	817.4
9. Natural Gas Production	659.9	773.9	948.6	1087.9
10. Gas Exports - Imports	87.8	125.5	196.8	270.5
11. Coal Consumption	285.3	220.9	227.4	288.5
12. Coal Production	297.0	230.9	238.1	294.9
13. Coal Exports - Imports	11.7	10.0	10.7	6.4
14. Renewables, Electric	62.1	60.4	70.5	100.6
15. Nuclear Energy	47.3	47.0	57.3	69.8
16. Renewables, Nonelectric	29.8	41.0	39.9	46.7
17. Electricity Generation Terawatt Hours (TWh)	1609.0	1659.6	1849.4	2258.6
18. Carbon Emissions Million Tons (MtC)	1089.9	940.7	1061.1	1263.4
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Notes:

Rows 3 and 16 include non-commercial energy

Organization/Project: ECSA; Environmentally Compatible Energy Strategies
(ECS), IIASA, Scenario A1

Country/Region: OECD (A4)

Reference (including date) of most recent report: Global Energy
Perspectives to 2050 and Beyond, WEC and IIASA, October 1995.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	20.0	26.0	31.9	42.2
2. Real GNP (or GDP) Index 1990 = 100	100.0	128.1	158.5	192.0
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	4181.0	4738.0	5246.3	5709.3
4. Total Production	3106.8	3569.6	4036.1	4518.0
5. Oil Consumption	1722.6	1827.3	1817.0	1724.9
6. Oil Production	759.3	818.7	816.3	842.3
7. Oil Exports - Imports	-1033.7	-1008.6	-1000.7	-882.6
8. Natural Gas Consumption	786.1	1014.2	1284.2	1557.3
9. Natural Gas Production	688.5	840.8	1041.7	1216.6
10. Gas Exports - Imports	-97.7	-173.4	-242.5	-340.7
11. Coal Consumption	907.5	1033.4	1144.3	1198.1
12. Coal Production	907.6	1047.1	1177.3	1230.1
13. Coal Exports - Imports	0.1	13.7	33.0	32.0
14. Renewables, Electric	287.4	280.5	319.3	400.4
15. Nuclear Energy	364.6	422.9	539.0	676.7
16. Renewables, Nonelectric	111.8	159.7	142.5	151.9
17. Electricity Generation Terawatt Hours (TWh)	7024.4	8388.7	10017.4	11811.3
18. Carbon Emissions Million Tons (MtC)	2807.7	3320.2	3584.5	3689.5
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Notes:

Rows 3 and 16 include non-commercial energy

Organization/Project: ECSA; Environmentally Compatible Energy Strategies
(ECS), IIASA, Scenario A1

Country/Region: OECD North America (OECDN)

Reference (including date) of most recent report: Global Energy
Perspectives to 2050 and Beyond, WEC and IIASA, October 1995.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	20.0	26.0	31.9	42.2
2. Real GNP (or GDP) Index 1990 = 100	100.0	129.4	162.2	199.2
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	2183.0	2479.1	2761.0	3026.0
4. Total Production	1969.1	2148.9	2439.4	2604.7
5. Oil Consumption	833.5	930.6	876.8	898.5
6. Oil Production	519.2	501.6	457.9	421.8
7. Oil Exports - Imports	-343.6	-429.0	-418.9	-476.7
8. Natural Gas Consumption	494.9	590.0	728.6	811.9
9. Natural Gas Production	508.5	586.8	726.8	805.6
10. Gas Exports - Imports	13.7	-3.2	-1.8	-6.4
11. Coal Consumption	481.1	550.5	693.5	780.1
12. Coal Production	577.1	652.5	792.6	841.9
13. Coal Exports - Imports	95.9	102.0	99.1	61.8
14. Renewables, Electric	149.4	137.0	150.8	179.9
15. Nuclear Energy	153.1	178.1	221.9	257.7
16. Renewables, Nonelectric	70.9	93.0	89.3	97.9
17. Electricity Generation Terawatt Hours (TWh)	3627.3	4231.8	5266.4	6237.6
18. Carbon Emissions Million Tons (MtC)	1595.9	1762.8	1951.5	2092.6
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Notes:

Rows 3 and 16 include non-commercial energy

Organization/Project: ECSA; Environmentally Compatible Energy Strategies
(ECS), IIASA, Scenario A1

Country/Region: OECD Pacific (OECDP)

Reference (including date) of most recent report: Global Energy
Perspectives to 2050 and Beyond, WEC and IIASA, October 1995.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	20.0	26.0	31.9	42.2
2. Real GNP (or GDP) Index 1990 = 100	100.0	124.3	149.8	177.8
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	542.8	608.4	660.9	701.6
4. Total Production	250.9	325.4	375.4	462.3
5. Oil Consumption	285.5	288.9	312.0	265.0
6. Oil Production	31.1	36.0	43.3	57.5
7. Oil Exports - Imports	-260.5	-252.9	-268.6	-207.4
8. Natural Gas Consumption	62.0	91.3	130.0	169.2
9. Natural Gas Production	22.9	38.7	54.8	89.7
10. Gas Exports - Imports	-39.1	-52.6	-75.2	-79.5
11. Coal Consumption	110.6	125.8	102.6	92.0
12. Coal Production	112.2	148.3	161.0	139.7
13. Coal Exports - Imports	1.7	22.5	58.3	47.7
14. Renewables, Electric	29.4	36.3	50.5	77.9
15. Nuclear Energy	45.2	50.0	55.2	87.3
16. Renewables, Nonelectric	10.1	16.2	10.6	10.3
17. Electricity Generation Terawatt Hours (TWh)	1029.4	1227.5	1316.9	1491.1
18. Carbon Emissions Million Tons (MtC)	406.1	440.6	458.6	421.6
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Notes:

Rows 3 and 16 include non-commercial energy

Organization/Project: ECSA; Environmentally Compatible Energy Strategies (ECS), IIASA, Scenario A1

Country/Region: Eastern Europe and Former Soviet Union (A1)

Reference (including date) of most recent report: Global Energy Perspectives to 2050 and Beyond, WEC and IIASA, October 1995.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	20.0	26.0	31.9	42.2
2. Real GNP (or GDP) Index 1990 = 100	100.0	78.1	102.8	159.4
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	1738.8	1684.6	1904.0	2282.4
4. Total Production	1910.2	1769.0	2029.6	2432.0
5. Oil Consumption	487.2	404.8	469.0	627.5
6. Oil Production	587.1	387.1	434.5	580.2
7. Oil Exports - Imports	94.6	-17.7	-34.5	-47.3
8. Natural Gas Consumption	638.5	721.2	840.6	927.4
9. Natural Gas Production	690.7	805.3	981.8	1123.2
10. Gas Exports - Imports	52.2	84.2	141.2	195.8
11. Coal Consumption	444.7	381.9	393.3	471.4
12. Coal Production	462.8	398.9	411.0	471.3
13. Coal Exports - Imports	18.2	17.0	17.7	-0.1
14. Renewables, Electric	71.4	70.2	81.1	113.0
15. Nuclear Energy	60.2	59.0	74.2	90.4
16. Renewables, Nonelectric	37.5	47.5	45.8	52.6
17. Electricity Generation Terawatt Hours (TWh)	2073.6	2108.4	2371.3	2928.7
18. Carbon Emissions Million Tons (MtC)	1378.0	1219.3	1363.5	1608.9
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Notes:

Rows 3 and 16 include non-commercial energy

Organization/Project: ECSA; Environmentally Compatible Energy Strategies
(ECS), IIASA, Scenario A1

Country/Region: OECD Europe (OECD)

Reference (including date) of most recent report: Global Energy
Perspectives to 2050 and Beyond, WEC and IIASA, October 1995.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	20.0	26.0	31.9	42.2
2. Real GNP (or GDP) Index 1990 = 100	100.0	128.8	159.2	192.3
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	1455.2	1650.5	1824.4	1981.6
4. Total Production	886.8	1095.3	1221.3	1451.0
5. Oil Consumption	603.6	607.9	628.3	561.5
6. Oil Production	209.0	281.2	315.1	363.0
7. Oil Exports - Imports	-429.5	-326.7	-313.2	-198.4
8. Natural Gas Consumption	229.3	332.9	425.6	576.1
9. Natural Gas Production	157.1	215.3	260.1	321.3
10. Gas Exports - Imports	-72.2	-117.6	-165.5	-254.8
11. Coal Consumption	315.9	357.2	348.1	326.0
12. Coal Production	218.3	246.4	223.7	248.6
13. Coal Exports - Imports	-97.5	-110.8	-124.4	-77.4
14. Renewables, Electric	108.7	107.2	117.9	142.6
15. Nuclear Energy	166.3	194.9	261.9	331.7
16. Renewables, Nonelectric	30.8	50.5	42.6	43.8
17. Electricity Generation Terawatt Hours (TWh)	2367.6	2929.3	3434.1	4082.6
18. Carbon Emissions Million Tons (MtC)	805.7	1116.8	1174.4	1175.3
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Notes:

Rows 3 and 16 include non-commercial energy

Organization/Project: ECSA; Environmentally Compatible Energy Strategies (ECS), IIASA, Scenario A1

Country/Region: World (A8)

Reference (including date) of most recent report: Global Energy Perspectives to 2050 and Beyond, WEC and IIASA, October 1995.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	20.0	26.0	31.9	42.2
2. Real GNP (or GDP) Index 1990 = 100	100.0	131.5	171.8	223.4
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	8976.0	10708.9	12860.0	15377.6
4. Total Production	9164.2	10754.4	12911.1	15433.9
5. Oil Consumption	3063.9	3549.1	4104.3	4657.6
6. Oil Production	3214.7	3566.0	4119.2	4672.9
7. Oil Exports - Imports	33.0	16.9	14.8	15.3
8. Natural Gas Consumption	1684.9	2139.6	2804.4	3624.6
9. Natural Gas Production	1710.8	2156.1	2828.8	3657.1
10. Gas Exports - Imports	25.8	16.5	24.4	32.5
11. Coal Consumption	2176.4	2720.6	3229.4	3714.7
12. Coal Production	2196.8	2730.5	3240.3	3722.2
13. Coal Exports - Imports	20.4	9.9	10.9	7.5
14. Renewables, Electric	533.6	595.6	747.4	1069.9
15. Nuclear Energy	450.1	519.3	677.2	906.8
16. Renewables, Nonelectric	1067.3	1184.8	1297.2	1403.9
17. Electricity Generation Terawatt Hours (TWh)	11651.0	14320.3	17552.5	21585.6
18. Carbon Emissions Million Tons (MtC)	6037.7	7339.6	8772.0	10177.9
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Notes:

Rows 3 and 16 include non-commercial energy

Organization/Project: ECSB; Environmentally Compatible Energy Strategies
(ECS), IIASA, Scenario B

Country/Region: Eastern Europe (EEUR)

Reference (including date) of most recent report: Global Energy
Perspectives to 2050 and Beyond, WEC and IIASA, October 1995.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	20.0	27.1	34.2	41.1
2. Real GNP (or GDP) Index 1990 = 100	100.0	77.7	97.3	131.1
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	336.7	273.0	295.0	323.0
4. Total Production	240.6	192.2	202.5	217.1
5. Oil Consumption	78.7	67.4	68.2	70.2
6. Oil Production	13.6	11.8	13.6	15.9
7. Oil Exports - Imports	-66.0	-55.7	-54.5	-54.3
8. Natural Gas Consumption	66.4	56.4	74.2	84.9
9. Natural Gas Production	30.8	24.9	27.5	22.2
10. Gas Exports - Imports	-35.6	-31.5	-46.7	-62.8
11. Coal Consumption	159.4	121.4	119.9	130.2
12. Coal Production	165.9	129.3	129.5	141.9
13. Coal Exports - Imports	6.5	7.9	9.6	11.7
14. Renewables, Electric	9.3	9.5	9.9	10.3
15. Nuclear Energy	12.9	11.6	16.9	20.6
16. Renewables, Nonelectric	7.7	6.5	5.9	6.7
17. Electricity Generation Terawatt Hours (TWh)	464.7	377.7	429.0	497.7
18. Carbon Emissions Million Tons (MtC)	288.1	229.3	239.6	259.3
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Notes:

Rows 3 and 16 include non-commercial energy

Organization/Project: ECSB; Environmentally Compatible Energy Strategies
(ECS), IIASA, Scenario B

Country/Region: Former Soviet Union (USSR)

Reference (including date) of most recent report: Global Energy
Perspectives to 2050 and Beyond, WEC and IIASA, October 1995.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	20.0	27.1	34.2	41.1
2. Real GNP (or GDP) Index 1990 = 100	100.0	71.3	88.5	123.7
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	1402.1	1061.8	1179.1	1338.8
4. Total Production	1669.6	1287.8	1522.5	1871.2
5. Oil Consumption	408.5	280.5	283.2	310.7
6. Oil Production	573.5	375.3	421.3	565.2
7. Oil Exports - Imports	160.6	94.8	138.1	254.5
8. Natural Gas Consumption	572.1	466.8	556.5	613.0
9. Natural Gas Production	659.9	582.0	743.9	871.0
10. Gas Exports - Imports	87.8	115.2	187.4	258.0
11. Coal Consumption	285.3	178.7	187.6	240.9
12. Coal Production	297.0	192.3	203.4	259.2
13. Coal Exports - Imports	11.7	13.6	15.8	18.3
14. Renewables, Electric	62.1	59.7	62.7	73.0
15. Nuclear Energy	47.3	42.6	51.9	63.3
16. Renewables, Nonelectric	29.8	33.5	37.2	38.0
17. Electricity Generation Terawatt Hours (TWh)	1609.0	1315.3	1432.7	1664.6
18. Carbon Emissions Million Tons (MtC)	1089.9	729.3	801.2	920.0
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Notes:

Rows 3 and 16 include non-commercial energy

Organization/Project: ECSB; Environmentally Compatible Energy Strategies
(ECS), IIASA, Scenario B

Country/Region: OECD (A4)

Reference (including date) of most recent report: Global Energy
Perspectives to 2050 and Beyond, WEC and IIASA, October 1995.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	20.0	27.1	34.2	41.1
2. Real GNP (or GDP) Index 1990 = 100	100.0	123.8	148.7	174.8
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	4181.0	4615.7	4952.1	5245.0
4. Total Production	3106.8	3415.0	3867.7	4239.6
5. Oil Consumption	1722.6	1796.9	1605.0	1410.5
6. Oil Production	759.3	765.5	708.9	660.0
7. Oil Exports - Imports	-1033.7	-1031.5	-896.1	-750.5
8. Natural Gas Consumption	786.1	1008.0	1256.5	1406.2
9. Natural Gas Production	688.5	833.8	1031.2	1078.5
10. Gas Exports - Imports	-97.7	-174.2	-225.3	-327.7
11. Coal Consumption	907.5	964.4	1107.4	1244.8
12. Coal Production	907.6	969.4	1144.4	1317.5
13. Coal Exports - Imports	0.1	5.0	37.0	72.8
14. Renewables, Electric	287.4	270.9	305.8	373.3
15. Nuclear Energy	364.6	422.9	535.8	658.9
16. Renewables, Nonelectric	111.8	152.4	141.6	151.3
17. Electricity Generation Terawatt Hours (TWh)	7024.4	8102.8	9551.3	10993.1
18. Carbon Emissions Million Tons (MtC)	2801.2	3213.4	3368.0	3451.3
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Notes:

Rows 3 and 16 include non-commercial energy

Organization/Project: ECSB; Environmentally Compatible Energy Strategies (ECS), IIASA, Scenario B

Country/Region: OECD North America (OECDN)

Reference (including date) of most recent report: Global Energy Perspectives to 2050 and Beyond, WEC and IIASA, October 1995.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	20.0	27.1	34.2	41.1
2. Real GNP (or GDP) Index 1990 = 100	100.0	125.5	153.1	183.4
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	2183.0	2423.5	2625.8	2814.8
4. Total Production	1969.1	2076.2	2356.7	2520.7
5. Oil Consumption	833.5	907.3	774.9	780.8
6. Oil Production	519.2	478.3	431.4	388.7
7. Oil Exports - Imports	-343.6	-429.0	-343.5	-392.1
8. Natural Gas Consumption	494.9	587.0	712.2	690.3
9. Natural Gas Production	508.5	583.0	712.2	690.3
10. Gas Exports - Imports	13.7	-4.0	0.0	0.0
11. Coal Consumption	481.1	520.5	676.3	809.2
12. Coal Production	577.1	606.2	750.8	907.2
13. Coal Exports - Imports	95.9	85.7	74.4	98.0
14. Renewables, Electric	149.4	134.2	145.9	173.4
15. Nuclear Energy	153.1	178.1	221.9	257.7
16. Renewables, Nonelectric	70.9	96.4	94.6	103.5
17. Electricity Generation Terawatt Hours (TWh)	3627.3	4112.9	5009.9	5739.4
18. Carbon Emissions Million Tons (MtC)	1596.3	1711.1	1850.7	1987.4
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Notes:

Rows 3 and 16 include non-commercial energy

Organization/Project: ECSB; Environmentally Compatible Energy Strategies
(ECS), IIASA, Scenario B

Country/Region: OECD Pacific (OECDP)

Reference (including date) of most recent report: Global Energy
Perspectives to 2050 and Beyond, WEC and IIASA, October 1995.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	20.0	27.1	34.2	41.1
2. Real GNP (or GDP) Index 1990 = 100	100.0	119.3	139.0	156.8
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	542.8	586.1	617.1	629.9
4. Total Production	250.9	308.9	366.3	439.3
5. Oil Consumption	285.5	286.9	281.3	206.0
6. Oil Production	31.1	36.0	36.2	38.5
7. Oil Exports - Imports	-260.5	-250.9	-245.1	-167.5
8. Natural Gas Consumption	62.0	91.3	130.0	172.8
9. Natural Gas Production	22.9	38.7	54.8	70.8
10. Gas Exports - Imports	-39.1	-52.6	-75.2	-101.9
11. Coal Consumption	110.6	110.7	94.5	89.6
12. Coal Production	112.2	137.1	164.0	168.5
13. Coal Exports - Imports	1.7	26.4	69.5	78.9
14. Renewables, Electric	29.4	34.7	48.6	73.6
15. Nuclear Energy	45.2	50.0	55.2	80.7
16. Renewables, Nonelectric	10.1	12.5	7.6	7.3
17. Electricity Generation Terawatt Hours (TWh)	1029.4	1153.1	1239.0	1417.6
18. Carbon Emissions Million Tons (MtC)	406.1	419.4	421.8	380.7
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Notes:

Rows 3 and 16 include non-commercial energy

Organization/Project: ECSB; Environmentally Compatible Energy Strategies (ECS), IIASA, Scenario B

Country/Region: Eastern Europe and Former Soviet Union (A1)

Reference (including date) of most recent report: Global Energy Perspectives to 2050 and Beyond, WEC and IIASA, October 1995.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	20.0	27.1	34.2	41.1
2. Real GNP (or GDP) Index 1990 = 100	100.0	73.1	90.9	125.7
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	1738.8	1334.7	1474.1	1661.8
4. Total Production	1910.2	1480.0	1725.0	2088.3
5. Oil Consumption	487.2	348.0	351.3	380.9
6. Oil Production	587.1	387.1	434.9	581.1
7. Oil Exports - Imports	94.6	39.1	83.6	200.1
8. Natural Gas Consumption	638.5	523.2	630.7	697.9
9. Natural Gas Production	690.7	606.8	771.4	893.1
10. Gas Exports - Imports	52.2	83.6	140.7	195.2
11. Coal Consumption	444.7	300.2	307.5	371.1
12. Coal Production	462.8	321.7	332.9	401.1
13. Coal Exports - Imports	18.2	21.5	25.4	30.0
14. Renewables, Electric	71.4	69.2	72.7	83.3
15. Nuclear Energy	60.2	54.2	68.8	83.9
16. Renewables, Nonelectric	37.5	40.0	43.1	44.6
17. Electricity Generation Terawatt Hours (TWh)	2073.6	1693.1	1861.7	2162.3
18. Carbon Emissions Million Tons (MtC)	1377.9	958.6	1040.7	1179.3
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Notes:

Rows 3 and 16 include non-commercial energy

Organization/Project: ECSB; Environmentally Compatible Energy Strategies
(ECS), IIASA, Scenario B

Country/Region: OECD Europe (OECD)

Reference (including date) of most recent report: Global Energy
Perspectives to 2050 and Beyond, WEC and IIASA, October 1995.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	20.0	27.1	34.2	41.1
2. Real GNP (or GDP) Index 1990 = 100	100.0	124.5	149.5	175.9
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	1455.2	1606.1	1709.2	1800.3
4. Total Production	886.8	1029.8	1144.6	1279.5
5. Oil Consumption	603.6	602.8	548.8	423.7
6. Oil Production	209.0	251.2	241.4	232.8
7. Oil Exports - Imports	-429.5	-351.5	-307.5	-190.9
8. Natural Gas Consumption	229.3	329.7	414.4	543.2
9. Natural Gas Production	157.1	212.1	264.2	317.4
10. Gas Exports - Imports	-72.2	-117.6	-150.1	-225.8
11. Coal Consumption	315.9	333.2	336.5	346.0
12. Coal Production	218.3	226.1	229.6	241.9
13. Coal Exports - Imports	-97.5	-107.1	-106.9	-104.1
14. Renewables, Electric	108.7	102.0	111.4	126.3
15. Nuclear Energy	166.3	194.9	258.7	320.6
16. Renewables, Nonelectric	30.8	43.6	39.4	40.5
17. Electricity Generation Terawatt Hours (TWh)	2367.6	2836.8	3302.3	3836.1
18. Carbon Emissions Million Tons (MtC)	798.8	1082.9	1095.5	1083.2
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Notes:

Rows 3 and 16 include non-commercial energy

Organization/Project: ECSB; Environmentally Compatible Energy Strategies
(ECS), IIASA, Scenario B

Country/Region: World (A8)

Reference (including date) of most recent report: Global Energy
Perspectives to 2050 and Beyond, WEC and IIASA, October 1995.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	20.0	27.1	34.2	41.1
2. Real GNP (or GDP) Index 1990 = 100	100.0	125.5	156.4	192.7
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	8976.0	10108.4	11750.2	13550.5
4. Total Production	9164.2	10152.6	11797.0	13605.4
5. Oil Consumption	3063.9	3454.2	3629.4	3783.1
6. Oil Production	3214.7	3471.3	3642.6	3795.3
7. Oil Exports - Imports	33.0	17.1	13.1	12.3
8. Natural Gas Consumption	1684.9	1934.9	2597.9	3180.8
9. Natural Gas Production	1710.8	1951.0	2620.1	3210.7
10. Gas Exports - Imports	25.8	16.1	22.2	29.9
11. Coal Consumption	2176.4	2438.0	2880.7	3393.8
12. Coal Production	2196.8	2448.0	2891.2	3405.6
13. Coal Exports - Imports	20.4	10.0	10.5	11.8
14. Renewables, Electric	533.6	560.1	654.7	853.1
15. Nuclear Energy	450.1	522.3	687.0	904.1
16. Renewables, Nonelectric	1067.3	1198.8	1300.4	1435.6
17. Electricity Generation Terawatt Hours (TWh)	11651.0	13506.2	15944.7	19119.5
18. Carbon Emissions Million Tons (MtC)	6030.0	6830.5	7917.5	9029.8
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Notes:

Rows 3 and 16 include non-commercial energy

Organization/Project: ECSC; Environmentally Compatible Energy Strategies
(ECS), IIASA, Scenario C1

Country/Region: Eastern Europe (EEUR)

Reference (including date) of most recent report: Global Energy
Perspectives to 2050 and Beyond, WEC and IIASA, October 1995.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	20.0	22.6	25.1	46.1
2. Real GNP (or GDP) Index 1990 = 100	100.0	86.2	108.8	148.0
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	336.7	290.0	300.0	308.1
4. Total Production	240.6	200.9	189.2	191.6
5. Oil Consumption	78.7	67.2	75.0	66.1
6. Oil Production	13.6	11.8	13.3	14.9
7. Oil Exports - Imports	-66.0	-55.5	-61.7	-51.2
8. Natural Gas Consumption	66.4	75.4	83.0	98.7
9. Natural Gas Production	30.8	35.8	27.5	24.0
10. Gas Exports - Imports	-35.6	-39.6	-55.6	-74.7
11. Coal Consumption	159.4	119.5	108.9	105.6
12. Coal Production	165.9	126.9	116.3	115.4
13. Coal Exports - Imports	6.5	7.4	7.3	9.9
14. Renewables, Electric	9.3	9.7	10.2	11.4
15. Nuclear Energy	12.9	11.6	16.9	20.6
16. Renewables, Nonelectric	7.7	6.5	5.9	5.6
17. Electricity Generation Terawatt Hours (TWh)	464.7	397.2	428.0	473.4
18. Carbon Emissions Million Tons (MtC)	288.1	238.4	238.0	234.6
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Notes:

Rows 3 and 16 include non-commercial energy

Organization/Project: ECSC; Environmentally Compatible Energy Strategies (ECS), IIASA, Scenario C1

Country/Region: Former Soviet Union (USSR)

Reference (including date) of most recent report: Global Energy Perspectives to 2050 and Beyond, WEC and IIASA, October 1995.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	20.0	22.6	25.1	46.1
2. Real GNP (or GDP) Index 1990 = 100	100.0	76.7	98.1	136.9
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	1402.1	1311.0	1361.3	1376.8
4. Total Production	1669.6	1496.6	1656.8	1852.1
5. Oil Consumption	408.5	325.9	333.0	334.0
6. Oil Production	573.5	375.3	420.9	522.2
7. Oil Exports - Imports	160.6	49.4	87.9	188.2
8. Natural Gas Consumption	572.1	636.2	731.9	766.6
9. Natural Gas Production	659.9	759.9	925.3	1037.1
10. Gas Exports - Imports	87.8	123.7	193.4	270.5
11. Coal Consumption	285.3	207.0	167.9	126.2
12. Coal Production	297.0	217.0	180.1	141.0
13. Coal Exports - Imports	11.7	10.0	12.2	14.9
14. Renewables, Electric	62.1	59.7	62.7	77.7
15. Nuclear Energy	47.3	42.6	27.2	33.2
16. Renewables, Nonelectric	29.8	39.7	38.6	39.2
17. Electricity Generation Terawatt Hours (TWh)	1609.0	1584.1	1611.7	1623.9
18. Carbon Emissions Million Tons (MtC)	1089.9	905.5	929.1	889.5
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Notes:

Rows 3 and 16 include non-commercial energy

Organization/Project: ECSC; Environmentally Compatible Energy Strategies
(ECS), IIASA, Scenario C1

Country/Region: OECD (A4)

Reference (including date) of most recent report: Global Energy
Perspectives to 2050 and Beyond, WEC and IIASA, October 1995.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	20.0	22.6	25.1	46.1
2. Real GNP (or GDP) Index 1990 = 100	100.0	120.7	141.6	162.9
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	4181.0	4076.5	3918.5	3728.7
4. Total Production	3106.8	3075.3	3124.1	3032.3
5. Oil Consumption	1722.6	1580.6	1265.9	968.3
6. Oil Production	759.3	734.4	613.3	489.5
7. Oil Exports - Imports	-1033.7	-846.2	-652.6	-478.8
8. Natural Gas Consumption	786.1	898.9	1034.8	1137.8
9. Natural Gas Production	688.5	728.7	843.4	887.6
10. Gas Exports - Imports	-97.7	-170.2	-191.4	-250.2
11. Coal Consumption	907.5	762.9	682.9	541.7
12. Coal Production	907.6	778.2	732.4	574.2
13. Coal Exports - Imports	0.1	15.3	49.5	32.6
14. Renewables, Electric	287.4	275.4	310.4	385.1
15. Nuclear Energy	364.6	422.8	490.2	550.1
16. Renewables, Nonelectric	111.8	135.9	134.3	145.7
17. Electricity Generation Terawatt Hours (TWh)	7024.4	7468.2	7773.8	8184.5
18. Carbon Emissions Million Tons (MtC)	2797.4	2739.3	2463.4	2084.9
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Notes:

Rows 3 and 16 include non-commercial energy

Organization/Project: ECSC; Environmentally Compatible Energy Strategies
(ECS), IIASA, Scenario C1

Country/Region: OECD North America (OECDN)

Reference (including date) of most recent report: Global Energy
Perspectives to 2050 and Beyond, WEC and IIASA, October 1995.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	20.0	22.6	25.1	46.1
2. Real GNP (or GDP) Index 1990 = 100	100.0	121.1	143.0	166.2
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	2183.0	2078.6	1957.4	1826.5
4. Total Production	1969.1	1856.8	1824.1	1645.8
5. Oil Consumption	833.5	763.8	576.7	488.0
6. Oil Production	519.2	478.1	379.0	280.8
7. Oil Exports - Imports	-343.6	-285.7	-197.7	-207.1
8. Natural Gas Consumption	494.9	506.4	568.6	545.5
9. Natural Gas Production	508.5	506.4	568.6	545.5
10. Gas Exports - Imports	13.7	0.0	0.0	0.0
11. Coal Consumption	481.1	403.7	375.3	302.9
12. Coal Production	577.1	467.6	439.8	329.4
13. Coal Exports - Imports	95.9	63.9	64.4	26.5
14. Renewables, Electric	149.4	137.3	151.4	180.7
15. Nuclear Energy	153.1	178.1	196.1	211.5
16. Renewables, Nonelectric	70.9	89.3	89.3	97.9
17. Electricity Generation Terawatt Hours (TWh)	3627.3	3751.5	3847.9	3933.5
18. Carbon Emissions Million Tons (MtC)	1595.8	1411.0	1262.6	1076.9
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Notes:

Rows 3 and 16 include non-commercial energy

Organization/Project: ECSC; Environmentally Compatible Energy Strategies
(ECS), IIASA, Scenario C1

Country/Region: OECD Pacific (OECDP)

Reference (including date) of most recent report: Global Energy
Perspectives to 2050 and Beyond, WEC and IIASA, October 1995.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	20.0	22.6	25.1	46.1
2. Real GNP (or GDP) Index 1990 = 100	100.0	118.1	136.2	152.1
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	542.8	529.0	509.0	478.1
4. Total Production	250.9	262.9	267.5	310.2
5. Oil Consumption	285.5	257.6	221.6	158.1
6. Oil Production	31.1	34.5	16.9	24.7
7. Oil Exports - Imports	-260.5	-223.2	-204.8	-133.5
8. Natural Gas Consumption	62.0	84.5	105.8	124.7
9. Natural Gas Production	22.9	31.9	48.2	63.3
10. Gas Exports - Imports	-39.1	-52.6	-57.5	-61.4
11. Coal Consumption	110.6	96.7	79.7	59.8
12. Coal Production	112.2	106.4	100.4	86.9
13. Coal Exports - Imports	1.7	9.8	20.7	27.0
14. Renewables, Electric	29.4	31.7	41.1	67.2
15. Nuclear Energy	45.2	50.0	55.2	60.9
16. Renewables, Nonelectric	10.1	8.5	5.7	7.3
17. Electricity Generation Terawatt Hours (TWh)	1029.4	1057.2	1074.3	1098.0
18. Carbon Emissions Million Tons (MtC)	406.1	375.4	339.4	265.7
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Notes:

Rows 3 and 16 include non-commercial energy

Organization/Project: ECSC; Environmentally Compatible Energy Strategies (ECS), IIASA, Scenario C1

Country/Region: Eastern Europe and Former Soviet Union (A1)

Reference (including date) of most recent report: Global Energy Perspectives to 2050 and Beyond, WEC and IIASA, October 1995.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	20.0	22.6	25.1	46.1
2. Real GNP (or GDP) Index 1990 = 100	100.0	79.3	101.0	140.0
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	1738.8	1601.1	1661.3	1684.9
4. Total Production	1910.2	1697.4	1846.1	2043.7
5. Oil Consumption	487.2	393.1	408.0	400.1
6. Oil Production	587.1	387.1	434.2	537.2
7. Oil Exports - Imports	94.6	-6.1	26.2	137.1
8. Natural Gas Consumption	638.5	711.7	814.9	865.3
9. Natural Gas Production	690.7	795.7	952.8	1061.2
10. Gas Exports - Imports	52.2	84.1	137.8	195.8
11. Coal Consumption	444.7	326.5	276.8	231.8
12. Coal Production	462.8	343.9	296.4	256.5
13. Coal Exports - Imports	18.2	17.4	19.5	24.8
14. Renewables, Electric	71.4	69.4	72.9	89.2
15. Nuclear Energy	60.2	54.2	44.2	53.8
16. Renewables, Nonelectric	37.5	46.2	44.5	44.8
17. Electricity Generation Terawatt Hours (TWh)	2073.6	1981.2	2039.7	2097.3
18. Carbon Emissions Million Tons (MtC)	1377.9	1143.9	1167.1	1124.1
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Notes:

Rows 3 and 16 include non-commercial energy

Organization/Project: ECSC; Environmentally Compatible Energy Strategies
(ECS), IIASA, Scenario C1

Country/Region: OECD Europe (OECD)

Reference (including date) of most recent report: Global Energy
Perspectives to 2050 and Beyond, WEC and IIASA, October 1995.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	20.0	22.6	25.1	46.1
2. Real GNP (or GDP) Index 1990 = 100	100.0	121.5	142.9	165.1
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	1455.2	1468.9	1452.1	1424.1
4. Total Production	886.8	955.7	1032.5	1076.3
5. Oil Consumption	603.6	559.2	467.6	322.2
6. Oil Production	209.0	221.9	217.5	184.0
7. Oil Exports - Imports	-429.5	-337.3	-250.1	-138.2
8. Natural Gas Consumption	229.3	308.0	360.4	467.6
9. Natural Gas Production	157.1	190.3	226.6	278.9
10. Gas Exports - Imports	-72.2	-117.6	-133.8	-188.8
11. Coal Consumption	315.9	262.5	227.9	178.9
12. Coal Production	218.3	204.1	192.2	158.0
13. Coal Exports - Imports	-97.5	-58.4	-35.6	-20.9
14. Renewables, Electric	108.7	106.5	118.0	137.2
15. Nuclear Energy	166.3	194.8	238.9	277.6
16. Renewables, Nonelectric	30.8	38.1	39.4	40.5
17. Electricity Generation Terawatt Hours (TWh)	2367.6	2659.6	2851.6	3153.0
18. Carbon Emissions Million Tons (MtC)	795.5	952.9	861.4	742.3
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Notes:

Rows 3 and 16 include non-commercial energy

Organization/Project: ECSC; Environmentally Compatible Energy Strategies
(ECS), IIASA, Scenario C1

Country/Region: World (A8)

Reference (including date) of most recent report: Global Energy
Perspectives to 2050 and Beyond, WEC and IIASA, October 1995.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	20.0	22.6	25.1	46.1
2. Real GNP (or GDP) Index 1990 = 100	100.0	124.8	155.7	193.1
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	8976.0	9695.9	10549.6	11424.9
4. Total Production	9164.2	9735.9	10589.1	11467.6
5. Oil Consumption	3063.9	3278.3	3219.6	3021.4
6. Oil Production	3214.7	3293.6	3230.5	3030.4
7. Oil Exports - Imports	33.0	15.3	10.9	9.0
8. Natural Gas Consumption	1684.9	1983.5	2481.9	3058.0
9. Natural Gas Production	1710.8	1999.5	2502.3	3085.7
10. Gas Exports - Imports	25.8	16.0	20.4	27.7
11. Coal Consumption	2176.4	2205.1	2310.4	2290.6
12. Coal Production	2196.8	2212.9	2317.6	2295.7
13. Coal Exports - Imports	20.4	7.8	7.2	5.1
14. Renewables, Electric	533.6	563.5	677.3	952.5
15. Nuclear Energy	450.1	511.9	569.7	669.0
16. Renewables, Nonelectric	1067.3	1153.5	1290.6	1433.3
17. Electricity Generation Terawatt Hours (TWh)	11651.0	13019.8	14131.6	16102.8
18. Carbon Emissions Million Tons (MtC)	6025.7	6420.7	6777.9	6844.3
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Notes:

Rows 3 and 16 include non-commercial energy

Organization/Project: EFCH; Institute of Economic Forecasting, Russian
Academy of Sciences

Country/Region: Russia, Gas-Coal High Scenario A (RUS)

Reference (including date) of most recent report: Submitted to CHALLENGE,
May 1993.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel				
2. Real GNP (or GDP) Index 1990 = 100				
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	1005.0	955.0	1040.0	1105.0
4. Total Production	1310.0	1235.0	1370.0	1465.0
5. Oil Consumption	324.0	250.0	270.0	280.0
6. Oil Production	518.0	400.0	420.0	430.0
7. Oil Exports - Imports	194.0	150.0	150.0	150.0
8. Natural Gas Consumption	419.0	440.0	500.0	530.0
9. Natural Gas Production	519.0	560.0	670.0	730.0
10. Gas Exports - Imports	100.0	120.0	170.0	200.0
11. Coal Consumption	183.0	190.0	200.0	220.0
12. Coal Production	194.0	200.0	210.0	230.0
13. Coal Exports - Imports	11.0	10.0	10.0	10.0
14. Renewables, Electric	36.0	38.0	39.0	41.0
15. Nuclear Energy	24.0	20.0	12.0	10.0
16. Renewables, Nonelectric	19.0	17.0	19.0	24.0
17. Electricity Generation Terawatt Hours (TWh)	1082.0	1150.0	1400.0	1600.0
18. Carbon Emissions Million Tons (MtC)				
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Notes:

7, 10, 13) Saldo

Organization/Project: EFCL; Institute of Economic Forecasting, Russian Academy of Sciences

Country/Region: Russia, Gas-Coal Low Scenario A (RUS)

Reference (including date) of most recent report: Submitted to CHALLENGE, May 1993.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel				
2. Real GNP (or GDP) Index 1990 = 100				
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	1005.0	900.0	975.0	1025.0
4. Total Production	1310.0	1170.0	1285.0	1365.0
5. Oil Consumption	324.0	230.0	250.0	250.0
6. Oil Production	518.0	380.0	400.0	400.0
7. Oil Exports - Imports	194.0	150.0	150.0	150.0
8. Natural Gas Consumption	419.0	430.0	470.0	510.0
9. Natural Gas Production	519.0	540.0	620.0	690.0
10. Gas Exports - Imports	100.0	110.0	150.0	180.0
11. Coal Consumption	183.0	170.0	190.0	200.0
12. Coal Production	194.0	180.0	200.0	210.0
13. Coal Exports - Imports	11.0	10.0	10.0	10.0
14. Renewables, Electric	36.0	37.0	38.0	39.0
15. Nuclear Energy	24.0	18.0	10.0	7.0
16. Renewables, Nonelectric	19.0	15.0	17.0	19.0
17. Electricity Generation Terawatt Hours (TWh)	1082.0	1100.0	1300.0	1500.0
18. Carbon Emissions Million Tons (MtC)				
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Notes:

7, 10, 13) Saldo

Organization/Project: EFNH; Institute of Economic Forecasting, Russian Academy of Sciences

Country/Region: Russia, Nuclear Energy Scenario, Scenario B, High (RUS)

Reference (including date) of most recent report: Submitted to CHALLENGE, May 1993.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel				
2. Real GNP (or GDP) Index 1990 = 100				
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	1005.0	940.0	1040.0	1105.0
4. Total Production	1310.0	1220.0	1370.0	1465.0
5. Oil Consumption	324.0	250.0	270.0	280.0
6. Oil Production	518.0	400.0	420.0	430.0
7. Oil Exports - Imports	194.0	150.0	150.0	150.0
8. Natural Gas Consumption	419.0	430.0	480.0	500.0
9. Natural Gas Production	519.0	550.0	650.0	700.0
10. Gas Exports - Imports	100.0	120.0	170.0	200.0
11. Coal Consumption	183.0	180.0	190.0	200.0
12. Coal Production	194.0	190.0	200.0	210.0
13. Coal Exports - Imports	11.0	10.0	10.0	10.0
14. Renewables, Electric	36.0	38.0	39.0	41.0
15. Nuclear Energy	24.0	25.0	42.0	60.0
16. Renewables, Nonelectric	19.0	17.0	19.0	24.0
17. Electricity Generation Terawatt Hours (TWh)	1082.0	1150.0	1400.0	1600.0
18. Carbon Emissions Million Tons (MtC)				
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Notes:

7, 10, 13) Saldo

Organization/Project: EFNL; Institute of Economic Forecasting, Russian Academy of Sciences

Country/Region: Russia, Nuclear Energy Scenario, Scenario B, Low (RUS)

Reference (including date) of most recent report: Submitted to CHALLENGE, May 1993.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel				
2. Real GNP (or GDP) Index 1990 = 100				
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	1005.0	905.0	975.0	1020.0
4. Total Production	1310.0	1175.0	1285.0	1360.0
5. Oil Consumption	324.0	230.0	250.0	250.0
6. Oil Production	518.0	380.0	400.0	400.0
7. Oil Exports - Imports	194.0	150.0	150.0	150.0
8. Natural Gas Consumption	419.0	430.0	460.0	480.0
9. Natural Gas Production	519.0	540.0	610.0	660.0
10. Gas Exports - Imports	100.0	110.0	150.0	180.0
11. Coal Consumption	183.0	170.0	180.0	180.0
12. Coal Production	194.0	180.0	190.0	190.0
13. Coal Exports - Imports	11.0	10.0	10.0	10.0
14. Renewables, Electric	36.0	37.0	38.0	39.0
15. Nuclear Energy	24.0	23.0	30.0	52.0
16. Renewables, Nonelectric	19.0	15.0	17.0	19.0
17. Electricity Generation Terawatt Hours (TWh)	1082.0	1100.0	1300.0	1500.0
18. Carbon Emissions Million Tons (MtC)				
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Notes:

7, 10, 13) Saldo

Organization/Project: EGRESS; University of Stuttgart, IER, Reference scenario

Country/Region: Poland (POL)

Reference (including date) of most recent report: Balandynowicz H. W., The Cost of CO₂ Emissions Reduction: Case Study for Poland, 6th IIASA Meeting of the IEW, Laxenburg, 1993.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	20.0	20.0	30.0	40.0
2. Real GNP (or GDP) Index 1990 = 100	100.0	132.0	195.0	288.0
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	100.9	120.8	135.2	148.1
4. Total Production	95.4	92.2	100.2	95.2
5. Oil Consumption	15.4	23.5	27.7	42.7
6. Oil Production	0.2	0.3	0.3	0.3
7. Oil Exports - Imports	-15.3	-23.2	-27.5	-42.5
8. Natural Gas Consumption	9.0	11.6	14.6	17.6
9. Natural Gas Production	2.4	3.7	4.6	5.6
10. Gas Exports - Imports	-6.6	-7.9	-10.0	-12.0
11. Coal Consumption	75.1	83.5	89.6	75.5
12. Coal Production	91.6	86.0	92.1	77.1
13. Coal Exports - Imports	16.4	2.5	2.5	1.6
14. Renewables, Electric	0.3	0.8	1.2	0.5
15. Nuclear Energy	0.0	0.0	0.0	8.7
16. Renewables, Nonelectric	1.0	1.4	2.0	3.1
17. Electricity Generation Terawatt Hours (TWh)	135.7	161.9	212.0	259.6
18. Carbon Emissions Million Tons (MtC)	99.3	117.3	130.4	130.1
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Organization/Project: EGREF; University of Stuttgart, IER, Reference scenario

Country/Region: Germany (GRMNY)

Reference (including date) of most recent report: Egbert Laege, "CO2 Reduction Strategies for Germany", submitted to CHALLENGE, November 1995.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	18.7	22.6	27.8	34.1
2. Real GNP (or GDP) Index 1990 = 100	100.0	129.2	161.0	196.6
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	353.3	311.9	297.9	301.2
4. Total Production	184.6	139.4	116.5	97.9
5. Oil Consumption	125.0	118.7	115.3	114.4
6. Oil Production	3.7	2.4	1.2	0.0
7. Oil Exports - Imports	-121.3	-116.4	-114.1	-114.3
8. Natural Gas Consumption	55.1	51.6	46.9	44.6
9. Natural Gas Production	13.7	11.4	9.0	6.6
10. Gas Exports - Imports	-41.4	-40.2	-37.9	-38.0
11. Coal Consumption	131.5	88.0	82.7	87.2
12. Coal Production	124.9	77.3	59.0	41.7
13. Coal Exports - Imports	-6.6	-10.8	-23.7	-45.5
14. Renewables, Electric	3.4	5.2	6.2	6.8
15. Nuclear Energy	34.6	35.3	36.4	36.4
16. Renewables, Nonelectric	3.0	5.4	7.3	8.8
17. Electricity Generation Terawatt Hours (TWh)	523.0	504.7	521.4	550.4
18. Carbon Emissions Million Tons (MtC)	273.8	229.2	212.3	212.5
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Notes:

Item 16: includes renewables with combined heat+electricity production

Organization/Project: EGREF; University of Stuttgart, IER, Reference scenario

Country/Region: Austria (OST)

Reference (including date) of most recent report: Balandynowicz H. W., The Cost of CO2 Emissions Reduction: Case Study for Austria, Stuttgart University, 1995.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	20.0	20.0	30.0	40.0
2. Real GNP (or GDP) Index 1990 = 100	100.0	123.7	140.0	158.4
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	26.7	29.1	30.6	30.7
4. Total Production	9.4	11.4	11.4	10.9
5. Oil Consumption	10.7	12.5	12.0	10.9
6. Oil Production	1.3	2.3	2.3	2.2
7. Oil Exports - Imports	-9.4	-10.2	-9.7	-8.7
8. Natural Gas Consumption	5.2	5.3	6.3	7.3
9. Natural Gas Production	0.7	0.9	0.7	0.7
10. Gas Exports - Imports	-4.5	-4.5	-5.6	-6.6
11. Coal Consumption	4.1	3.6	4.4	4.7
12. Coal Production	0.7	0.6	0.6	0.2
13. Coal Exports - Imports	-3.4	-3.1	-3.8	-4.5
14. Renewables, Electric	3.5	4.3	4.5	4.5
15. Nuclear Energy	0.0	0.0	0.0	0.0
16. Renewables, Nonelectric	3.2	3.4	3.4	3.3
17. Electricity Generation Terawatt Hours (TWh)	50.4	60.8	72.4	77.9
18. Carbon Emissions Million Tons (MtC)	15.8	16.5	17.4	17.2
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Organization/Project: EIA; EIA/U.S. Department of Energy

Country/Region: Former Soviet Union and Eastern Europe/Base Case (A1)

Reference (including date) of most recent report: International Energy Outlook, 1995.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	21.8	17.4	22.0	
2. Real GNP (or GDP) Index 1990 = 100	100.0	76.0	114.0	
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	1747.0	1498.0	1756.0	
4. Total Production				
5. Oil Consumption	494.0	301.0	451.0	
6. Oil Production	697.0	428.0	548.0	
7. Oil Exports - Imports				
8. Natural Gas Consumption	628.0	684.0	783.0	
9. Natural Gas Production				
10. Gas Exports - Imports				
11. Coal Consumption	487.0	362.0	353.0	
12. Coal Production				
13. Coal Exports - Imports				
14. Renewables, Electric	71.0	73.0	89.0	
15. Nuclear Energy	71.0	80.0	78.0	
16. Renewables, Nonelectric				
17. Electricity Generation Terawatt Hours (TWh)				
18. Carbon Emissions Million Tons (MtC)	1343.0	1077.0	1258.0	
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Organization/Project: EIA; EIA/U.S. Department of Energy

Country/Region: China (A2)

Reference (including date) of most recent report: International Energy Outlook, 1995.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	21.8	17.4	22.0	
2. Real GNP (or GDP) Index 1990 = 100	100.0	234.0	419.0	
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	656.0	983.0	1307.0	
4. Total Production				
5. Oil Consumption	115.0	183.0	197.0	
6. Oil Production				
7. Oil Exports - Imports				
8. Natural Gas Consumption	12.0	31.0	40.0	
9. Natural Gas Production				
10. Gas Exports - Imports				
11. Coal Consumption	498.0	705.0	957.0	
12. Coal Production				
13. Coal Exports - Imports				
14. Renewables, Electric	31.0	61.0	106.0	
15. Nuclear Energy	0.0	5.0	7.0	
16. Renewables, Nonelectric				
17. Electricity Generation Terawatt Hours (TWh)				
18. Carbon Emissions Million Tons (MtC)	648.0	944.0	1237.0	
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Organization/Project: EIA; EIA/U.S. Department of Energy

Country/Region: Total OECD/Base Case (A4)

Reference (including date) of most recent report: International Energy Outlook, 1995.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	21.8	17.4	22.0	
2. Real GNP (or GDP) Index 1990 = 100	100.0	125.0	159.0	
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	4321.0	5041.0	5619.0	
4. Total Production				
5. Oil Consumption	1874.0	2107.0	2309.0	
6. Oil Production				
7. Oil Exports - Imports				
8. Natural Gas Consumption	821.0	1072.0	1267.0	
9. Natural Gas Production				
10. Gas Exports - Imports				
11. Coal Consumption	882.0	952.0	1034.0	
12. Coal Production				
13. Coal Exports - Imports				
14. Renewables, Electric	369.0	466.0	564.0	
15. Nuclear Energy	381.0	442.0	440.0	
16. Renewables, Nonelectric				
17. Electricity Generation Terawatt Hours (TWh)				
18. Carbon Emissions Million Tons (MtC)	2954.0	3380.0	3748.0	
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Organization/Project: EIA; EIA/U.S. Department of Energy

Country/Region: OPEC (A5)

Reference (including date) of most recent report: International Energy Outlook, 1995.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	21.8	17.4	22.0	
2. Real GNP (or GDP) Index 1990 = 100	100.0	147.0	218.0	
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	383.0	494.0	616.0	
4. Total Production				
5. Oil Consumption	226.0	289.0	353.0	
6. Oil Production	1203.0	1672.0	2220.0	
7. Oil Exports - Imports				
8. Natural Gas Consumption	139.0	181.0	230.0	
9. Natural Gas Production				
10. Gas Exports - Imports				
11. Coal Consumption	7.0	7.0	9.0	
12. Coal Production				
13. Coal Exports - Imports				
14. Renewables, Electric	12.0	16.0	24.0	
15. Nuclear Energy	0.0	0.0	0.0	
16. Renewables, Nonelectric				
17. Electricity Generation Terawatt Hours (TWh)				
18. Carbon Emissions Million Tons (MtC)	286.0	368.0	456.0	
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Organization/Project: EIA; EIA/U.S. Department of Energy

Country/Region: World (A8)

Reference (including date) of most recent report: International Energy Outlook, 1995.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	21.8	17.4	22.0	
2. Real GNP (or GDP) Index 1990 = 100	100.0	126.0	171.0	
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	8125.0	9465.0	11090.0	
4. Total Production				
5. Oil Consumption	3183.0	3679.0	4263.0	
6. Oil Production	3206.0	3667.0	4248.0	
7. Oil Exports - Imports				
8. Natural Gas Consumption	1693.0	2097.0	2511.0	
9. Natural Gas Production				
10. Gas Exports - Imports				
11. Coal Consumption	2161.0	2363.0	2774.0	
12. Coal Production				
13. Coal Exports - Imports				
14. Renewables, Electric	616.0	766.0	966.0	
15. Nuclear Energy	477.0	557.0	574.0	
16. Renewables, Nonelectric				
17. Electricity Generation Terawatt Hours (TWh)				
18. Carbon Emissions Million Tons (MtC)	6013.0	6901.0	8092.0	
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Organization/Project: EIA; EIA/U.S. Department of Energy

Country/Region: Canada (CAN)

Reference (including date) of most recent report: International Energy Outlook, 1995.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	21.8	17.4	22.0	
2. Real GNP (or GDP) Index 1990 = 100	100.0	125.0	157.0	
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	252.0	310.0	355.0	
4. Total Production				
5. Oil Consumption	80.0	85.0	89.0	
6. Oil Production				
7. Oil Exports - Imports				
8. Natural Gas Consumption	56.0	68.0	73.0	
9. Natural Gas Production				
10. Gas Exports - Imports				
11. Coal Consumption	26.0	40.0	42.0	
12. Coal Production				
13. Coal Exports - Imports				
14. Renewables, Electric	71.0	96.0	125.0	
15. Nuclear Energy	19.0	21.0	24.0	
16. Renewables, Nonelectric				
17. Electricity Generation Terawatt Hours (TWh)				
18. Carbon Emissions Million Tons (MtC)	130.0	157.0	168.0	
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Organization/Project: EIA; EIA/U.S. Department of Energy

Country/Region: Eastern Europe (EEUR)

Reference (including date) of most recent report: International Energy Outlook, 1995.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	21.8	17.4	22.0	
2. Real GNP (or GDP) Index 1990 = 100	100.0	109.0	156.0	
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	383.0	332.0	381.0	
4. Total Production				
5. Oil Consumption	82.0	73.0	85.0	
6. Oil Production				
7. Oil Exports - Imports				
8. Natural Gas Consumption	80.0	85.0	118.0	
9. Natural Gas Production				
10. Gas Exports - Imports				
11. Coal Consumption	188.0	141.0	132.0	
12. Coal Production				
13. Coal Exports - Imports				
14. Renewables, Electric	14.0	12.0	24.0	
15. Nuclear Energy	19.0	24.0	24.0	
16. Renewables, Nonelectric				
17. Electricity Generation Terawatt Hours (TWh)				
18. Carbon Emissions Million Tons (MtC)	325.0	267.0	290.0	
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Organization/Project: EIA; EIA/U.S.Department of Energy

Country/Region: France (FRANC)

Reference (including date) of most recent report: International Energy Outlook 1995

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	21.8	17.4	22.0	
2. Real GNP (or GDP) Index 1990 = 100	100.0	121.0	153.0	
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	209.0	254.0	282.0	
4. Total Production				
5. Oil Consumption	87.0	99.0	106.0	
6. Oil Production				
7. Oil Exports - Imports				
8. Natural Gas Consumption	24.0	42.0	56.0	
9. Natural Gas Production				
10. Gas Exports - Imports				
11. Coal Consumption	21.0	19.0	16.0	
12. Coal Production				
13. Coal Exports - Imports				
14. Renewables, Electric	12.0	16.0	16.0	
15. Nuclear Energy	63.0	78.0	87.0	
16. Renewables, Nonelectric				
17. Electricity Generation Terawatt Hours (TWh)				
18. Carbon Emissions Million Tons (MtC)	112.0	129.0	141.0	
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Organization/Project: EIA; EIA/U.S. Department of Energy

Country/Region: Germany (GRMNY)

Reference (including date) of most recent report: International Energy Outlook, 1995.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	21.8	17.4	22.0	
2. Real GNP (or GDP) Index 1990 = 100	100.0	123.0	158.0	
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	339.0	371.0	414.0	
4. Total Production				
5. Oil Consumption	129.0	146.0	155.0	
6. Oil Production				
7. Oil Exports - Imports				
8. Natural Gas Consumption	47.0	80.0	103.0	
9. Natural Gas Production				
10. Gas Exports - Imports				
11. Coal Consumption	115.0	101.0	113.0	
12. Coal Production				
13. Coal Exports - Imports				
14. Renewables, Electric	9.0	7.0	9.0	
15. Nuclear Energy	35.0	38.0	33.0	
16. Renewables, Nonelectric				
17. Electricity Generation Terawatt Hours (TWh)				
18. Carbon Emissions Million Tons (MtC)	266.0	282.0	318.0	
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Organization/Project: EIA; EIA/U.S. Department of Energy

Country/Region: Italy (ITALY)

Reference (including date) of most recent report: International Energy Outlook, 1995.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	21.8	17.4	22.0	
2. Real GNP (or GDP) Index 1990 = 100	100.0	120.0	150.0	
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	160.0	183.0	202.0	
4. Total Production				
5. Oil Consumption	92.0	101.0	108.0	
6. Oil Production				
7. Oil Exports - Imports				
8. Natural Gas Consumption	40.0	47.0	56.0	
9. Natural Gas Production				
10. Gas Exports - Imports				
11. Coal Consumption	12.0	16.0	16.0	
12. Coal Production				
13. Coal Exports - Imports				
14. Renewables, Electric	12.0	14.0	16.0	
15. Nuclear Energy	2.0	5.0	5.0	
16. Renewables, Nonelectric				
17. Electricity Generation Terawatt Hours (TWh)				
18. Carbon Emissions Million Tons (MtC)	117.0	132.0	145.0	
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Organization/Project: EIA; EIA/U.S. Department of Energy

Country/Region: Japan (JAPAN)

Reference (including date) of most recent report: International Energy Outlook, 1995.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	21.8	17.4	22.0	
2. Real GNP (or GDP) Index 1990 = 100	100.0	131.0	172.0	
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	428.0	545.0	621.0	
4. Total Production				
5. Oil Consumption	245.0	284.0	315.0	
6. Oil Production				
7. Oil Exports - Imports				
8. Natural Gas Consumption	47.0	73.0	87.0	
9. Natural Gas Production				
10. Gas Exports - Imports				
11. Coal Consumption	68.0	80.0	92.0	
12. Coal Production				
13. Coal Exports - Imports				
14. Renewables, Electric	24.0	42.0	47.0	
15. Nuclear Energy	45.0	66.0	80.0	
16. Renewables, Nonelectric				
17. Electricity Generation Terawatt Hours (TWh)				
18. Carbon Emissions Million Tons (MtC)	312.0	375.0	421.0	
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Organization/Project: EIA; EIA/U.S. Department of Energy

Country/Region: Netherlands (NLAND)

Reference (including date) of most recent report: International Energy Outlook, 1995.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	21.8	17.4	22.0	
2. Real GNP (or GDP) Index 1990 = 100	100.0	124.0	154.0	
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	78.0	92.0	101.0	
4. Total Production				
5. Oil Consumption	35.0	40.0	42.0	
6. Oil Production				
7. Oil Exports - Imports				
8. Natural Gas Consumption	31.0	40.0	45.0	
9. Natural Gas Production				
10. Gas Exports - Imports				
11. Coal Consumption	9.0	9.0	9.0	
12. Coal Production				
13. Coal Exports - Imports				
14. Renewables, Electric	1.0	2.0	5.0	
15. Nuclear Energy	2.0	2.0	2.0	
16. Renewables, Nonelectric				
17. Electricity Generation Terawatt Hours (TWh)				
18. Carbon Emissions Million Tons (MtC)				
	59.0	68.0	73.0	
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Organization/Project: EIA; EIA/U.S. Department of Energy

Country/Region: OECD Europe (OECD)

Reference (including date) of most recent report: International Energy Outlook, 1995.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	21.8	17.4	22.0	
2. Real GNP (or GDP) Index 1990 = 100	100.0	122.0	157.0	
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	1432.0	1681.0	1876.0	
4. Total Production				
5. Oil Consumption	628.0	696.0	745.0	
6. Oil Production				
7. Oil Exports - Imports				
8. Natural Gas Consumption	228.0	357.0	466.0	
9. Natural Gas Production				
10. Gas Exports - Imports				
11. Coal Consumption	296.0	313.0	336.0	
12. Coal Production				
13. Coal Exports - Imports				
14. Renewables, Electric	111.0	125.0	146.0	
15. Nuclear Energy	169.0	188.0	183.0	
16. Renewables, Nonelectric				
17. Electricity Generation Terawatt Hours (TWh)				
18. Carbon Emissions Million Tons (MtC)	997.0	1155.0	1288.0	
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Organization/Project: EIA; U.S. Department of Energy

Country/Region: United Kingdom (UK)

Reference (including date) of most recent report: International Energy Outlook, 1995

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	21.8	17.4	22.0	
2. Real GNP (or GDP) Index 1990 = 100	100.0	119.0	152.0	
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	212.0	270.0	301.0	
4. Total Production				
5. Oil Consumption	85.0	92.0	96.0	
6. Oil Production				
7. Oil Exports - Imports				
8. Natural Gas Consumption	49.0	94.0	122.0	
9. Natural Gas Production				
10. Gas Exports - Imports				
11. Coal Consumption	56.0	63.0	61.0	
12. Coal Production				
13. Coal Exports - Imports				
14. Renewables, Electric	2.0	5.0	5.0	
15. Nuclear Energy	16.0	19.0	16.0	
16. Renewables, Nonelectric				
17. Electricity Generation Terawatt Hours (TWh)				
18. Carbon Emissions Million Tons (MtC)	164.0	204.0	225.0	
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Organization/Project: EIA; EIA/U.S. Department of Energy

Country/Region: USA (USA)

Reference (including date) of most recent report: Annual Energy Outlook, 1995.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	21.8	17.4	22.0	
2. Real GNP (or GDP) Index 1990 = 100	100.0	125.0	153.0	
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	1982.0	2224.0	2442.0	
4. Total Production	1670.0	1658.0	1784.0	
5. Oil Consumption	788.0	867.0	960.0	
6. Oil Production	465.0	327.0	335.0	
7. Oil Exports - Imports	-338.0	-525.0	-612.0	
8. Natural Gas Consumption	453.0	536.0	595.0	
9. Natural Gas Production	435.0	462.0	506.0	
10. Gas Exports - Imports	-34.0	-70.0	-86.0	
11. Coal Consumption	449.0	474.0	517.0	
12. Coal Production	528.0	519.0	576.0	
13. Coal Exports - Imports	46.0	36.0	44.0	
14. Renewables, Electric	146.0	184.0	221.0	
15. Nuclear Energy	145.0	164.0	150.0	
16. Renewables, Nonelectric				
17. Electricity Generation Terawatt Hours (TWh)	2713.0	3108.0	3475.0	
18. Carbon Emissions Million Tons (MtC)	1338.0	1471.0	1621.0	
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Notes:

Row 14 includes non-electric energy from renewable sources, such as active and passive solar systems, ground-water heat pumps, and wood; alcohol fuels from renewable sources; and, in addition to renewables, coal coke imports, net electricity imports, methanol, and liquid hydrogen.

Organization/Project: EIA; EIA/U.S. Department of Energy

Country/Region: Former Soviet Union (USSR)

Reference (including date) of most recent report: International Energy Outlook, 1995.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	21.8	17.4	22.0	
2. Real GNP (or GDP) Index 1990 = 100	100.0	68.0	103.0	
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	1364.0	1168.0	1373.0	
4. Total Production				
5. Oil Consumption	411.0	228.0	367.0	
6. Oil Production				
7. Oil Exports - Imports				
8. Natural Gas Consumption	548.0	600.0	663.0	
9. Natural Gas Production				
10. Gas Exports - Imports				
11. Coal Consumption	299.0	223.0	221.0	
12. Coal Production				
13. Coal Exports - Imports				
14. Renewables, Electric	56.0	61.0	68.0	
15. Nuclear Energy	52.0	54.0	54.0	
16. Renewables, Nonelectric				
17. Electricity Generation Terawatt Hours (TWh)				
18. Carbon Emissions Million Tons (MtC)	1018.0	810.0	968.0	
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Organization/Project: EMRH; Canada Department of Natural Resources, Ottawa

Country/Region: Canada, Base, No-regret Scenario (CAN)

Reference (including date) of most recent report: "Canada's Energy Outlook", Sept. 1993.Y

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	21.9	19.5	21.0	21.0
2. Real GNP (or GDP) Index 1990 = 100	100.0	124.0	159.0	203.0
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	210.7	249.6	291.4	344.2
4. Total Production	275.0	345.7	376.3	415.2
5. Oil Consumption	77.6	86.9	104.0	116.6
6. Oil Production	94.7	102.0	106.6	106.6
7. Oil Exports - Imports	15.6	15.1	2.6	-10.6
8. Natural Gas Consumption	55.5	70.8	81.7	93.1
9. Natural Gas Production	89.3	131.0	142.9	153.3
10. Gas Exports - Imports	32.5	60.2	61.2	60.2
11. Coal Consumption	24.5	22.1	28.0	38.3
12. Coal Production	37.9	38.5	45.2	55.7
13. Coal Exports - Imports	11.7	16.4	17.2	17.4
14. Renewables, Electric	25.5	30.8	36.7	40.9
15. Nuclear Energy	19.0	31.3	30.9	41.4
16. Renewables, Nonelectric	8.5	12.0	14.0	17.9
17. Electricity Generation Terawatt Hours (TWh)	481.9	596.0	693.4	809.8
18. Carbon Emissions Million Tons (MtC)	126.0	139.0	166.0	195.0
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Notes:

7 includes exports of bunkers fuel oil;

14 & 15 include electricity exports of 4 Mtoe for 2000, 2010, and 2020.

Organization/Project: EMRL; Canada Department of Natural Resources, Ottawa

Country/Region: Canada, Base, No-regret Scenario, Higher Oil Price (CAN)

Reference (including date) of most recent report: "Canada's Energy Outlook", Sept. 1993.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	21.9	20.0	30.0	
2. Real GNP (or GDP) Index 1990 = 100	100.0	124.0	158.0	
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	210.7	249.6	280.3	
4. Total Production	275.0	345.7	403.6	
5. Oil Consumption	77.6	86.9	90.5	
6. Oil Production	94.7	102.0	130.2	
7. Oil Exports - Imports	15.6	15.1	39.7	
8. Natural Gas Consumption	55.5	70.8	79.8	
9. Natural Gas Production	89.3	131.0	141.1	
10. Gas Exports - Imports	32.5	60.2	61.3	
11. Coal Consumption	24.5	22.1	29.9	
12. Coal Production	37.9	38.5	48.2	
13. Coal Exports - Imports	11.7	16.4	18.3	
14. Renewables, Electric	25.5	30.8	37.7	
15. Nuclear Energy	19.0	31.3	32.2	
16. Renewables, Nonelectric	8.5	12.0	14.2	
17. Electricity Generation Terawatt Hours (TWh)	481.9	596.0	720.7	
18. Carbon Emissions Million Tons (MtC)	126.0	139.0	155.0	
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Notes:

7 Includes exports of bunkers fuel oil;

14 & 15 Include electricity exports of 4 Mtoe for 2000, 2010, and 2020.

Organization/Project: ENHI; ENEA, Agency for New Technologies, Energy and Environment, conventional wisdom

Country/Region: Italy (ITALY)

Reference (including date) of most recent report: MARKAL model, revised case study, March 1993.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	20.0	20.0	30.0	40.0
2. Real GNP (or GDP) Index 1990 = 100	100.0	134.0	172.0	213.0
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	165.5	182.0	193.0	229.0
4. Total Production	31.1	33.8	31.0	27.0
5. Oil Consumption	91.8	74.5	57.8	68.4
6. Oil Production	4.6	5.0	3.0	2.0
7. Oil Exports - Imports	-87.2	-69.5	-54.8	-66.4
8. Natural Gas Consumption	39.1	64.3	64.4	61.2
9. Natural Gas Production	14.0	17.0	14.0	10.0
10. Gas Exports - Imports	-25.1	-47.3	-50.6	-51.2
11. Coal Consumption	14.3	30.4	53.9	81.5
12. Coal Production	0.5	0.0	0.0	0.0
13. Coal Exports - Imports	-13.8	-30.4	-53.9	-81.5
14. Renewables, Electric	9.3	10.5	11.8	12.6
15. Nuclear Energy	0.0	0.0	0.0	0.0
16. Renewables, Nonelectric	2.8	1.3	2.3	2.4
17. Electricity Generation Terawatt Hours (TWh)	230.0	289.0	312.0	374.0
18. Carbon Emissions Million Tons (MtC)	120.9	138.6	149.4	184.0
19. Marginal Reduction Costs 1990 \$ per ton of carbon	0.0	0.0	0.0	0.0

Notes:

The views presented here are those of the individual authors and do not necessarily represent the views of ENEA.

17. Gross domestic production + imports: 252 TWh in 1990.

17. Import of electricity, mainly from France, 35 TWh in 1990, 13 TWh in 2000, 13 TWh in 2010 and 9.6 TWh in 2020.

18. Inclusive of estimated process emission of clinker (5.8 Mt) and glass (0.4 Mt).

Organization/Project: ENLO; ENEA, Agency for New Technologies, Energy and Environment, low demand

Country/Region: Italy (ITALY)

Reference (including date) of most recent report: MARKAL model, revised case study, March 1993.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	20.0	20.0	30.0	40.0
2. Real GNP (or GDP) Index 1990 = 100	100.0	122.0	137.0	144.0
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	165.5	175.5	166.9	175.5
4. Total Production	31.1	33.7	29.4	26.8
5. Oil Consumption	91.8	73.7	49.3	57.0
6. Oil Production	4.6	5.0	3.0	2.0
7. Oil Exports - Imports	-87.2	-68.7	-46.3	-55.0
8. Natural Gas Consumption	39.1	56.5	56.8	51.3
9. Natural Gas Production	14.0	17.0	14.0	10.0
10. Gas Exports - Imports	-25.1	-39.5	-42.8	-41.3
11. Coal Consumption	14.3	30.4	45.1	51.4
12. Coal Production	0.5	0.0	0.0	0.0
13. Coal Exports - Imports	-13.8	-30.4	-45.1	-51.4
14. Renewables, Electric	9.3	10.5	11.8	12.6
15. Nuclear Energy	0.0	0.0	0.0	0.0
16. Renewables, Nonelectric	2.8	1.2	0.7	2.2
17. Electricity Generation Terawatt Hours (TWh)	230.0	265.0	262.8	252.0
18. Carbon Emissions Million Tons (MtC)	120.9	133.6	128.7	138.7
19. Marginal Reduction Costs 1990 \$ per ton of carbon	0.0	0.0	0.0	0.0

Notes:

The views presented here are those of the individual authors and do not necessarily represent the views of ENEA.

17. Gross domestic production + imports: 252 TWh in 1990.

17. Import of electricity, mainly from France, 35 TWh in 1990, 13 TWh in 2000, 13 TWh in 2010 and 9.6 TWh in 2020.

18. Inclusive of estimated process emission of clinker (5.8 Mt) and glass (0.4 Mt).

Organization/Project: ESCAP; UNESCAP, Bangkok, Base Scenario

Country/Region: Asia and the Pacific (ASPAC)

Reference (including date) of most recent report: State-of-the-Environment Report, October 1995.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel				
2. Real GNP (or GDP) Index 1990 = 100				
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	1401.0	2353.0	3812.0	
4. Total Production				
5. Oil Consumption				
6. Oil Production				
7. Oil Exports - Imports				
8. Natural Gas Consumption				
9. Natural Gas Production				
10. Gas Exports - Imports				
11. Coal Consumption				
12. Coal Production				
13. Coal Exports - Imports				
14. Renewables, Electric				
15. Nuclear Energy				
16. Renewables, Nonelectric				
17. Electricity Generation Terawatt Hours (TWh)				
18. Carbon Emissions Million Tons (MtC)				
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Organization/Project: EUBF; European Commission DG XVII; Battlefield scenario

Country/Region: European Union (EU15)

Reference (including date) of most recent report: European Energy to 2020: A scenario approach Energy in Europe, special issue, forthcoming, submitted in December 1995.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	23.0	19.0	18.0	25.0
2. Real GNP (or GDP) Index 1990 = 100	100.0	124.0	143.0	163.0
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	1325.0	1475.0	1545.0	1575.0
4. Total Production	707.0	747.0	704.0	661.0
5. Oil Consumption	547.0	604.0	622.0	603.0
6. Oil Production	117.0	142.0	106.0	81.0
7. Oil Exports - Imports	-463.0	-499.0	-558.0	-568.0
8. Natural Gas Consumption	222.0	317.0	409.0	464.0
9. Natural Gas Production	137.0	184.0	172.0	151.0
10. Gas Exports - Imports	-92.0	-132.0	-237.0	-313.0
11. Coal Consumption	311.0	253.0	182.0	151.0
12. Coal Production	210.0	121.0	96.0	74.0
13. Coal Exports - Imports	-89.0	-132.0	-85.0	-77.0
14. Renewables, Electric	24.0	32.0	35.0	39.0
15. Nuclear Energy	181.0	220.0	217.0	205.0
16. Renewables, Nonelectric	37.0	49.0	79.0	111.0
17. Electricity Generation Terawatt Hours (TWh)	2141.0	2562.0	2691.0	2936.0
18. Carbon Emissions Million Tons (MtC)	864.0	911.0	906.0	891.0
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Organization/Project: EUBF; European Commission DG XVII; Battlefield scenario

Country/Region: World (A8)

Reference (including date) of most recent report: European Energy to 2020: A scenario approach Energy in Europe, special issue, forthcoming, submitted in December 1995.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	23.0	19.0	18.0	25.0
2. Real GNP (or GDP) Index 1990 = 100	100.0	133.0	166.0	207.0
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	8184.0	9319.0	10507.0	11699.0
4. Total Production	8396.0	9461.0	10653.0	11853.0
5. Oil Consumption	3066.0	3206.0	3388.0	3493.0
6. Oil Production	3227.0	3348.0	3535.0	3648.0
7. Oil Exports - Imports				
8. Natural Gas Consumption	1685.0	2136.0	2767.0	3388.0
9. Natural Gas Production	1711.0	2136.0	2767.0	3388.0
10. Gas Exports - Imports				
11. Coal Consumption	2190.0	2432.0	2587.0	2801.0
12. Coal Production	2209.0	2432.0	2587.0	2801.0
13. Coal Exports - Imports				
14. Renewables, Electric	188.0	231.0	270.0	324.0
15. Nuclear Energy	518.0	637.0	691.0	752.0
16. Renewables, Nonelectric	543.0	677.0	804.0	941.0
17. Electricity Generation Terawatt Hours (TWh)	11467.0	14422.0	16909.0	19884.0
18. Carbon Emissions Million Tons (MtC)	5923.0	6605.0	7345.0	8082.0
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Notes:

Items 14 and 15: Electricity from hydro and other renewables valued with the net calorific value of electricity

Organization/Project: EUCW; European Commission DG XVII; Conventional
Wisdom scenario

Country/Region: European Union (EU15)

Reference (including date) of most recent report: European Energy to 2020:
A scenario approach Energy in Europe, special issue,
forthcoming, submitted in December 1995.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	23.0	19.0	26.0	28.0
2. Real GNP (or GDP) Index 1990 = 100	100.0	124.0	155.0	186.0
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	1325.0	1462.0	1571.0	1637.0
4. Total Production	707.0	721.0	659.0	575.0
5. Oil Consumption	547.0	598.0	613.0	623.0
6. Oil Production	117.0	129.0	91.0	62.0
7. Oil Exports - Imports	-463.0	-506.0	-564.0	-606.0
8. Natural Gas Consumption	222.0	315.0	421.0	502.0
9. Natural Gas Production	137.0	174.0	158.0	131.0
10. Gas Exports - Imports	-92.0	-142.0	-263.0	-371.0
11. Coal Consumption	311.0	247.0	217.0	201.0
12. Coal Production	210.0	117.0	92.0	72.0
13. Coal Exports - Imports	-89.0	-130.0	-125.0	-129.0
14. Renewables, Electric	24.0	32.0	36.0	40.0
15. Nuclear Energy	181.0	218.0	197.0	146.0
16. Renewables, Nonelectric	37.0	51.0	85.0	125.0
17. Electricity Generation Terawatt Hours (TWh)	2141.0	2532.0	2884.0	3174.0
18. Carbon Emissions Million Tons (MtC)	864.0	900.0	943.0	984.0
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Organization/Project: EUCW; European Commission DG XVII; Conventional
Wisdom scenario

Country/Region: World (A8)

Reference (including date) of most recent report: European Energy to 2020:
A scenario approach Energy in Europe, special issue,
forthcoming, submitted in December 1995.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	23.0	19.0	26.0	28.0
2. Real GNP (or GDP) Index 1990 = 100	100.0	132.0	179.0	234.0
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	8184.0	9266.0	10955.0	12615.0
4. Total Production	8396.0	9406.0	11103.0	12768.0
5. Oil Consumption	3066.0	3206.0	3537.0	3823.0
6. Oil Production	3227.0	3347.0	3688.0	3981.0
7. Oil Exports - Imports				
8. Natural Gas Consumption	1685.0	2118.0	2849.0	3699.0
9. Natural Gas Production	1711.0	2118.0	2849.0	3699.0
10. Gas Exports - Imports				
11. Coal Consumption	2190.0	2406.0	2756.0	3024.0
12. Coal Production	2209.0	2406.0	2756.0	3024.0
13. Coal Exports - Imports				
14. Renewables, Electric	188.0	231.0	287.0	353.0
15. Nuclear Energy	518.0	628.0	700.0	729.0
16. Renewables, Nonelectric	543.0	677.0	826.0	987.0
17. Electricity Generation Terawatt Hours (TWh)	11467.0	14293.0	18085.0	21923.0
18. Carbon Emissions Million Tons (MtC)	5923.0	6566.0	7707.0	8804.0
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Notes:

Items 14 and 15: Electricity from hydro and other renewables valued with the net calorific value of electricity

Organization/Project: EUFO; European Commission DG XVII; Forum scenario

Country/Region: European Union (EU15)

Reference (including date) of most recent report: European Energy to 2020:
A scenario approach Energy in Europe, special issue,
forthcoming, submitted in December 1995.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	23.0	14.0	14.0	14.0
2. Real GNP (or GDP) Index 1990 = 100	100.0	121.0	157.0	201.0
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	1325.0	1408.0	1495.0	1609.0
4. Total Production	707.0	727.0	719.0	778.0
5. Oil Consumption	547.0	610.0	612.0	584.0
6. Oil Production	117.0	142.0	106.0	81.0
7. Oil Exports - Imports	-463.0	-505.0	-547.0	-548.0
8. Natural Gas Consumption	222.0	319.0	390.0	431.0
9. Natural Gas Production	137.0	185.0	174.0	152.0
10. Gas Exports - Imports	-92.0	-134.0	-216.0	-278.0
11. Coal Consumption	311.0	180.0	115.0	75.0
12. Coal Production	210.0	102.0	62.0	27.0
13. Coal Exports - Imports	-89.0	-78.0	-53.0	-48.0
14. Renewables, Electric	24.0	32.0	38.0	44.0
15. Nuclear Energy	181.0	218.0	242.0	298.0
16. Renewables, Nonelectric	37.0	49.0	98.0	176.0
17. Electricity Generation Terawatt Hours (TWh)	2141.0	2451.0	2746.0	3119.0
18. Carbon Emissions Million Tons (MtC)	864.0	838.0	810.0	768.0
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Organization/Project: EUFO; European Commission DG XVII; Forum scenario

Country/Region: World (A8)

Reference (including date) of most recent report: European Energy to 2020:
A scenario approach Energy in Europe, special issue,
forthcoming, submitted in December 1995.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	23.0	14.0	14.0	14.0
2. Real GNP (or GDP) Index 1990 = 100	100.0	131.0	183.0	251.0
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	8184.0	9221.0	10889.0	12571.0
4. Total Production	8396.0	9364.0	11047.0	12730.0
5. Oil Consumption	3066.0	3239.0	3537.0	3719.0
6. Oil Production	3227.0	3380.0	3533.0	3879.0
7. Oil Exports - Imports				
8. Natural Gas Consumption	1685.0	2156.0	2906.0	3746.0
9. Natural Gas Production	1711.0	2156.0	2906.0	3746.0
10. Gas Exports - Imports				
11. Coal Consumption	2190.0	2292.0	2558.0	2794.0
12. Coal Production	2209.0	2292.0	2558.0	2794.0
13. Coal Exports - Imports				
14. Renewables, Electric	188.0	231.0	297.0	371.0
15. Nuclear Energy	518.0	627.0	748.0	894.0
16. Renewables, Nonelectric	543.0	677.0	844.0	1046.0
17. Electricity Generation Terawatt Hours (TWh)	11467.0	14293.0	18320.0	22712.0
18. Carbon Emissions Million Tons (MtC)	5923.0	6500.0	7537.0	8496.0
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Notes:

Items 14 and 15: Electricity from hydro and other renewables valued with the net calorific value of electricity

Organization/Project: EUHM; European Commission DG XVII; Hypermarket scenario

Country/Region: European Union (EU15)

Reference (including date) of most recent report: European Energy to 2020: A scenario approach Energy in Europe, special issue, forthcoming, submitted in December 1995.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	23.0	19.0	26.0	28.0
2. Real GNP (or GDP) Index 1990 = 100	100.0	126.0	164.0	201.0
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	1325.0	1475.0	1629.0	1703.0
4. Total Production	707.0	712.0	647.0	545.0
5. Oil Consumption	547.0	619.0	645.0	650.0
6. Oil Production	117.0	129.0	91.0	62.0
7. Oil Exports - Imports	-463.0	-527.0	-595.0	-633.0
8. Natural Gas Consumption	222.0	340.0	465.0	585.0
9. Natural Gas Production	137.0	174.0	158.0	132.0
10. Gas Exports - Imports	-92.0	-166.0	-307.0	-454.0
11. Coal Consumption	311.0	216.0	192.0	153.0
12. Coal Production	210.0	110.0	73.0	39.0
13. Coal Exports - Imports	-89.0	-105.0	-119.0	-115.0
14. Renewables, Electric	24.0	32.0	35.0	39.0
15. Nuclear Energy	181.0	218.0	203.0	139.0
16. Renewables, Nonelectric	37.0	49.0	88.0	135.0
17. Electricity Generation Terawatt Hours (TWh)	2141.0	2550.0	3010.0	3384.0
18. Carbon Emissions Million Tons (MtC)	864.0	899.0	970.0	1009.0
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Organization/Project: EUHM; European Commission DG XVII; Hypermarket scenario

Country/Region: World (A8)

Reference (including date) of most recent report: European Energy to 2020: A scenario approach Energy in Europe, special issue, forthcoming, submitted in December 1995.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	23.0	19.0	26.0	28.0
2. Real GNP (or GDP) Index 1990 = 100	100.0	135.0	189.0	252.0
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	8184.0	9368.0	11289.0	13174.0
4. Total Production	8396.0	9511.0	11442.0	13332.0
5. Oil Consumption	3066.0	3259.0	3649.0	3985.0
6. Oil Production	3227.0	3401.0	3801.0	4147.0
7. Oil Exports - Imports				
8. Natural Gas Consumption	1685.0	2164.0	2981.0	3977.0
9. Natural Gas Production	1711.0	2164.0	2981.0	3977.0
10. Gas Exports - Imports				
11. Coal Consumption	2190.0	2405.0	2808.0	3083.0
12. Coal Production	2209.0	2405.0	2808.0	3083.0
13. Coal Exports - Imports				
14. Renewables, Electric	188.0	230.0	293.0	365.0
15. Nuclear Energy	518.0	634.0	725.0	759.0
16. Renewables, Nonelectric	543.0	677.0	834.0	1004.0
17. Electricity Generation Terawatt Hours (TWh)	11467.0	14536.0	18880.0	23282.0
18. Carbon Emissions Million Tons (MtC)	5923.0	6631.0	7946.0	9192.0
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Notes:

Items 14 and 15: Electricity from hydro and other renewables valued with the net calorific value of electricity

Organization/Project: EWBAU; East-West Center, Business-as-usual

Country/Region: China (A2)

Reference (including date) of most recent report: Presented at the IEW meeting, June 1994.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel				
2. Real GNP (or GDP) Index 1990 = 100	100.0	216.0		573.0
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	672.9	1018.8		1664.5
4. Total Production				
5. Oil Consumption	113.9	183.4		291.2
6. Oil Production				
7. Oil Exports - Imports				
8. Natural Gas Consumption	14.1	34.2		99.1
9. Natural Gas Production				
10. Gas Exports - Imports				
11. Coal Consumption	510.8	720.5		1036.6
12. Coal Production				
13. Coal Exports - Imports				
14. Renewables, Electric	0.0	1.4		5.3
15. Nuclear Energy	0.0	6.1		85.6
16. Renewables, Nonelectric				
17. Electricity Generation Terawatt Hours (TWh)	623.0	1161.9		2645.6
18. Carbon Emissions Million Tons (MtC)	625.8	906.6		1353.8
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Organization/Project: EWPOL; East-West Center, Policy/Low Scenario.

Country/Region: China (A2)

Reference (including date) of most recent report: Presented at the IEW meeting, June 1994.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel				
2. Real GNP (or GDP) Index 1990 = 100	100.0	216.0		573.0
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	674.6	1000.6		1516.2
4. Total Production				
5. Oil Consumption	113.9	180.2		272.7
6. Oil Production				
7. Oil Exports - Imports				
8. Natural Gas Consumption	14.1	34.2		99.1
9. Natural Gas Production				
10. Gas Exports - Imports				
11. Coal Consumption	511.1	705.2		881.9
12. Coal Production				
13. Coal Exports - Imports				
14. Renewables, Electric	0.0	1.8		7.7
15. Nuclear Energy	0.0	6.1		99.9
16. Renewables, Nonelectric				
17. Electricity Generation Terawatt Hours (TWh)	623.0	1148.6		2531.8
18. Carbon Emissions Million Tons (MtC)	625.8	888.2		1178.6
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Organization/Project: FBAR; Institute of Energy Economics, Bariloche
Foundation

Country/Region: Argentina (ARG)

Reference (including date) of most recent report: Submitted to CHALLENGE,
March 1993.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	18.0	21.6	22.4	
2. Real GNP (or GDP) Index 1990 = 100	100.0	118.4	150.0	
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	45.8	58.2	72.4	
4. Total Production	49.6	64.3	81.9	
5. Oil Consumption	18.0	19.6	22.8	
6. Oil Production	24.3	27.9	32.0	
7. Oil Exports - Imports	6.2	8.3	9.2	
8. Natural Gas Consumption	19.1	26.4	33.0	
9. Natural Gas Production	17.3	25.0	34.1	
10. Gas Exports - Imports	-1.8	-1.4	1.1	
11. Coal Consumption	0.8	0.9	1.0	
12. Coal Production	0.2	0.2	0.2	
13. Coal Exports - Imports	-0.6	-0.7	-0.8	
14. Renewables, Electric	4.4	7.6	10.8	
15. Nuclear Energy	1.3	1.2	2.0	
16. Renewables, Nonelectric	2.1	2.5	2.8	
17. Electricity Generation Terawatt Hours (TWh)	47.8	66.2	86.8	
18. Carbon Emissions Million Tons (MtC)	25.1	30.4	36.3	
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Notes:

15. The original numbers for hydro have been multiplied by 2.907 to account for primary energy substitution.

18. The original numbers were given in mtCO₂; they therefore have been divided by 3.67

Organization/Project: GRI; Gas Research Institute

Country/Region: USA (USA)

Reference (including date) of most recent report: GRI Baseline Projection of U.S. Energy Supply and Demand to 2010, 1994 edition, December 1993.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	22.1	19.8	25.5	
2. Real GNP (or GDP) Index 1990 = 100	100.0	124.0	152.0	
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	1978.2	2189.9	2429.8	
4. Total Production	1481.9	1641.8	1806.5	
5. Oil Consumption	790.3	851.5	903.2	
6. Oil Production	473.1	394.4	425.3	
7. Oil Exports - Imports	-317.2	-457.1	-477.9	
8. Natural Gas Consumption	453.8	536.3	611.6	
9. Natural Gas Production	391.6	441.9	496.2	
10. Gas Exports - Imports	-62.2	-94.4	-115.4	
11. Coal Consumption	446.9	482.2	583.3	
12. Coal Production	523.4	553.2	673.7	
13. Coal Exports - Imports	76.5	71.0	90.4	
14. Renewables, Electric	68.2	68.2	68.2	
15. Nuclear Energy	145.8	167.0	164.7	
16. Renewables, Nonelectric	75.3	84.7	98.8	
17. Electricity Generation Terawatt Hours (TWh)	2901.4	3457.3	4081.6	
18. Carbon Emissions Million Tons (MtC)	1355.7	1459.4	1644.0	
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Organization/Project: GRREF; GREEN, Reference Scenario

Country/Region: USA (USA)

Reference (including date) of most recent report: OECD GREEN model,
Reference case, submitted to CHALLENGE, July 1993.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	21.0	25.6	33.1	39.0
2. Real GNP (or GDP) Index 1990 = 100	100.0	128.7	157.1	196.3
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	1689.9	1932.4	2278.8	2478.1
4. Total Production	1444.8	1499.8	1717.2	1987.1
5. Oil Consumption	667.9	773.5	846.7	705.8
6. Oil Production	385.5	296.9	231.6	184.6
7. Oil Exports - Imports	-282.4	-476.6	-615.2	-521.2
8. Natural Gas Consumption	416.0	459.5	540.7	520.3
9. Natural Gas Production	390.0	426.0	500.5	441.1
10. Gas Exports - Imports	-26.0	-33.4	-40.2	-79.2
11. Coal Consumption	435.7	502.9	626.8	881.9
12. Coal Production	499.0	580.3	720.6	991.2
13. Coal Exports - Imports	63.3	77.4	93.8	109.4
14. Renewables, Electric				
15. Nuclear Energy				
16. Renewables, Nonelectric	0.0	0.0	0.0	0.0
17. Electricity Generation Terawatt Hours (TWh)	2778.5	3010.9	3722.7	4300.0
18. Carbon Emissions Million Tons (MtC)	1350.3	1546.5	1731.8	1950.9
19. Marginal Reduction Costs 1990 \$ per ton of carbon	0.0	0.0	0.0	0.0

Notes:

1. For 1990, the price corresponds to the spot price BRENT (fob) from energy prices and taxes, IEA.

Organization/Project: GRREF; GREEN, Reference Scenario

Country/Region: JAPAN (JAPAN)

Reference (including date) of most recent report: OECD GREEN model,
Reference case, submitted to CHALLENGE, July 1993.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	21.0	25.6	33.1	39.0
2. Real GNP (or GDP) Index 1990 = 100	100.0	143.6	184.1	245.5
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	427.1	565.8	729.5	917.1
4. Total Production	131.6	170.4	354.1	590.9
5. Oil Consumption	233.1	307.3	286.7	199.2
6. Oil Production	0.5	0.5	0.5	0.5
7. Oil Exports - Imports	-232.6	-306.8	-286.2	-198.8
8. Natural Gas Consumption	38.7	50.7	34.4	48.6
9. Natural Gas Production	1.9	2.9	2.4	2.4
10. Gas Exports - Imports	-36.8	-47.8	-32.0	-46.2
11. Coal Consumption	87.4	129.9	174.6	276.2
12. Coal Production	61.2	89.0	117.4	195.0
13. Coal Exports - Imports	-26.2	-40.9	-57.2	-81.2
14. Renewables, Electric				
15. Nuclear Energy				
16. Renewables, Nonelectric	0.0	0.0	0.0	0.0
17. Electricity Generation Terawatt Hours (TWh)	706.0	752.1	1248.8	1847.7
18. Carbon Emissions Million Tons (MtC)	333.1	460.7	476.5	565.0
19. Marginal Reduction Costs 1990 \$ per ton of carbon	0.0	0.0	0.0	0.0

Notes:

1. For 1990, the price corresponds to the spot price BRENT (fob) from energy prices and taxes, IEA.

Organization/Project: GRREF; GREEN, Reference Scenario

Country/Region: EEC (EEC)

Reference (including date) of most recent report: OECD GREEN model,
Reference case, submitted to CHALLENGE, July 1993.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	21.0	25.6	33.1	39.0
2. Real GNP (or GDP) Index 1990 = 100	100.0	124.1	145.1	172.3
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	1089.2	1217.6	1352.2	1428.1
4. Total Production	628.6	664.5	755.2	895.6
5. Oil Consumption	485.5	531.6	525.5	384.4
6. Oil Production	135.8	117.1	93.9	72.8
7. Oil Exports - Imports	-349.8	-414.5	-431.5	-311.6
8. Natural Gas Consumption	200.4	226.7	263.5	299.0
9. Natural Gas Production	134.5	144.9	171.8	181.1
10. Gas Exports - Imports	-65.9	-81.9	-91.7	-118.0
11. Coal Consumption	241.9	271.1	330.9	458.3
12. Coal Production	196.9	214.4	257.1	355.4
13. Coal Exports - Imports	-45.0	-56.8	-73.8	-102.9
14. Renewables, Electric				
15. Nuclear Energy				
16. Renewables, Nonelectric	0.0	0.0	0.0	0.0
17. Electricity Generation Terawatt Hours (TWh)	1535.6	1625.2	1889.3	2140.5
18. Carbon Emissions Million Tons (MtC)	823.4	924.4	986.3	1086.9
19. Marginal Reduction Costs 1990 \$ per ton of carbon	0.0	0.0	0.0	0.0

Notes:

1. For 1990, the price corresponds to the spot price BRENT (fob) from energy prices and taxes, IEA.

Organization/Project: GRREF; GREEN, Reference Scenario

Country/Region: ROECD (ROECD)

Reference (including date) of most recent report: OECD GREEN model,
Reference case, submitted to CHALLENGE, July 1993.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	21.0	25.6	33.1	39.0
2. Real GNP (or GDP) Index 1990 = 100	100.0	124.2	145.5	173.0
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	512.0	586.7	677.0	740.3
4. Total Production	600.8	704.5	848.1	958.4
5. Oil Consumption	171.8	198.3	219.1	199.2
6. Oil Production	127.9	120.5	112.4	102.7
7. Oil Exports - Imports	-43.9	-77.8	-106.6	-96.5
8. Natural Gas Consumption	72.1	82.7	103.4	106.9
9. Natural Gas Production	129.5	152.2	193.4	164.5
10. Gas Exports - Imports	57.4	69.5	89.9	57.6
11. Coal Consumption	87.7	104.6	136.6	187.3
12. Coal Production	163.0	230.7	324.3	444.3
13. Coal Exports - Imports	75.3	126.1	187.8	257.0
14. Renewables, Electric				
15. Nuclear Energy				
16. Renewables, Nonelectric	0.0	0.0	0.0	0.0
17. Electricity Generation Terawatt Hours (TWh)	929.4	966.9	1067.2	1150.6
18. Carbon Emissions Million Tons (MtC)	295.6	345.1	392.4	446.4
19. Marginal Reduction Costs 1990 \$ per ton of carbon	0.0	0.0	0.0	0.0

Notes:

1. For 1990, the price corresponds to the spot price BRENT (fob) from energy prices and taxes, IEA.

Organization/Project: GRREF; GREEN, Reference Scenario

Country/Region: ENX (ENX)

Reference (including date) of most recent report: OECD GREEN model,
Reference case, submitted to CHALLENGE, July 1993.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	21.0	25.6	33.1	39.0
2. Real GNP (or GDP) Index 1990 = 100	100.0	143.0	194.7	280.8
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	693.3	905.5	1229.7	1628.8
4. Total Production	2204.8	3220.2	4470.8	5011.2
5. Oil Consumption	467.0	610.7	816.5	970.8
6. Oil Production	1819.7	2759.0	3920.8	4041.4
7. Oil Exports - Imports	1352.7	2148.3	3104.2	3070.5
8. Natural Gas Consumption	121.1	156.6	218.6	367.5
9. Natural Gas Production	240.0	287.5	328.3	613.6
10. Gas Exports - Imports	119.0	130.9	109.8	246.1
11. Coal Consumption	72.4	96.3	136.8	214.9
12. Coal Production	112.2	131.8	164.0	280.7
13. Coal Exports - Imports	39.8	35.5	27.1	65.8
14. Renewables, Electric				
15. Nuclear Energy				
16. Renewables, Nonelectric	0.0	0.0	0.0	0.0
17. Electricity Generation Terawatt Hours (TWh)	589.9	672.5	957.5	1363.2
18. Carbon Emissions Million Tons (MtC)	423.6	562.2	727.0	985.1
19. Marginal Reduction Costs 1990 \$ per ton of carbon	0.0	0.0	0.0	0.0

Notes:

1. For 1990, the price corresponds to the spot price BRENT (fob) from energy prices and taxes, IEA.

Organization/Project: GRREF; GREEN, Reference Scenario

Country/Region: A2 (A2)

Reference (including date) of most recent report: OECD GREEN model,
Reference case, submitted to CHALLENGE, July 1993.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	21.0	25.6	33.1	39.0
2. Real GNP (or GDP) Index 1990 = 100	100.0	155.9	228.5	364.0
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	662.8	964.5	1476.0	2224.2
4. Total Production	681.5	962.7	1429.7	2178.2
5. Oil Consumption	130.9	181.8	226.7	201.9
6. Oil Production	149.0	175.8	175.3	156.9
7. Oil Exports - Imports	18.1	-6.0	-51.4	-45.0
8. Natural Gas Consumption	13.9	19.8	28.6	40.1
9. Natural Gas Production	13.8	19.8	28.4	39.5
10. Gas Exports - Imports	-0.1	0.0	-0.3	-0.5
11. Coal Consumption	491.9	731.2	1183.9	1936.2
12. Coal Production	492.6	735.4	1189.3	1935.6
13. Coal Exports - Imports	0.7	4.2	5.4	-0.6
14. Renewables, Electric				
15. Nuclear Energy				
16. Renewables, Nonelectric	0.0	0.0	0.0	0.0
17. Electricity Generation Terawatt Hours (TWh)	497.6	562.3	851.8	1228.2
18. Carbon Emissions Million Tons (MtC)	600.6	884.4	1378.4	2171.2
19. Marginal Reduction Costs 1990 \$ per ton of carbon	0.0	0.0	0.0	0.0

Notes:

1. For 1990, the price corresponds to the spot price BRENT (fob) from energy prices and taxes, IEA.

Organization/Project: GRREF; GREEN, Reference Scenario

Country/Region: USSR (USSR)

Reference (including date) of most recent report: OECD GREEN model,
Reference case, submitted to CHALLENGE, July 1993.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	21.0	25.6	33.1	39.0
2. Real GNP (or GDP) Index 1990 = 100	100.0	132.2	163.5	214.6
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	1608.9	2039.6	2506.9	2731.0
4. Total Production	1767.0	2281.2	2781.4	2971.3
5. Oil Consumption	578.5	585.2	553.0	502.6
6. Oil Production	575.5	558.9	486.2	398.0
7. Oil Exports - Imports	-3.0	-26.3	-66.8	-104.7
8. Natural Gas Consumption	546.3	806.2	1030.6	903.9
9. Natural Gas Production	674.7	1017.2	1273.5	1098.7
10. Gas Exports - Imports	128.4	211.0	242.9	194.8
11. Coal Consumption	380.5	532.3	792.4	1162.6
12. Coal Production	413.1	589.2	890.8	1312.7
13. Coal Exports - Imports	32.7	56.9	98.4	150.1
14. Renewables, Electric				
15. Nuclear Energy				
16. Renewables, Nonelectric	0.0	0.0	0.0	0.0
17. Electricity Generation Terawatt Hours (TWh)	1631.1	1702.4	2037.7	2455.9
18. Carbon Emissions Million Tons (MtC)	1059.5	1367.5	1738.8	2021.5
19. Marginal Reduction Costs 1990 \$ per ton of carbon	0.0	0.0	0.0	0.0

Notes:

1. For 1990, the price corresponds to the spot price BRENT (fob) from energy prices and taxes, IEA.

Organization/Project: GRREF; GREEN, Reference Scenario

Country/Region: INDIA (INDIA)

Reference (including date) of most recent report: OECD GREEN model,
Reference case, submitted to CHALLENGE, July 1993.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	21.0	25.6	33.1	39.0
2. Real GNP (or GDP) Index 1990 = 100	100.0	157.6	233.6	375.5
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	179.0	267.5	413.9	650.2
4. Total Production	152.2	218.2	336.9	553.3
5. Oil Consumption	55.5	78.9	100.4	113.3
6. Oil Production	29.0	30.9	24.8	18.1
7. Oil Exports - Imports	-26.5	-48.0	-75.6	-95.2
8. Natural Gas Consumption	4.7	6.7	8.8	10.5
9. Natural Gas Production	4.6	6.6	8.6	10.5
10. Gas Exports - Imports	-0.1	-0.2	-0.3	0.0
11. Coal Consumption	104.3	165.8	288.2	510.8
12. Coal Production	104.1	164.6	287.2	509.0
13. Coal Exports - Imports	-0.2	-1.2	-1.1	-1.8
14. Renewables, Electric				
15. Nuclear Energy				
16. Renewables, Nonelectric	0.0	0.0	0.0	0.0
17. Electricity Generation Terawatt Hours (TWh)	213.1	249.6	385.5	525.4
18. Carbon Emissions Million Tons (MtC)	151.2	232.7	370.6	613.9
19. Marginal Reduction Costs 1990 \$ per ton of carbon	0.0	0.0	0.0	0.0

Notes:

1. For 1990, the price corresponds to the spot price BRENT (fob) from energy prices and taxes, IEA.

Organization/Project: GRREF; GREEN, Reference Scenario

Country/Region: EEUR (EEUR)

Reference (including date) of most recent report: OECD GREEN model,
Reference case, submitted to CHALLENGE, July 1993.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	21.0	25.6	33.1	39.0
2. Real GNP (or GDP) Index 1990 = 100	100.0	130.2	157.3	198.3
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	432.6	537.2	686.6	826.0
4. Total Production	350.7	439.0	577.6	713.5
5. Oil Consumption	98.1	120.4	144.1	148.0
6. Oil Production	11.4	9.9	8.0	6.5
7. Oil Exports - Imports	-86.6	-110.5	-136.1	-141.6
8. Natural Gas Consumption	66.6	84.1	105.1	110.5
9. Natural Gas Production	51.5	64.8	78.6	60.8
10. Gas Exports - Imports	-15.1	-19.3	-26.5	-49.7
11. Coal Consumption	244.6	305.5	406.7	530.3
12. Coal Production	264.3	337.1	460.3	609.1
13. Coal Exports - Imports	19.7	31.6	53.6	78.8
14. Renewables, Electric				
15. Nuclear Energy				
16. Renewables, Nonelectric	0.0	0.0	0.0	0.0
17. Electricity Generation Terawatt Hours (TWh)	484.8	516.5	637.0	778.4
18. Carbon Emissions Million Tons (MtC)	359.4	445.2	565.2	699.4
19. Marginal Reduction Costs 1990 \$ per ton of carbon	0.0	0.0	0.0	0.0

Notes:

1. For 1990, the price corresponds to the spot price BRENT (fob) from energy prices and taxes, IEA.

Organization/Project: GRREF; GREEN, Reference Scenario

Country/Region: DAE (DAE)

Reference (including date) of most recent report: OECD GREEN model,
Reference case, submitted to CHALLENGE, July 1993.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	21.0	25.6	33.1	39.0
2. Real GNP (or GDP) Index 1990 = 100	100.0	153.3	221.9	345.7
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	155.3	222.5	310.6	391.7
4. Total Production	39.4	53.5	77.2	123.1
5. Oil Consumption	94.3	139.7	191.7	211.5
6. Oil Production	1.5	1.5	1.5	1.5
7. Oil Exports - Imports	-92.8	-138.2	-190.2	-210.0
8. Natural Gas Consumption	4.2	5.9	8.5	13.5
9. Natural Gas Production	3.3	4.6	7.2	10.5
10. Gas Exports - Imports	-1.0	-1.3	-1.3	-3.0
11. Coal Consumption	38.2	55.1	79.8	121.3
12. Coal Production	16.1	25.5	37.9	65.7
13. Coal Exports - Imports	-22.1	-29.6	-41.9	-55.6
14. Renewables, Electric				
15. Nuclear Energy				
16. Renewables, Nonelectric	0.0	0.0	0.0	0.0
17. Electricity Generation Terawatt Hours (TWh)	208.3	226.8	289.9	372.3
18. Carbon Emissions Million Tons (MtC)	108.2	155.9	204.7	278.7
19. Marginal Reduction Costs 1990 \$ per ton of carbon	0.0	0.0	0.0	0.0

Notes:

1. For 1990, the price corresponds to the spot price BRENT (fob) from energy prices and taxes, IEA.

Organization/Project: GRREF; GREEN, Reference Scenario

Country/Region: BRAZI (BRAZI)

Reference (including date) of most recent report: OECD GREEN model,
Reference case, submitted to CHALLENGE, July 1993.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	21.0	25.6	33.1	39.0
2. Real GNP (or GDP) Index 1990 = 100	100.0	154.1	223.6	351.2
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	184.1	246.3	324.6	395.5
4. Total Production	74.1	88.8	100.1	119.3
5. Oil Consumption	129.8	176.9	232.4	269.4
6. Oil Production	27.2	30.7	23.8	16.8
7. Oil Exports - Imports	-102.5	-146.2	-208.6	-252.6
8. Natural Gas Consumption	10.9	15.0	20.1	25.6
9. Natural Gas Production	5.5	6.2	8.2	7.5
10. Gas Exports - Imports	-5.4	-8.8	-11.8	-18.1
11. Coal Consumption	4.7	6.6	11.0	23.3
12. Coal Production	2.7	4.0	6.9	17.8
13. Coal Exports - Imports	-2.0	-2.5	-4.1	-5.5
14. Renewables, Electric				
15. Nuclear Energy				
16. Renewables, Nonelectric	0.0	0.0	0.0	0.0
17. Electricity Generation Terawatt Hours (TWh)	170.9	197.5	290.5	371.5
18. Carbon Emissions Million Tons (MtC)	96.3	131.9	162.4	207.1
19. Marginal Reduction Costs 1990 \$ per ton of carbon	0.0	0.0	0.0	0.0

Notes:

1. For 1990, the price corresponds to the spot price BRENT (fob) from energy prices and taxes, IEA.

Organization/Project: GRREF; GREEN, Reference Scenario

Country/Region: ROW12 (ROW12)

Reference (including date) of most recent report: OECD GREEN model,
Reference case, submitted to CHALLENGE, July 1993.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	21.0	25.6	33.1	39.0
2. Real GNP (or GDP) Index 1990 = 100	100.0	141.1	187.6	260.7
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	431.1	580.6	778.7	958.3
4. Total Production	845.1	995.0	963.7	1042.8
5. Oil Consumption	196.5	270.9	354.0	336.2
6. Oil Production	607.7	684.1	528.4	372.2
7. Oil Exports - Imports	411.2	413.2	174.4	36.0
8. Natural Gas Consumption	39.8	54.4	74.9	106.9
9. Natural Gas Production	48.7	67.2	101.0	171.1
10. Gas Exports - Imports	8.8	12.9	26.1	64.2
11. Coal Consumption	128.3	168.9	241.0	373.2
12. Coal Production	122.3	157.3	225.5	357.4
13. Coal Exports - Imports	-6.0	-11.7	-15.5	-15.8
14. Renewables, Electric				
15. Nuclear Energy				
16. Renewables, Nonelectric	0.0	0.0	0.0	0.0
17. Electricity Generation Terawatt Hours (TWh)	555.9	639.1	927.7	1215.1
18. Carbon Emissions Million Tons (MtC)	310.3	414.4	535.8	707.1
19. Marginal Reduction Costs 1990 \$ per ton of carbon	0.0	0.0	0.0	0.0

Notes:

1. For 1990, the price corresponds to the spot price BRENT (fob) from energy prices and taxes, IEA.

Organization/Project: GRREF; GREEN, Reference Scenario

Country/Region: A8 (A8)

Reference (including date) of most recent report: OECD GREEN model,
Reference case, submitted to CHALLENGE, July 1993.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	21.0	25.6	33.1	39.0
2. Real GNP (or GDP) Index 1990 = 100	100.0	133.9	169.1	223.3
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	8065.4	10066.3	12764.3	15369.4
4. Total Production	8920.5	11297.6	14412.0	17144.7
5. Oil Consumption	3308.9	3975.2	4496.7	4242.4
6. Oil Production	3870.7	4785.7	5607.1	5372.0
7. Oil Exports - Imports	561.9	810.5	1110.4	1129.6
8. Natural Gas Consumption	1534.9	1968.1	2437.1	2553.3
9. Natural Gas Production	1698.2	2199.8	2701.8	2801.4
10. Gas Exports - Imports	163.2	231.6	264.7	248.1
11. Coal Consumption	2317.4	3070.2	4408.8	6676.3
12. Coal Production	2447.5	3259.3	4681.4	7073.9
13. Coal Exports - Imports	130.1	189.1	272.6	397.6
14. Renewables, Electric				
15. Nuclear Energy				
16. Renewables, Nonelectric	0.0	0.0	0.0	0.1
17. Electricity Generation Terawatt Hours (TWh)	10301.1	11121.7	14305.5	17748.8
18. Carbon Emissions Million Tons (MtC)	5911.4	7471.0	9269.9	11733.2
19. Marginal Reduction Costs 1990 \$ per ton of carbon	0.0	0.0	0.0	0.0

Notes:

1. For 1990, the price corresponds to the spot price BRENT (fob) from energy prices and taxes, IEA.

Organization/Project: IAEA; IAEA, High

Country/Region: World (A8)

Reference (including date) of most recent report: Energy, Electricity, and Nuclear Power Estimates for the Period up to 2015, July 1995.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel				
2. Real GNP (or GDP) Index 1990 = 100				
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption				
4. Total Production				
5. Oil Consumption				
6. Oil Production				
7. Oil Exports - Imports				
8. Natural Gas Consumption				
9. Natural Gas Production				
10. Gas Exports - Imports				
11. Coal Consumption				
12. Coal Production				
13. Coal Exports - Imports				
14. Renewables, Electric				
15. Nuclear Energy	460.0	599.0	760.0	
16. Renewables, Nonelectric				
17. Electricity Generation Terawatt Hours (TWh)				
18. Carbon Emissions Million Tons (MtC)				
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Organization/Project: IAEAL; IAEA, Low

Country/Region: World (A8)

Reference (including date) of most recent report: Energy, Electricity, and Nuclear Power Estimates for the Period up to 2015, July 1995.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel				
2. Real GNP (or GDP) Index 1990 = 100				
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption				
4. Total Production				
5. Oil Consumption				
6. Oil Production				
7. Oil Exports - Imports				
8. Natural Gas Consumption				
9. Natural Gas Production				
10. Gas Exports - Imports				
11. Coal Consumption				
12. Coal Production				
13. Coal Exports - Imports				
14. Renewables, Electric				
15. Nuclear Energy	460.0	586.0	624.0	
16. Renewables, Nonelectric				
17. Electricity Generation Terawatt Hours (TWh)				
18. Carbon Emissions Million Tons (MtC)				
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Organization/Project: IEA; IEA World Energy Outlook

Country/Region: China (A2)

Reference (including date) of most recent report: World Energy Outlook, 1994.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	22.2	20.9	25.5	
2. Real GNP (or GDP) Index 1990 = 100	100.0	228.0	449.0	
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	673.0	984.0	1487.0	
4. Total Production				
5. Oil Consumption	117.0	193.0	313.0	
6. Oil Production				
7. Oil Exports - Imports				
8. Natural Gas Consumption	13.0	28.0	55.0	
9. Natural Gas Production				
10. Gas Exports - Imports				
11. Coal Consumption	515.0	699.0	995.0	
12. Coal Production				
13. Coal Exports - Imports				
14. Renewables, Electric	28.0	60.0	108.0	
15. Nuclear Energy	0.0	3.0	15.0	
16. Renewables, Nonelectric	0.0	0.0	0.0	
17. Electricity Generation Terawatt Hours (TWh)	621.0	1204.0	2094.0	
18. Carbon Emissions Million Tons (MtC)				
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Notes:

Row 1: IEA import price

Row 14: Hydro only

Row 16: Solar, other renewables and geothermal

Row 14,15,16: Converted to primary equivalent with a factor of 1/0.385

Organization/Project: IEA; IEA World Energy Outlook

Country/Region: OECD (A4)

Reference (including date) of most recent report: World Energy Outlook, 1994.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	22.2	20.9	25.5	
2. Real GNP (or GDP) Index 1990 = 100	100.0	123.0	156.0	
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	4163.0	4771.0	5359.0	
4. Total Production				
5. Oil Consumption	1722.0	1925.0	2021.0	
6. Oil Production	760.0	758.0	678.0	
7. Oil Exports - Imports	-962.0	-1167.0	-1343.0	
8. Natural Gas Consumption	786.0	964.0	1231.0	
9. Natural Gas Production				
10. Gas Exports - Imports				
11. Coal Consumption	1029.0	1131.0	1299.0	
12. Coal Production				
13. Coal Exports - Imports				
14. Renewables, Electric	253.0	306.0	331.0	
15. Nuclear Energy	364.0	425.0	444.0	
16. Renewables, Nonelectric	6.0	18.0	31.0	
17. Electricity Generation Terawatt Hours (TWh)	7079.0	8547.0	10674.0	
18. Carbon Emissions Million Tons (MtC)				
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Notes:

Row 1: IEA import price

Row 14: Hydro only

Row 16: Solar, other renewables and geothermal

Row 14,15,16: Converted to primary equivalent with a factor of 1/0.385

Organization/Project: IEA; IEA World Energy Outlook

Country/Region: World (A8)

Reference (including date) of most recent report: World Energy Outlook, 1994.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	22.2	20.9	25.5	
2. Real GNP (or GDP) Index 1990 = 100	100.0	127.0	172.0	
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	7995.0	9397.0	11885.0	
4. Total Production				
5. Oil Consumption	3071.0	3531.0	4299.0	
6. Oil Production				
7. Oil Exports - Imports				
8. Natural Gas Consumption	1683.0	2020.0	2718.0	
9. Natural Gas Production				
10. Gas Exports - Imports				
11. Coal Consumption	2301.0	2627.0	3363.0	
12. Coal Production				
13. Coal Exports - Imports				
14. Renewables, Electric	481.0	652.0	857.0	
15. Nuclear Energy	450.0	540.0	605.0	
16. Renewables, Nonelectric	9.0	25.0	44.0	
17. Electricity Generation Terawatt Hours (TWh)	11822.0	14976.0	20450.0	
18. Carbon Emissions Million Tons (MtC)				
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Notes:

Row 1: IEA import price

Row 14: Hydro only

Row 16: Solar, other renewables and geothermal

Row 14,15,16: Converted to primary equivalent with a factor of 1/0.385

Organization/Project: IEA; IEA World Energy Outlook

Country/Region: Africa (AFR)

Reference (including date) of most recent report: World Energy Outlook, 1994.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	22.2	20.9	25.5	
2. Real GNP (or GDP) Index 1990 = 100	100.0	136.0	200.0	
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	221.0	293.0	402.0	
4. Total Production				
5. Oil Consumption	88.0	115.0	157.0	
6. Oil Production				
7. Oil Exports - Imports				
8. Natural Gas Consumption	31.0	45.0	73.0	
9. Natural Gas Production				
10. Gas Exports - Imports				
11. Coal Consumption	88.0	116.0	153.0	
12. Coal Production				
13. Coal Exports - Imports				
14. Renewables, Electric	12.0	15.0	16.0	
15. Nuclear Energy	2.0	2.0	2.0	
16. Renewables, Nonelectric	0.0	0.0	0.0	
17. Electricity Generation Terawatt Hours (TWh)	320.0	451.0	657.0	
18. Carbon Emissions Million Tons (MtC)				
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Notes:

Row 1: IEA import price

Row 14: Hydro only

Row 16: Solar, other renewables and geothermal

Row 14,15,16: Converted to primary equivalent with a factor of 1/0.385

Organization/Project: IEA; IEA World Energy Outlook

Country/Region: Central and Eastern Europe (EEUR)

Reference (including date) of most recent report: World Energy Outlook, 1994.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	22.2	20.9	25.5	
2. Real GNP (or GDP) Index 1990 = 100	100.0	108.0	160.0	
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	332.0	292.0	381.0	
4. Total Production				
5. Oil Consumption	80.0	74.0	103.0	
6. Oil Production				
7. Oil Exports - Imports				
8. Natural Gas Consumption	67.0	65.0	98.0	
9. Natural Gas Production				
10. Gas Exports - Imports				
11. Coal Consumption	160.0	124.0	151.0	
12. Coal Production				
13. Coal Exports - Imports				
14. Renewables, Electric	10.0	11.0	14.0	
15. Nuclear Energy	13.0	16.0	14.0	
16. Renewables, Nonelectric	0.0	0.0	0.0	
17. Electricity Generation Terawatt Hours (TWh)	444.0	434.0	581.0	
18. Carbon Emissions Million Tons (MtC)				
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Notes:

Row 1: IEA import price

Row 14: Hydro only

Row 16: Solar, other renewables and geothermal

Row 14,15,16: Converted to primary equivalent with a factor of 1/0.385

Organization/Project: IEA; IEA World Energy Outlook

Country/Region: Latin America (LATAM)

Reference (including date) of most recent report: World Energy Outlook, 1994.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	22.2	20.9	25.5	
2. Real GNP (or GDP) Index 1990 = 100	100.0	144.0	212.0	
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	431.0	598.0	849.0	
4. Total Production				
5. Oil Consumption	244.0	321.0	436.0	
6. Oil Production				
7. Oil Exports - Imports				
8. Natural Gas Consumption	75.0	99.0	141.0	
9. Natural Gas Production				
10. Gas Exports - Imports				
11. Coal Consumption	21.0	36.0	55.0	
12. Coal Production				
13. Coal Exports - Imports				
14. Renewables, Electric	87.0	133.0	202.0	
15. Nuclear Energy	3.0	6.0	9.0	
16. Renewables, Nonelectric	1.0	3.0	5.0	
17. Electricity Generation Terawatt Hours (TWh)	604.0	901.0	1372.0	
18. Carbon Emissions Million Tons (MtC)				
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Notes:

Row 1: IEA import price

Row 14: Hydro only

Row 16: Solar, other renewables and geothermal

Row 14,15,16: Converted to primary equivalent with a factor of 1/0.385

Organization/Project: IEA; IEA World Energy Outlook

Country/Region: OECD Europe (OECD)

Reference (including date) of most recent report: World Energy Outlook, 1994.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	22.2	20.9	25.5	
2. Real GNP (or GDP) Index 1990 = 100	100.0	121.0	151.0	
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	1450.0	1646.0	1839.0	
4. Total Production				
5. Oil Consumption	603.0	675.0	699.0	
6. Oil Production				
7. Oil Exports - Imports				
8. Natural Gas Consumption	230.0	313.0	404.0	
9. Natural Gas Production				
10. Gas Exports - Imports				
11. Coal Consumption	353.0	348.0	418.0	
12. Coal Production				
13. Coal Exports - Imports				
14. Renewables, Electric	98.0	115.0	123.0	
15. Nuclear Energy	166.0	187.0	182.0	
16. Renewables, Nonelectric	1.0	7.0	11.0	
17. Electricity Generation Terawatt Hours (TWh)	2379.0	2897.0	3661.0	
18. Carbon Emissions Million Tons (MtC)				
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Notes:

Row 1: IEA import price

Row 14: Hydro only

Row 16: Solar, other renewables and geothermal

Row 14,15,16: Converted to primary equivalent with a factor of 1/0.385

Organization/Project: IEA; IEA World Energy Outlook

Country/Region: North America (OECDN)

Reference (including date) of most recent report: World Energy Outlook, 1994.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	22.2	20.9	25.5	
2. Real GNP (or GDP) Index 1990 = 100	100.0	123.0	153.0	
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	2174.0	2475.0	2748.0	
4. Total Production				
5. Oil Consumption	835.0	932.0	987.0	
6. Oil Production				
7. Oil Exports - Imports				
8. Natural Gas Consumption	495.0	571.0	700.0	
9. Natural Gas Production				
10. Gas Exports - Imports				
11. Coal Consumption	561.0	630.0	698.0	
12. Coal Production				
13. Coal Exports - Imports				
14. Renewables, Electric	127.0	158.0	169.0	
15. Nuclear Energy	153.0	173.0	175.0	
16. Renewables, Nonelectric	4.0	10.0	18.0	
17. Electricity Generation Terawatt Hours (TWh)	3664.0	4316.0	5202.0	
18. Carbon Emissions Million Tons (MtC)				
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Notes:

Row 1: IEA import price

Row 14: Hydro only

Row 16: Solar, other renewables and geothermal

Row 14,15,16: Converted to primary equivalent with a factor of 1/0.385

Organization/Project: IEA; IEA World Energy Outlook

Country/Region: OECD Pacific (OECDP)

Reference (including date) of most recent report: World Energy Outlook, 1994.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	22.2	20.9	25.5	
2. Real GNP (or GDP) Index 1990 = 100	100.0	129.0	167.0	
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	538.0	650.0	772.0	
4. Total Production				
5. Oil Consumption	286.0	318.0	335.0	
6. Oil Production				
7. Oil Exports - Imports				
8. Natural Gas Consumption	62.0	80.0	127.0	
9. Natural Gas Production				
10. Gas Exports - Imports				
11. Coal Consumption	116.0	153.0	183.0	
12. Coal Production				
13. Coal Exports - Imports				
14. Renewables, Electric	28.0	33.0	38.0	
15. Nuclear Energy	45.0	65.0	86.0	
16. Renewables, Nonelectric	1.0	1.0	2.0	
17. Electricity Generation Terawatt Hours (TWh)	1037.0	1334.0	1811.0	
18. Carbon Emissions Million Tons (MtC)				
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Notes:

Row 1: IEA import price

Row 14: Hydro only

Row 16: Solar, other renewables and geothermal

Row 14,15,16: Converted to primary equivalent with a factor of 1/0.385

Organization/Project: IEA; IEA World Energy Outlook

Country/Region: South Asia (SASIA)

Reference (including date) of most recent report: World Energy Outlook, 1994.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	22.2	20.9	25.5	
2. Real GNP (or GDP) Index 1990 = 100	100.0	153.0	251.0	
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	227.0	348.0	599.0	
4. Total Production				
5. Oil Consumption	74.0	112.0	183.0	
6. Oil Production				
7. Oil Exports - Imports				
8. Natural Gas Consumption	23.0	33.0	60.0	
9. Natural Gas Production				
10. Gas Exports - Imports				
11. Coal Consumption	108.0	162.0	272.0	
12. Coal Production				
13. Coal Exports - Imports				
14. Renewables, Electric	20.0	37.0	79.0	
15. Nuclear Energy	1.0	4.0	5.0	
16. Renewables, Nonelectric	0.0	0.0	0.0	
17. Electricity Generation Terawatt Hours (TWh)	341.0	543.0	1010.0	
18. Carbon Emissions Million Tons (MtC)				
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Notes:

Row 1: IEA import price

Row 14: Hydro only

Row 16: Solar, other renewables and geothermal

Row 14,15,16: Converted to primary equivalent with a factor of 1/0.385

Organization/Project: IEA; IEA World Energy Outlook

Country/Region: Former Soviet Union (USSR)

Reference (including date) of most recent report: World Energy Outlook, 1994.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	22.2	20.9	25.5	
2. Real GNP (or GDP) Index 1990 = 100	100.0	75.0	111.0	
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	1366.0	1180.0	1366.0	
4. Total Production				
5. Oil Consumption	409.0	306.0	391.0	
6. Oil Production				
7. Oil Exports - Imports				
8. Natural Gas Consumption	572.0	556.0	629.0	
9. Natural Gas Production				
10. Gas Exports - Imports				
11. Coal Consumption	289.0	201.0	200.0	
12. Coal Production				
13. Coal Exports - Imports				
14. Renewables, Electric	52.0	64.0	75.0	
15. Nuclear Energy	47.0	55.0	71.0	
16. Renewables, Nonelectric	0.0	0.0	0.0	
17. Electricity Generation Terawatt Hours (TWh)	1727.0	1690.0	2047.0	
18. Carbon Emissions Million Tons (MtC)				
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Notes:

Row 1: IEA import price

Row 14: Hydro only

Row 16: Solar, other renewables and geothermal

Row 14,15,16: Converted to primary equivalent with a factor of 1/0.385

Organization/Project: IGIDR; Indira Gandhi Institute of Development
Research (IGIDR)

Country/Region: India (INDIA)

Reference (including date) of most recent report: Simulation of
Macroeconomic Scenarios (SIMA), January 1994.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	26.0	26.0	26.0	26.0
2. Real GNP (or GDP) Index 1990 = 100	100.0	151.0	255.0	420.0
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	181.0	288.0	559.0	963.0
4. Total Production				
5. Oil Consumption	54.0	84.0	177.0	314.0
6. Oil Production	34.0	43.0	50.0	52.0
7. Oil Exports - Imports	-20.0	-42.0	-126.0	-262.0
8. Natural Gas Consumption	15.0	21.0	27.0	31.0
9. Natural Gas Production				
10. Gas Exports - Imports				
11. Coal Consumption	107.0	171.0	331.0	566.0
12. Coal Production	104.0	171.0	331.0	566.0
13. Coal Exports - Imports	-3.0	0.0	0.0	0.0
14. Renewables, Electric	5.0	12.0	24.0	52.0
15. Nuclear Energy				
16. Renewables, Nonelectric				
17. Electricity Generation Terawatt Hours (TWh)	285.0	491.0	946.0	1645.0
18. Carbon Emissions Million Tons (MtC)	157.0	268.0	514.0	878.0
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Organization/Project: INETH; Institute for Nuclear Energy Technology,
Beijing; High

Country/Region: 2. China (A2)

Reference (including date) of most recent report: Long-Term Energy Demand
and CO2 Emissions of China, December 1995.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel				
2. Real GNP (or GDP) Index 1990 = 100	100.0	284.0	672.0	1386.0
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	691.0	1090.0	1620.0	2240.0
4. Total Production	727.0	1042.0	1512.0	2068.0
5. Oil Consumption	115.0	240.0	350.0	450.0
6. Oil Production	138.0	190.0	240.0	280.0
7. Oil Exports - Imports	23.0	-50.0	-110.0	-150.0
8. Natural Gas Consumption	14.0	30.0	50.0	70.0
9. Natural Gas Production	14.0	31.0	44.0	61.0
10. Gas Exports - Imports	0.0	-1.0	-6.0	-9.0
11. Coal Consumption	528.0	739.0	1062.0	1463.0
12. Coal Production	540.0	740.0	1070.0	1470.0
13. Coal Exports - Imports	8.0	0.0	5.0	5.0
14. Renewables, Electric	34.0	75.0	121.0	145.0
15. Nuclear Energy	0.0	5.4	36.0	110.0
16. Renewables, Nonelectric	0.1	0.6	0.8	2.2
17. Electricity Generation Terawatt Hours (TWh)	621.0	1400.0	2300.0	3400.0
18. Carbon Emissions Million Tons (MtC)	625.0	935.0	1352.0	1841.0
19. Marginal Reduction Costs 1990 \$ per ton of carbon	0.0	60.0	85.0	110.0

Organization/Project: INETL; Institute for Nuclear Energy Technology,
Beijing; Low

Country/Region: 2. China (A2)

Reference (including date) of most recent report: Long-Term Energy Demand
and CO2 Emissions of China, December 1995.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel				
2. Real GNP (or GDP) Index 1990 = 100	100.0	237.0	488.0	874.0
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	691.0	1030.0	1470.0	1960.0
4. Total Production	727.0	1006.0	1436.0	1818.0
5. Oil Consumption	115.0	230.0	320.0	400.0
6. Oil Production	138.0	185.0	220.0	260.0
7. Oil Exports - Imports	23.0	-45.0	-100.0	-130.0
8. Natural Gas Consumption	14.0	28.0	47.0	65.0
9. Natural Gas Production	14.0	28.0	42.0	56.0
10. Gas Exports - Imports	0.0	0.0	-5.0	-9.0
11. Coal Consumption	528.0	693.0	958.0	1274.0
12. Coal Production	540.0	715.0	1030.0	1280.0
13. Coal Exports - Imports	8.0	10.0	15.0	5.0
14. Renewables, Electric	34.0	73.5	112.0	136.5
15. Nuclear Energy	0.0	4.6	32.0	83.0
16. Renewables, Nonelectric	0.1	0.3	0.4	1.9
17. Electricity Generation Terawatt Hours (TWh)	621.0	1300.0	2100.0	3000.0
18. Carbon Emissions Million Tons (MtC)	625.0	880.0	1223.0	1610.0
19. Marginal Reduction Costs 1990 \$ per ton of carbon	0.0	50.0	75.0	100.0

Organization/Project: ISPRES; Yuri Sinyak, ECS, IIASA, Scenario P1
(preferable)

Country/Region: Eastern Europe (EEUR)

Reference (including date) of most recent report: TEPCO Study, May 1995.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel				
2. Real GNP (or GDP) Index 1990 = 100	100.0	90.0	130.0	185.0
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	336.0	274.0		291.0
4. Total Production	238.7	165.0		178.0
5. Oil Consumption	78.8	66.0		52.0
6. Oil Production	10.8	4.0		2.0
7. Oil Exports - Imports	-68.0	-62.0		-50.0
8. Natural Gas Consumption	66.4	66.0		71.0
9. Natural Gas Production	30.7	13.0		3.0
10. Gas Exports - Imports	-35.7	-53.0		-68.0
11. Coal Consumption	159.4	110.0		126.0
12. Coal Production	165.8	116.0		131.0
13. Coal Exports - Imports	6.4	6.0		6.0
14. Renewables, Electric	12.6	9.0		10.0
15. Nuclear Energy	15.0	15.0		23.0
16. Renewables, Nonelectric	3.8	8.0		9.0
17. Electricity Generation Terawatt Hours (TWh)	442.0	369.0		530.0
18. Carbon Emissions Million Tons (MtC)	310.0	237.0		247.0
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Organization/Project: ISPRE; Yuri Sinyak, ECS, IIASA, Scenario P1
(preferable)

Country/Region: Former Soviet Union (USSR)

Reference (including date) of most recent report: TEPCO Study, May 1995.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel				
2. Real GNP (or GDP) Index 1990 = 100	100.0	60.0	96.0	150.0
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	1395.0	1080.0		1325.0
4. Total Production	1636.5	1310.0		1590.0
5. Oil Consumption	401.5	220.0		257.0
6. Oil Production	531.5	322.0		359.0
7. Oil Exports - Imports	130.0	102.0		102.0
8. Natural Gas Consumption	575.5	538.0		685.0
9. Natural Gas Production	673.5	651.0		833.0
10. Gas Exports - Imports	98.0	113.0		148.0
11. Coal Consumption	279.8	191.0		228.0
12. Coal Production	293.3	206.0		243.0
13. Coal Exports - Imports	13.5	15.0		15.0
14. Renewables, Electric	56.0	55.0		67.0
15. Nuclear Energy	47.2	41.0		34.0
16. Renewables, Nonelectric	35.0	35.0		54.0
17. Electricity Generation Terawatt Hours (TWh)	1727.0	1393.0		1914.0
18. Carbon Emissions Million Tons (MtC)	1013.0	771.0		941.0
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Organization/Project: ISREF; Yuri Sinyak, ECS, IIASA, Scenario R
(reference)

Country/Region: Eastern Europe (EEUR)

Reference (including date) of most recent report: TEPCO Study, May 1995.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel				
2. Real GNP (or GDP) Index 1990 = 100	100.0	90.0	127.0	177.0
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	336.0	285.0		389.0
4. Total Production	238.7	175.0		276.0
5. Oil Consumption	78.8	66.0		62.0
6. Oil Production	10.8	4.0		12.0
7. Oil Exports - Imports	-68.0	-62.0		-50.0
8. Natural Gas Consumption	66.4	81.0		97.0
9. Natural Gas Production	30.7	28.0		29.0
10. Gas Exports - Imports	-35.7	-53.0		-68.0
11. Coal Consumption	159.4	111.0		196.0
12. Coal Production	165.8	117.0		201.0
13. Coal Exports - Imports	6.4	6.0		6.0
14. Renewables, Electric	12.6	9.0		10.0
15. Nuclear Energy	15.0	9.0		12.0
16. Renewables, Nonelectric	3.8	8.0		12.0
17. Electricity Generation Terawatt Hours (TWh)	442.0	382.0		715.0
18. Carbon Emissions Million Tons (MtC)	310.0	249.0		358.0
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Organization/Project: ISREF; Yuri Sinyak, ECS, IIASA, Scenario R
(reference)

Country/Region: Former Soviet Union (USSR)

Reference (including date) of most recent report: TEPCO Study, May 1995.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel				
2. Real GNP (or GDP) Index 1990 = 100	100.0	60.0	96.0	150.0
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	1395.0	1077.0		1405.0
4. Total Production	1636.5	1307.0		1670.0
5. Oil Consumption	401.5	218.0		261.0
6. Oil Production	531.5	320.0		363.0
7. Oil Exports - Imports	130.0	102.0		102.0
8. Natural Gas Consumption	575.5	539.0		841.0
9. Natural Gas Production	673.5	652.0		989.0
10. Gas Exports - Imports	98.0	113.0		148.0
11. Coal Consumption	279.8	190.0		168.0
12. Coal Production	293.3	205.0		183.0
13. Coal Exports - Imports	13.5	15.0		15.0
14. Renewables, Electric	56.0	55.0		69.0
15. Nuclear Energy	47.2	41.0		20.0
16. Renewables, Nonelectric	35.0	34.0		46.0
17. Electricity Generation Terawatt Hours (TWh)	1727.0	1388.0		1859.0
18. Carbon Emissions Million Tons (MtC)	1013.0	768.0		967.0
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Organization/Project: ISUNF; Yuri Sinyak, ECS, IIASA, Scenario U
(unfavorable)

Country/Region: Eastern Europe (EEUR)

Reference (including date) of most recent report: TEPCO Study, May 1995.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel				
2. Real GNP (or GDP) Index 1990 = 100	100.0	90.0	127.0	177.0
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	336.0	288.0		411.0
4. Total Production	238.7	179.0		299.0
5. Oil Consumption	78.8	66.0		56.0
6. Oil Production	10.8	4.0		6.0
7. Oil Exports - Imports	-68.0	-62.0		-50.0
8. Natural Gas Consumption	66.4	86.0		97.0
9. Natural Gas Production	30.7	33.0		29.0
10. Gas Exports - Imports	-35.7	-53.0		-68.0
11. Coal Consumption	159.4	107.0		233.0
12. Coal Production	165.8	113.0		239.0
13. Coal Exports - Imports	6.4	6.0		6.0
14. Renewables, Electric	12.6	9.0		10.0
15. Nuclear Energy	15.0	12.0		3.0
16. Renewables, Nonelectric	3.8	8.0		12.0
17. Electricity Generation Terawatt Hours (TWh)	442.0	382.0		749.0
18. Carbon Emissions Million Tons (MtC)	310.0	246.0		398.0
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Organization/Project: ISUNF; Yuri Sinyak, ECS, IIASA, Scenario U
(unfavorable)

Country/Region: Former Soviet Union (USSR)

Reference (including date) of most recent report: TEPCO Study, May 1995.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel				
2. Real GNP (or GDP) Index 1990 = 100	100.0	60.0	96.0	150.0
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	1395.0	1108.0		1907.0
4. Total Production	1636.5	1338.0		2172.0
5. Oil Consumption	401.5	222.0		348.0
6. Oil Production	531.5	324.0		450.0
7. Oil Exports - Imports	130.0	102.0		102.0
8. Natural Gas Consumption	575.5	557.0		1060.0
9. Natural Gas Production	673.5	670.0		1208.0
10. Gas Exports - Imports	98.0	113.0		148.0
11. Coal Consumption	279.8	198.0		304.0
12. Coal Production	293.3	213.0		319.0
13. Coal Exports - Imports	13.5	15.0		15.0
14. Renewables, Electric	56.0	55.0		78.0
15. Nuclear Energy	47.2	41.0		59.0
16. Renewables, Nonelectric	35.0	35.0		58.0
17. Electricity Generation Terawatt Hours (TWh)	1727.0	1385.0		2478.0
18. Carbon Emissions Million Tons (MtC)	1013.0	793.0		1350.0
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Organization/Project: ITREF; 12RT, BAU (business-as-usual) Case

Country/Region: USA (USA)

Reference (including date) of most recent report: Alan S. Manne,
"International Trade - the Impact of Unilateral Carbon Emission
Limits", July 1993.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	21.0	23.4	32.0	37.7
2. Real GNP (or GDP) Index 1990 = 100	100.0	128.2	157.4	192.0
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	1926.6	2121.8	2356.2	2688.5
4. Total Production				
5. Oil Consumption	768.5	1250.2	1207.4	1023.1
6. Oil Production	413.6	406.1	392.1	303.8
7. Oil Exports - Imports	-354.9	-844.1	-815.2	-719.4
8. Natural Gas Consumption	477.0	354.4	339.6	335.5
9. Natural Gas Production	446.5	354.4	339.6	335.5
10. Gas Exports - Imports	-30.5	0.0	0.0	0.0
11. Coal Consumption	467.4	339.1	637.8	963.4
12. Coal Production				
13. Coal Exports - Imports				
14. Renewables, Electric	71.3	71.3	71.3	71.3
15. Nuclear Energy	142.4	106.8	71.3	60.2
16. Renewables, Nonelectric	0.0	0.0	29.4	235.0
17. Electricity Generation Terawatt Hours (TWh)	2808.0	3251.9	3621.7	4351.4
18. Carbon Emissions Million Tons (MtC)	1418.0	1640.8	1902.1	2077.1
19. Marginal Reduction Costs 1990 \$ per ton of carbon	0.0	0.0	0.0	0.0

Organization/Project: ITREF; 12RT, BAU (business-as-usual) Case

Country/Region: JAPAN (JAPAN)

Reference (including date) of most recent report: Alan S. Manne,
"International Trade - the Impact of Unilateral Carbon Emission
Limits", July 1993.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	21.0	23.4	32.0	37.7
2. Real GNP (or GDP) Index 1990 = 100	100.0	145.1	188.2	246.0
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	426.5	539.4	681.2	859.0
4. Total Production				
5. Oil Consumption	239.9	329.8	370.2	328.6
6. Oil Production	0.2	0.6	0.9	0.8
7. Oil Exports - Imports	-239.7	-329.2	-369.3	-327.8
8. Natural Gas Consumption	44.7	100.9	60.4	74.5
9. Natural Gas Production	2.3	2.0	1.4	0.9
10. Gas Exports - Imports	-42.3	-98.8	-59.0	-73.5
11. Coal Consumption	74.5	52.9	200.7	354.0
12. Coal Production				
13. Coal Exports - Imports				
14. Renewables, Electric	22.6	22.6	22.6	22.6
15. Nuclear Energy	44.9	33.6	22.6	36.0
16. Renewables, Nonelectric	0.0	0.0	5.9	47.0
17. Electricity Generation Terawatt Hours (TWh)	808.0	1029.6	1285.6	1645.3
18. Carbon Emissions Million Tons (MtC)	306.0	417.7	580.1	710.3
19. Marginal Reduction Costs 1990 \$ per ton of carbon	0.0	0.0	0.0	0.0

Organization/Project: ITREF; 12RT, BAU (business-as-usual) Case

Country/Region: EEC (EEC)

Reference (including date) of most recent report: Alan S. Manne,
"International Trade - the Impact of Unilateral Carbon Emission
Limits", July 1993.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	21.0	23.4	32.0	37.7
2. Real GNP (or GDP) Index 1990 = 100	100.0	124.0	145.1	168.8
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	1200.4	1390.0	1578.8	1819.0
4. Total Production				
5. Oil Consumption	531.1	775.4	794.3	741.1
6. Oil Production	117.5	110.0	102.9	80.9
7. Oil Exports - Imports	-413.6	-665.4	-691.4	-660.2
8. Natural Gas Consumption	213.9	233.8	244.8	146.6
9. Natural Gas Production	136.3	118.7	89.9	64.5
10. Gas Exports - Imports	-77.6	-115.0	-154.9	-82.1
11. Coal Consumption	278.7	239.0	421.5	743.3
12. Coal Production				
13. Coal Exports - Imports				
14. Renewables, Electric	37.6	37.6	37.6	37.6
15. Nuclear Energy	139.1	104.3	69.6	59.5
16. Renewables, Nonelectric	0.0	0.0	11.8	94.0
17. Electricity Generation Terawatt Hours (TWh)	1703.0	2310.3	2825.9	3390.1
18. Carbon Emissions Million Tons (MtC)	864.0	1087.5	1297.5	1525.2
19. Marginal Reduction Costs 1990 \$ per ton of carbon	0.0	0.0	0.0	0.0

Organization/Project: ITREF; 12RT, BAU (business-as-usual) Case

Country/Region: ROECD (ROECD)

Reference (including date) of most recent report: Alan S. Manne,
"International Trade - the Impact of Unilateral Carbon Emission
Limits", July 1993.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	21.0	23.4	32.0	37.7
2. Real GNP (or GDP) Index 1990 = 100	100.0	125.2	147.0	170.9
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	561.7	681.8	746.5	832.1
4. Total Production				
5. Oil Consumption	192.7	267.5	263.2	157.7
6. Oil Production	199.8	267.5	331.5	326.5
7. Oil Exports - Imports	7.1	0.0	68.3	168.8
8. Natural Gas Consumption	86.9	155.2	247.2	444.6
9. Natural Gas Production	133.9	202.2	294.2	444.6
10. Gas Exports - Imports	47.0	47.0	47.0	0.0
11. Coal Consumption	94.0	80.6	67.4	54.0
12. Coal Production				
13. Coal Exports - Imports				
14. Renewables, Electric	147.1	147.1	147.1	147.1
15. Nuclear Energy	40.9	30.8	20.4	14.5
16. Renewables, Nonelectric	0.0	0.0	0.0	11.8
17. Electricity Generation Terawatt Hours (TWh)	1120.0	1493.5	1686.9	1940.8
18. Carbon Emissions Million Tons (MtC)	313.0	375.1	411.8	424.0
19. Marginal Reduction Costs 1990 \$ per ton of carbon	0.0	0.0	0.0	0.0

Organization/Project: ITREF; 12RT, BAU (business-as-usual) Case

Country/Region: ENX (ENX)

Reference (including date) of most recent report: Alan S. Manne,
"International Trade - the Impact of Unilateral Carbon Emission
Limits", July 1993.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	21.0	23.4	32.0	37.7
2. Real GNP (or GDP) Index 1990 = 100	100.0	131.9	191.7	262.8
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	679.2	776.7	976.7	1250.2
4. Total Production				
5. Oil Consumption	357.2	381.5	333.1	415.2
6. Oil Production	1553.3	2366.3	2191.0	1818.0
7. Oil Exports - Imports	1196.2	1984.9	1858.0	1402.8
8. Natural Gas Consumption	202.1	293.6	559.4	766.9
9. Natural Gas Production	272.6	364.1	629.9	837.4
10. Gas Exports - Imports	70.5	70.5	70.5	70.5
11. Coal Consumption	51.8	34.4	17.3	0.0
12. Coal Production				
13. Coal Exports - Imports				
14. Renewables, Electric	65.1	65.1	65.1	65.1
15. Nuclear Energy	3.1	2.4	1.5	0.9
16. Renewables, Nonelectric	0.0	0.0	0.0	0.0
17. Electricity Generation Terawatt Hours (TWh)	776.0	1080.2	1536.4	2155.8
18. Carbon Emissions Million Tons (MtC)	472.0	487.1	583.9	757.2
19. Marginal Reduction Costs 1990 \$ per ton of carbon	0.0	0.0	0.0	0.0

Organization/Project: ITREF; 12RT, BAU (business-as-usual) Case

Country/Region: A2 (A2)

Reference (including date) of most recent report: Alan S. Manne,
"International Trade - the Impact of Unilateral Carbon Emission
Limits", July 1993.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	21.0	23.4	32.0	37.7
2. Real GNP (or GDP) Index 1990 = 100	100.0	137.1	216.5	327.4
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	662.8	792.6	1028.9	1433.7
4. Total Production				
5. Oil Consumption	108.1	199.9	301.4	299.8
6. Oil Production	136.3	222.4	301.4	299.8
7. Oil Exports - Imports	28.2	22.5	0.0	0.0
8. Natural Gas Consumption	14.1	97.6	157.2	214.6
9. Natural Gas Production	14.1	97.6	157.2	214.6
10. Gas Exports - Imports	0.0	0.0	0.0	0.0
11. Coal Consumption	504.5	458.4	532.9	797.7
12. Coal Production				
13. Coal Exports - Imports				
14. Renewables, Electric	36.2	36.8	37.5	38.5
15. Nuclear Energy	0.0	0.0	0.0	24.7
16. Renewables, Nonelectric	0.0	0.0	0.0	58.8
17. Electricity Generation Terawatt Hours (TWh)	587.0	910.2	1407.7	2205.0
18. Carbon Emissions Million Tons (MtC)	624.0	703.4	900.9	1204.8
19. Marginal Reduction Costs 1990 \$ per ton of carbon	0.0	0.0	0.0	0.0

Organization/Project: ITREF; 12RT, BAU (business-as-usual) Case

Country/Region: USSR (USSR)

Reference (including date) of most recent report: Alan S. Manne,
"International Trade - the Impact of Unilateral Carbon Emission
Limits", July 1993.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	21.0	23.4	32.0	37.7
2. Real GNP (or GDP) Index 1990 = 100	100.0	133.9	163.2	199.2
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	1365.4	1323.8	1336.6	1456.1
4. Total Production				
5. Oil Consumption	418.3	287.2	293.8	289.3
6. Oil Production	561.7	551.8	659.8	739.2
7. Oil Exports - Imports	143.4	264.6	366.1	449.9
8. Natural Gas Consumption	547.5	690.1	748.9	889.3
9. Natural Gas Production	643.9	786.5	845.2	974.5
10. Gas Exports - Imports	96.3	96.3	96.3	85.1
11. Coal Consumption	272.4	233.2	194.3	155.1
12. Coal Production				
13. Coal Exports - Imports				
14. Renewables, Electric	70.8	70.8	70.8	70.8
15. Nuclear Energy	56.4	42.3	28.2	14.1
16. Renewables, Nonelectric	0.0	0.0	0.0	35.2
17. Electricity Generation Terawatt Hours (TWh)	1632.0	1870.2	2121.6	2551.4
18. Carbon Emissions Million Tons (MtC)	959.0	834.6	834.7	872.8
19. Marginal Reduction Costs 1990 \$ per ton of carbon	0.0	0.0	0.0	0.0

Organization/Project: ITREF; 12RT, BAU (business-as-usual) Case

Country/Region: INDIA (INDIA)

Reference (including date) of most recent report: Alan S. Manne,
"International Trade - the Impact of Unilateral Carbon Emission
Limits", July 1993.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	21.0	23.4	32.0	37.7
2. Real GNP (or GDP) Index 1990 = 100	100.0	153.5	241.2	371.7
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	188.6	218.5	298.8	432.3
4. Total Production				
5. Oil Consumption	56.4	72.0	91.1	28.6
6. Oil Production	32.9	35.0	35.6	28.6
7. Oil Exports - Imports	-23.5	-37.0	-55.4	0.0
8. Natural Gas Consumption	9.4	35.0	34.3	28.8
9. Natural Gas Production	11.8	35.0	34.3	28.8
10. Gas Exports - Imports	2.3	0.0	0.0	0.0
11. Coal Consumption	100.8	89.8	137.6	214.0
12. Coal Production				
13. Coal Exports - Imports				
14. Renewables, Electric	19.9	20.2	20.8	21.1
15. Nuclear Energy	2.1	1.5	1.2	25.3
16. Renewables, Nonelectric	0.0	0.0	14.0	114.7
17. Electricity Generation Terawatt Hours (TWh)	271.0	328.5	456.6	682.8
18. Carbon Emissions Million Tons (MtC)	158.0	173.6	238.3	260.5
19. Marginal Reduction Costs 1990 \$ per ton of carbon	0.0	0.0	0.0	0.0

Organization/Project: ITREF; 12RT, BAU (business-as-usual) Case

Country/Region: EEUR (EEUR)

Reference (including date) of most recent report: Alan S. Manne,
"International Trade - the Impact of Unilateral Carbon Emission
Limits", July 1993.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	21.0	23.4	32.0	37.7
2. Real GNP (or GDP) Index 1990 = 100	100.0	125.5	155.6	190.0
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	332.4	317.3	329.7	366.5
4. Total Production				
5. Oil Consumption	86.9	94.0	88.8	73.1
6. Oil Production	18.8	19.4	19.2	14.6
7. Oil Exports - Imports	-68.2	-74.6	-69.7	-58.4
8. Natural Gas Consumption	61.1	20.3	13.3	8.6
9. Natural Gas Production	30.5	20.3	13.3	8.6
10. Gas Exports - Imports	-30.5	0.0	0.0	0.0
11. Coal Consumption	157.0	179.3	207.5	244.2
12. Coal Production				
13. Coal Exports - Imports				
14. Renewables, Electric	12.4	12.4	12.4	12.4
15. Nuclear Energy	14.9	11.3	7.6	28.3
16. Renewables, Nonelectric	0.0	0.0	0.0	0.0
17. Electricity Generation Terawatt Hours (TWh)	423.0	420.9	466.4	545.9
18. Carbon Emissions Million Tons (MtC)	271.0	293.9	314.4	335.9
19. Marginal Reduction Costs 1990 \$ per ton of carbon	0.0	0.0	0.0	0.0

Organization/Project: ITREF; 12RT, BAU (business-as-usual) Case

Country/Region: DAE (DAE)

Reference (including date) of most recent report: Alan S. Manne,
"International Trade - the Impact of Unilateral Carbon Emission
Limits", July 1993.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	21.0	23.4	32.0	37.7
2. Real GNP (or GDP) Index 1990 = 100	100.0	153.3	233.2	349.6
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	209.4	244.4	326.8	462.8
4. Total Production				
5. Oil Consumption	122.4	142.2	190.3	229.8
6. Oil Production	0.2	0.6	0.9	0.8
7. Oil Exports - Imports	-122.2	-141.6	-189.4	-229.0
8. Natural Gas Consumption	11.8	2.0	1.4	0.9
9. Natural Gas Production	2.3	2.0	1.4	0.9
10. Gas Exports - Imports	-9.4	0.0	0.0	0.0
11. Coal Consumption	41.0	72.4	113.5	192.2
12. Coal Production				
13. Coal Exports - Imports				
14. Renewables, Electric	9.5	9.5	9.5	9.5
15. Nuclear Energy	24.8	18.6	12.5	30.8
16. Renewables, Nonelectric	0.0	0.0	0.0	0.0
17. Electricity Generation Terawatt Hours (TWh)	276.0	325.0	474.3	718.6
18. Carbon Emissions Million Tons (MtC)	154.0	202.8	285.5	399.5
19. Marginal Reduction Costs 1990 \$ per ton of carbon	0.0	0.0	0.0	0.0

Organization/Project: ITREF; 12RT, BAU (business-as-usual) Case

Country/Region: BRAZI (BRAZI)

Reference (including date) of most recent report: Alan S. Manne,
"International Trade - the Impact of Unilateral Carbon Emission
Limits", July 1993.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	21.0	23.4	32.0	37.7
2. Real GNP (or GDP) Index 1990 = 100	100.0	155.5	236.7	355.8
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	141.4	175.8	227.0	308.2
4. Total Production				
5. Oil Consumption	63.5	94.5	108.5	59.1
6. Oil Production	32.9	40.0	42.2	32.4
7. Oil Exports - Imports	-30.5	-54.5	-66.3	-26.7
8. Natural Gas Consumption	4.9	7.8	20.2	33.7
9. Natural Gas Production	0.2	7.8	20.2	33.7
10. Gas Exports - Imports	-4.7	0.0	0.0	0.0
11. Coal Consumption	8.6	8.0	30.4	59.1
12. Coal Production				
13. Coal Exports - Imports				
14. Renewables, Electric	63.8	65.1	66.3	67.8
15. Nuclear Energy	0.6	0.3	0.3	25.0
16. Renewables, Nonelectric	0.0	0.0	1.2	63.4
17. Electricity Generation Terawatt Hours (TWh)	220.0	258.5	337.0	476.8
18. Carbon Emissions Million Tons (MtC)	64.0	94.2	136.3	131.8
19. Marginal Reduction Costs 1990 \$ per ton of carbon	0.0	0.0	0.0	0.0

Organization/Project: ITREF; 12RT, BAU (business-as-usual) Case

Country/Region: ROW12 (ROW12)

Reference (including date) of most recent report: Alan S. Manne,
"International Trade - the Impact of Unilateral Carbon Emission
Limits", July 1993.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	21.0	23.4	32.0	37.7
2. Real GNP (or GDP) Index 1990 = 100	100.0	142.6	194.2	262.8
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	344.0	399.0	477.5	599.1
4. Total Production				
5. Oil Consumption	148.1	195.7	148.6	100.9
6. Oil Production	16.5	70.2	113.1	100.9
7. Oil Exports - Imports	-131.6	-125.5	-35.5	0.0
8. Natural Gas Consumption	68.2	90.9	152.9	199.8
9. Natural Gas Production	56.4	90.9	152.9	199.8
10. Gas Exports - Imports	-11.8	0.0	0.0	0.0
11. Coal Consumption	91.2	75.0	137.7	210.4
12. Coal Production				
13. Coal Exports - Imports				
14. Renewables, Electric	35.1	35.7	36.7	37.3
15. Nuclear Energy	1.5	1.2	0.9	25.0
16. Renewables, Nonelectric	0.0	0.0	0.0	24.7
17. Electricity Generation Terawatt Hours (TWh)	418.0	567.8	700.3	922.3
18. Carbon Emissions Million Tons (MtC)	260.0	304.0	364.6	426.2
19. Marginal Reduction Costs 1990 \$ per ton of carbon	0.0	0.0	0.0	0.0

Organization/Project: ITREF; 12RT, BAU (business-as-usual) Case

Country/Region: A4 (A4)

Reference (including date) of most recent report: Alan S. Manne,
"International Trade - the Impact of Unilateral Carbon Emission
Limits", July 1993.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	21.0	23.4	32.0	37.7
2. Real GNP (or GDP) Index 1990 = 100	100.0	129.4	157.3	191.0
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	4115.2	4733.0	5362.8	6198.7
4. Total Production				
5. Oil Consumption	1732.2	2622.8	2635.1	2250.6
6. Oil Production	731.1	784.2	827.4	712.0
7. Oil Exports - Imports	-1001.1	-1838.7	-1807.7	-1538.5
8. Natural Gas Consumption	822.5	844.2	892.0	1001.1
9. Natural Gas Production	719.1	677.3	725.1	845.5
10. Gas Exports - Imports	-103.4	-166.9	-166.9	-155.6
11. Coal Consumption	914.6	711.6	1327.5	2114.7
12. Coal Production				
13. Coal Exports - Imports				
14. Renewables, Electric	278.6	278.6	278.6	278.6
15. Nuclear Energy	367.3	275.6	183.9	170.1
16. Renewables, Nonelectric	0.0	0.0	47.0	387.8
17. Electricity Generation Terawatt Hours (TWh)	6439.0	8085.3	9420.2	11327.6
18. Carbon Emissions Million Tons (MtC)	2901.0	3521.1	4191.5	4736.6
19. Marginal Reduction Costs 1990 \$ per ton of carbon	0.0	0.0	0.0	0.0

Organization/Project: ITREF; 12RT, BAU (business-as-usual) Case

Country/Region: A8 (A8)

Reference (including date) of most recent report: Alan S. Manne,
"International Trade - the Impact of Unilateral Carbon Emission
Limits", July 1993.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	21.0	23.4	32.0	37.7
2. Real GNP (or GDP) Index 1990 = 100	100.0	132.0	166.5	209.8
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	8038.5	8981.1	10364.8	12507.5
4. Total Production				
5. Oil Consumption	3093.1	4089.9	4190.8	3746.4
6. Oil Production	3083.7	4089.9	4190.8	3746.4
7. Oil Exports - Imports	-9.4	0.0	0.0	0.0
8. Natural Gas Consumption	1741.6	2081.7	2579.5	3143.8
9. Natural Gas Production	1751.0	2081.7	2579.5	3143.8
10. Gas Exports - Imports	9.4	0.0	0.0	0.0
11. Coal Consumption	2141.8	1862.1	2698.7	3987.5
12. Coal Production				
13. Coal Exports - Imports				
14. Renewables, Electric	591.3	594.1	597.5	601.0
15. Nuclear Energy	470.7	353.3	236.2	344.2
16. Renewables, Nonelectric	0.0	0.0	62.2	684.6
17. Electricity Generation Terawatt Hours (TWh)	11042.0	13846.5	16920.6	21586.3
18. Carbon Emissions Million Tons (MtC)	5863.0	6614.8	7849.9	9125.3
19. Marginal Reduction Costs 1990 \$ per ton of carbon	0.0	0.0	0.0	0.0

Organization/Project: IWREF; Institut fuer Waermetechnik, TU Graz

Country/Region: Austria (OST)

Reference (including date) of most recent report: Submitted to CHALLENGE, April 1993.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	20.0	20.0	30.0	40.0
2. Real GNP (or GDP) Index 1990 = 100	100.0	131.0	168.0	
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	29.7	31.3	32.9	34.5
4. Total Production	13.7	13.5	13.6	13.7
5. Oil Consumption	10.2	11.9	12.8	12.9
6. Oil Production	1.3	0.9	0.5	0.2
7. Oil Exports - Imports	-8.9	-11.0	-12.3	-12.6
8. Natural Gas Consumption	4.7	5.1	5.1	5.1
9. Natural Gas Production	1.1	0.8	0.9	0.8
10. Gas Exports - Imports	-3.6	-4.3	-4.3	-4.2
11. Coal Consumption	4.0	2.9	3.1	4.2
12. Coal Production	0.5	0.4	0.4	0.2
13. Coal Exports - Imports	-3.5	-2.5	-2.8	-3.9
14. Renewables, Electric	8.0	8.7	8.9	9.1
15. Nuclear Energy	0.0	0.0	0.0	0.0
16. Renewables, Nonelectric	2.8	2.7	3.0	3.3
17. Electricity Generation Terawatt Hours (TWh)	52.8	56.0	59.0	63.8
18. Carbon Emissions Million Tons (MtC)	16.2	16.1	17.1	18.3
19. Marginal Reduction Costs 1990 \$ per ton of carbon		0.0	0.0	0.0

Notes:

14. A thermal efficiency of 0.385 is assumed.

Organization/Project: KEEI; Korea Energy Economics Institute (KEEI)

Country/Region: Korea (KOREA)

Reference (including date) of most recent report: "Long-Term Energy Forecast through the Year 2030", November 1994

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel				
2. Real GNP (or GDP) Index 1990 = 100	100.0	190.0	310.0	482.0
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	93.0	217.0	326.0	438.0
4. Total Production	23.0	36.0	68.0	102.0
5. Oil Consumption	50.0	123.0	165.0	202.0
6. Oil Production	0.0	0.0	0.0	0.0
7. Oil Exports - Imports	-50.0	-123.0	-165.0	-202.0
8. Natural Gas Consumption	3.0	18.0	33.0	52.0
9. Natural Gas Production	0.0	0.0	0.0	0.0
10. Gas Exports - Imports	-3.0	-18.0	-33.0	-52.0
11. Coal Consumption	24.0	43.0	61.0	81.0
12. Coal Production	8.0	2.0	1.0	0.0
13. Coal Exports - Imports	-16.0	-41.0	-60.0	-81.0
14. Renewables, Electric	2.0	1.0	1.0	1.0
15. Nuclear Energy	13.0	31.0	63.0	98.0
16. Renewables, Nonelectric	1.0	2.0	3.0	3.0
17. Electricity Generation Terawatt Hours (TWh)	108.0	258.0	448.0	689.0
18. Carbon Emissions Million Tons (MtC)	65.0	141.0	198.0	255.0
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Organization/Project: KFAST; KFA-STE, Juelich Research Center

Country/Region: Indonesia (INDON)

Reference (including date) of most recent report: Energy Use and Air Pollution in Indonesia, December 1994.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel				
2. Real GNP (or GDP) Index 1990 = 100	100.0	180.0	316.0	570.0
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	73.8	123.3	199.6	353.3
4. Total Production	138.1	181.2	218.3	316.5
5. Oil Consumption	30.4	41.4	59.2	108.2
6. Oil Production	67.7	52.7	26.7	21.8
7. Oil Exports - Imports	37.4	11.3	-32.6	-86.4
8. Natural Gas Consumption	13.3	26.9	37.3	48.2
9. Natural Gas Production	38.2	61.8	71.3	72.1
10. Gas Exports - Imports	24.9	34.9	34.0	23.9
11. Coal Consumption	4.5	17.8	59.9	146.5
12. Coal Production	6.5	29.5	77.2	172.1
13. Coal Exports - Imports	2.0	11.7	17.3	25.7
14. Renewables, Electric	3.8	9.3	10.9	11.9
15. Nuclear Energy	0.0	0.0	0.0	0.0
16. Renewables, Nonelectric	22.6	17.9	32.3	38.5
17. Electricity Generation Terawatt Hours (TWh)	67.0	155.0	327.0	700.0
18. Carbon Emissions Million Tons (MtC)	42.3	79.9	152.5	310.6
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Organization/Project: KNREF; Kanazawa University, Business-as-usual

Country/Region: Japan (JAPAN)

Reference (including date) of most recent report: Macroeconomic and Sectoral Impacts of Carbon Taxation, Noriyuki Goto, forthcoming in Energy Economics, December 1995.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	18.0	27.0	38.0	
2. Real GNP (or GDP) Index 1990 = 100	100.0	134.0	171.0	
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	437.0	542.0	651.0	
4. Total Production				
5. Oil Consumption	252.0	305.0	332.0	
6. Oil Production				
7. Oil Exports - Imports				
8. Natural Gas Consumption	56.0	57.0	88.0	
9. Natural Gas Production				
10. Gas Exports - Imports				
11. Coal Consumption	64.0	85.0	93.0	
12. Coal Production				
13. Coal Exports - Imports				
14. Renewables, Electric	19.0	22.0	26.0	
15. Nuclear Energy	46.0	71.0	102.0	
16. Renewables, Nonelectric	1.0	2.0	10.0	
17. Electricity Generation Terawatt Hours (TWh)	751.0	905.0	1097.0	
18. Carbon Emissions Million Tons (MtC)	300.0	360.0	408.0	
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Organization/Project: LBL; Lawrence Berkeley Laboratory

Country/Region: 2. China (A2)

Reference (including date) of most recent report: "Cost of Limiting Carbon Emissions - China Case Study", December 1993.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	20.0	20.0	20.0	20.0
2. Real GNP (or GDP) Index 1990 = 100	100.0	180.0	280.0	435.0
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	691.0	966.0	1310.0	1700.0
4. Total Production	720.0	974.0	1278.0	1640.0
5. Oil Consumption	118.0	158.0	220.0	287.0
6. Oil Production	139.0	160.0	190.0	230.0
7. Oil Exports - Imports	21.0	2.0	-30.0	-57.0
8. Natural Gas Consumption	14.0	36.0	73.0	127.0
9. Natural Gas Production	14.0	28.0	53.0	102.0
10. Gas Exports - Imports	0.0	-8.0	-20.0	-25.0
11. Coal Consumption	532.0	686.0	905.0	1108.0
12. Coal Production	540.0	700.0	923.0	1130.0
13. Coal Exports - Imports	8.0	14.0	18.0	22.0
14. Renewables, Electric	36.0	75.0	88.0	137.0
15. Nuclear Energy	0.0	10.0	23.0	38.0
16. Renewables, Nonelectric	0.0	0.1	0.6	1.2
17. Electricity Generation Terawatt Hours (TWh)	619.0	1015.0	1560.0	2340.0
18. Carbon Emissions Million Tons (MtC)	652.0	870.0	1175.0	1480.0
19. Marginal Reduction Costs 1990 \$ per ton of carbon	0.0	220.0	172.0	171.0

Organization/Project: LELOW; Lithuanian Energy Institute, slow economic reforms.

Country/Region: Lithuania (LITHU)

Reference (including date) of most recent report: National Energy Strategy, December 1993.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	22.0	20.7	27.4	
2. Real GNP (or GDP) Index 1990 = 100	100.0	80.0	112.0	
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	17.9	9.4	11.3	
4. Total Production				
5. Oil Consumption	7.6	4.9	5.5	
6. Oil Production	0.1	1.0	1.0	
7. Oil Exports - Imports	-7.5	-3.9	-4.5	
8. Natural Gas Consumption	4.7	3.6	4.4	
9. Natural Gas Production	0.0	0.0	0.0	
10. Gas Exports - Imports	-4.7	-3.6	-4.4	
11. Coal Consumption	1.1	0.7	0.9	
12. Coal Production	0.3	0.6	0.7	
13. Coal Exports - Imports	-0.8	-0.1	-0.2	
14. Renewables, Electric	0.1	0.1	0.1	
15. Nuclear Energy	4.3	0.0	0.0	
16. Renewables, Nonelectric	0.1	0.1	0.4	
17. Electricity Generation Terawatt Hours (TWh)	26.8	10.8	11.8	
18. Carbon Emissions Million Tons (MtC)	10.9	7.4	8.6	
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Organization/Project: LENUC; Lithuanian Energy Institute, nuclear scenario.

Country/Region: Lithuania (LITHU)

Reference (including date) of most recent report: National Energy Strategy. December 1993

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	22.0	20.7	27.4	
2. Real GNP (or GDP) Index 1990 = 100	100.0	91.0	143.0	
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	17.9	10.8	12.4	
4. Total Production				
5. Oil Consumption	7.6	3.7	3.6	
6. Oil Production	0.1	1.0	1.0	
7. Oil Exports - Imports	-7.5	-2.8	-2.6	
8. Natural Gas Consumption	4.7	2.8	4.3	
9. Natural Gas Production	0.0	0.0	0.0	
10. Gas Exports - Imports	-4.7	-2.8	-4.3	
11. Coal Consumption	1.1	0.6	0.6	
12. Coal Production	0.3	0.6	0.6	
13. Coal Exports - Imports	-0.8	-0.0	-0.0	
14. Renewables, Electric	0.1	0.1	0.1	
15. Nuclear Energy	4.3	3.4	3.4	
16. Renewables, Nonelectric	0.1	0.1	0.4	
17. Electricity Generation Terawatt Hours (TWh)	26.8	14.9	15.7	
18. Carbon Emissions Million Tons (MtC)	10.9	5.8	6.6	
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Organization/Project: LEREF; Lithuanian Energy Institute, Reference
(no-regrets) scenario

Country/Region: Lithuania (LITHU)

Reference (including date) of most recent report: National Energy
Strategy, December 1993,

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	22.0	20.7	27.4	
2. Real GNP (or GDP) Index 1990 = 100	100.0	91.0	143.0	
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	17.9	9.5	11.2	
4. Total Production				
5. Oil Consumption	7.6	3.7	3.5	
6. Oil Production	0.1	1.0	1.0	
7. Oil Exports - Imports	-7.5	-2.7	-2.5	
8. Natural Gas Consumption	4.7	3.1	4.7	
9. Natural Gas Production	0.0	0.0	0.0	
10. Gas Exports - Imports	-4.7	-3.1	-4.7	
11. Coal Consumption	1.1	0.6	0.6	
12. Coal Production	0.3	0.6	0.6	
13. Coal Exports - Imports	-0.8	-0.0	-0.0	
14. Renewables, Electric	0.1	0.1	0.1	
15. Nuclear Energy	4.3	1.8	1.8	
16. Renewables, Nonelectric	0.1	0.1	0.4	
17. Electricity Generation Terawatt Hours (TWh)	26.8	10.8	11.8	
18. Carbon Emissions Million Tons (MtC)	10.9	5.9	6.8	
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Organization/Project: LYNCH; Center for International Studies, MIT, MOE

Country/Region: Canada (CAN)

Reference (including date) of most recent report: Submitted to the IEW,
January 1994.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	20.5	16.0	18.0	20.0
2. Real GNP (or GDP) Index 1990 = 100				
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption				
4. Total Production				
5. Oil Consumption	74.8	86.8	95.9	105.9
6. Oil Production	93.9	103.1	111.1	116.7
7. Oil Exports - Imports	19.1	16.3	15.2	10.8
8. Natural Gas Consumption				
9. Natural Gas Production				
10. Gas Exports - Imports				
11. Coal Consumption				
12. Coal Production				
13. Coal Exports - Imports				
14. Renewables, Electric				
15. Nuclear Energy				
16. Renewables, Nonelectric				
17. Electricity Generation Terawatt Hours (TWh)				
18. Carbon Emissions Million Tons (MtC)				
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Notes:

Oil price 1990: Saudi Arabia fob.

Organization/Project: LYNCH; Center for International Studies, MIT, MOE

Country/Region: People's Republic of China (A2)

Reference (including date) of most recent report: Submitted to the IEW,
January 1994.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	20.5	16.0	18.0	20.0
2. Real GNP (or GDP) Index 1990 = 100				
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption				
4. Total Production				
5. Oil Consumption	113.4	184.7	286.9	385.5
6. Oil Production	139.0	169.4	216.9	277.6
7. Oil Exports - Imports	25.6	-15.3	-70.0	-107.9
8. Natural Gas Consumption				
9. Natural Gas Production				
10. Gas Exports - Imports				
11. Coal Consumption				
12. Coal Production				
13. Coal Exports - Imports				
14. Renewables, Electric				
15. Nuclear Energy				
16. Renewables, Nonelectric				
17. Electricity Generation Terawatt Hours (TWh)				
18. Carbon Emissions Million Tons (MtC)				
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Notes:

Oil price 1990: Saudi Arabia fob.

Organization/Project: LYNCH; Center for International Studies, MIT, MOE

Country/Region: Eastern Europe (EEUR)

Reference (including date) of most recent report: Submitted to the IEW,
January 1994.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	20.5	16.0	18.0	20.0
2. Real GNP (or GDP) Index 1990 = 100				
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption				
4. Total Production				
5. Oil Consumption	79.4	68.3	75.4	87.5
6. Oil Production	14.9	19.1	21.1	22.1
7. Oil Exports - Imports	-64.5	-49.2	-54.3	-65.4
8. Natural Gas Consumption				
9. Natural Gas Production				
10. Gas Exports - Imports				
11. Coal Consumption				
12. Coal Production				
13. Coal Exports - Imports				
14. Renewables, Electric				
15. Nuclear Energy				
16. Renewables, Nonelectric				
17. Electricity Generation Terawatt Hours (TWh)				
18. Carbon Emissions Million Tons (MtC)				
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Notes:

Oil price 1990: Saudi Arabia fob.

Organization/Project: LYNCH; Center for International Studies, MIT, MOE

Country/Region: Japan (JAPAN)

Reference (including date) of most recent report: Submitted to the IEW,
January 1994.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	20.5	16.0	18.0	20.0
2. Real GNP (or GDP) Index 1990 = 100				
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption				
4. Total Production				
5. Oil Consumption	245.0	298.7	364.1	402.1
6. Oil Production	0.0	0.0	0.0	0.0
7. Oil Exports - Imports	-245.0	-298.7	-364.1	-402.1
8. Natural Gas Consumption				
9. Natural Gas Production				
10. Gas Exports - Imports				
11. Coal Consumption				
12. Coal Production				
13. Coal Exports - Imports				
14. Renewables, Electric				
15. Nuclear Energy				
16. Renewables, Nonelectric				
17. Electricity Generation Terawatt Hours (TWh)				
18. Carbon Emissions Million Tons (MtC)				
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Notes:

Oil price 1990: Saudi Arabia fob.

Organization/Project: LYNCH; Center for International Studies, MIT, MOE

Country/Region: Non-OPEC Developing Countries (A6)

Reference (including date) of most recent report: Submitted to the IEW,
January 1994.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	20.5	16.0	18.0	20.0
2. Real GNP (or GDP) Index 1990 = 100				
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption				
4. Total Production				
5. Oil Consumption	538.5	797.1	1124.4	1439.3
6. Oil Production	475.6	639.2	818.2	997.4
7. Oil Exports - Imports	-62.9	-157.9	-306.2	-441.9
8. Natural Gas Consumption				
9. Natural Gas Production				
10. Gas Exports - Imports				
11. Coal Consumption				
12. Coal Production				
13. Coal Exports - Imports				
14. Renewables, Electric				
15. Nuclear Energy				
16. Renewables, Nonelectric				
17. Electricity Generation Terawatt Hours (TWh)				
18. Carbon Emissions Million Tons (MtC)				
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Notes:

Oil price 1990: Saudi Arabia fob.

Organization/Project: LYNCH; Center for International Studies, MIT, MOE

Country/Region: OECD Europe (OECD)

Reference (including date) of most recent report: Submitted to the IEW,
January 1994.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	20.5	16.0	18.0	20.0
2. Real GNP (or GDP) Index 1990 = 100				
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption				
4. Total Production				
5. Oil Consumption	617.8	649.4	699.8	735.6
6. Oil Production	201.9	328.9	381.7	411.3
7. Oil Exports - Imports	-415.9	-320.5	-318.1	-324.3
8. Natural Gas Consumption				
9. Natural Gas Production				
10. Gas Exports - Imports				
11. Coal Consumption				
12. Coal Production				
13. Coal Exports - Imports				
14. Renewables, Electric				
15. Nuclear Energy				
16. Renewables, Nonelectric				
17. Electricity Generation Terawatt Hours (TWh)				
18. Carbon Emissions Million Tons (MtC)				
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Notes:

Oil price 1990: Saudi Arabia fob.

Organization/Project: LYNCH; Center for International Studies, MIT, MOE

Country/Region: OECD (A4)

Reference (including date) of most recent report: Submitted to the IEW,
January 1994.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	20.5	16.0	18.0	20.0
2. Real GNP (or GDP) Index 1990 = 100				
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption				
4. Total Production				
5. Oil Consumption	1752.5	2073.7	2334.8	2478.8
6. Oil Production	743.3	826.4	873.3	910.6
7. Oil Exports - Imports	-1009.2	-1247.3	-1461.5	-1568.2
8. Natural Gas Consumption				
9. Natural Gas Production				
10. Gas Exports - Imports				
11. Coal Consumption				
12. Coal Production				
13. Coal Exports - Imports				
14. Renewables, Electric				
15. Nuclear Energy				
16. Renewables, Nonelectric				
17. Electricity Generation Terawatt Hours (TWh)				
18. Carbon Emissions Million Tons (MtC)				
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Notes:

Oil price 1990: Saudi Arabia fob.

Organization/Project: LYNCH; Center for International Studies, MIT, MOE

Country/Region: OPEC (A5)

Reference (including date) of most recent report: Submitted to the IEW,
January 1994.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	20.5	16.0	18.0	20.0
2. Real GNP (or GDP) Index 1990 = 100				
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption				
4. Total Production				
5. Oil Consumption	215.0	275.0	352.3	429.5
6. Oil Production	1158.6	1591.9	2007.9	2288.9
7. Oil Exports - Imports	943.6	1316.9	1655.6	1859.4
8. Natural Gas Consumption				
9. Natural Gas Production				
10. Gas Exports - Imports				
11. Coal Consumption				
12. Coal Production				
13. Coal Exports - Imports				
14. Renewables, Electric				
15. Nuclear Energy				
16. Renewables, Nonelectric				
17. Electricity Generation Terawatt Hours (TWh)				
18. Carbon Emissions Million Tons (MtC)				
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Notes:

Oil price 1990: Saudi Arabia fob.

Organization/Project: LYNCH; Center for International Studies, MIT, MOE

Country/Region: USA (USA)

Reference (including date) of most recent report: Submitted to the IEW,
January 1994.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	20.5	16.0	18.0	20.0
2. Real GNP (or GDP) Index 1990 = 100				
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption				
4. Total Production				
5. Oil Consumption	778.9	997.1	1128.9	1186.7
6. Oil Production	417.6	359.0	341.5	341.5
7. Oil Exports - Imports	-361.3	-638.1	-787.4	-845.2
8. Natural Gas Consumption				
9. Natural Gas Production				
10. Gas Exports - Imports				
11. Coal Consumption				
12. Coal Production				
13. Coal Exports - Imports				
14. Renewables, Electric				
15. Nuclear Energy				
16. Renewables, Nonelectric				
17. Electricity Generation Terawatt Hours (TWh)				
18. Carbon Emissions Million Tons (MtC)				
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Notes:

Oil price 1990: Saudi Arabia fob.

Organization/Project: LYNCH; Center for International Studies, MIT, MOE

Country/Region: Former Soviet Union (USSR)

Reference (including date) of most recent report: Submitted to the IEW,
January 1994.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	20.5	16.0	18.0	20.0
2. Real GNP (or GDP) Index 1990 = 100				
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption				
4. Total Production				
5. Oil Consumption	402.6	296.9	312.1	344.7
6. Oil Production	570.0	450.0	548.5	668.7
7. Oil Exports - Imports	167.4	153.1	236.4	324.0
8. Natural Gas Consumption				
9. Natural Gas Production				
10. Gas Exports - Imports				
11. Coal Consumption				
12. Coal Production				
13. Coal Exports - Imports				
14. Renewables, Electric				
15. Nuclear Energy				
16. Renewables, Nonelectric				
17. Electricity Generation Terawatt Hours (TWh)				
18. Carbon Emissions Million Tons (MtC)				
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Notes:

Oil price 1990: Saudi Arabia fob.

Organization/Project: LYNCH; Center for International Studies, MIT, MOE

Country/Region: World (A8)

Reference (including date) of most recent report: Submitted to the IEW,
January 1994.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	20.5	16.0	18.0	20.0
2. Real GNP (or GDP) Index 1990 = 100				
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption				
4. Total Production				
5. Oil Consumption	3101.4	3695.9	4485.9	5165.3
6. Oil Production				
7. Oil Exports - Imports				
8. Natural Gas Consumption				
9. Natural Gas Production				
10. Gas Exports - Imports				
11. Coal Consumption				
12. Coal Production				
13. Coal Exports - Imports				
14. Renewables, Electric				
15. Nuclear Energy				
16. Renewables, Nonelectric				
17. Electricity Generation Terawatt Hours (TWh)				
18. Carbon Emissions Million Tons (MtC)				
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Notes:

Oil price 1990: Saudi Arabia fob.

Organization/Project: MACAS; Macedonian Academy of Sciences

Country/Region: Macedonia (MACED)

Reference (including date) of most recent report: Pop-Jordanov,
Presentation at the 16th WEC Congress, October 1995.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel				
2. Real GNP (or GDP) Index 1990 = 100				
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	2.9	2.9	3.3	3.9
4. Total Production	2.7	2.6	2.8	3.1
5. Oil Consumption	1.1	1.0	1.1	1.4
6. Oil Production	1.2	0.9	1.0	1.3
7. Oil Exports - Imports	0.1	-0.1	-0.1	-0.1
8. Natural Gas Consumption	0.0	0.2	0.3	0.6
9. Natural Gas Production	0.0	0.0	0.0	0.0
10. Gas Exports - Imports	-0.0	-0.2	-0.3	-0.6
11. Coal Consumption	1.5	1.6	1.7	1.8
12. Coal Production	1.5	1.5	1.6	1.7
13. Coal Exports - Imports	-0.0	-0.1	-0.1	-0.1
14. Renewables, Electric	0.0	0.1	0.1	0.1
15. Nuclear Energy				
16. Renewables, Nonelectric				
17. Electricity Generation Terawatt Hours (TWh)	5.1	6.9	8.6	9.4
18. Carbon Emissions Million Tons (MtC)	1.4	1.5	1.5	1.6
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Organization/Project: MERGE; MERGE model, Reference scenario (no carbon limitations).

Country/Region: USA (USA)

Reference (including date) of most recent report: MERGE; A.S. Manne and R.G. Richels, "The Greenhouse Debate: Economic Efficiency, Burden Sharing and Hedging Strategies", The Energy Journal, vol. 16, no. 4, pp. 1-37, 1995.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	21.0	22.3	26.8	32.5
2. Real GNP (or GDP) Index 1990 = 100	100.0	129.1	160.3	201.2
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	1982.1	2199.7	2463.0	2840.8
4. Total Production				
5. Oil Consumption	807.0	1025.4	1307.2	1409.8
6. Oil Production	413.6	341.3	401.0	309.3
7. Oil Exports - Imports	-393.4	-684.1	-906.2	-1100.6
8. Natural Gas Consumption	479.4	376.9	284.5	210.9
9. Natural Gas Production	444.1	341.7	249.3	175.6
10. Gas Exports - Imports	-35.2	-35.2	-35.2	-35.2
11. Coal Consumption	472.4	574.0	642.7	1039.9
12. Coal Production				
13. Coal Exports - Imports				
14. Renewables, Electric	70.6	70.6	70.6	70.6
15. Nuclear Energy	152.7	152.7	152.7	76.5
16. Renewables, Nonelectric	0.0	0.0	5.3	33.0
17. Electricity Generation Terawatt Hours (TWh)	2801.0	3227.0	3919.0	4915.1
18. Carbon Emissions Million Tons (MtC)	1417.0	1679.5	1935.0	2386.8
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Organization/Project: MERGE; MERGE model, Reference scenario (no carbon limitations).

Country/Region: Former Soviet Union (USSR)

Reference (including date) of most recent report: MERGE; A.S. Manne and R.G. Richels, "The Greenhouse Debate: Economic Efficiency, Burden Sharing and Hedging Strategies", The Energy Journal, vol. 16, no. 4, pp. 1-37, 1995.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	21.0	22.3	26.8	32.5
2. Real GNP (or GDP) Index 1990 = 100	100.0	75.2	141.1	202.7
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	1436.1	1152.2	1182.4	1431.7
4. Total Production				
5. Oil Consumption	423.0	474.1	250.3	281.7
6. Oil Production	561.7	617.4	796.7	1063.1
7. Oil Exports - Imports	138.6	143.4	546.4	781.4
8. Natural Gas Consumption	606.3	271.3	546.4	810.5
9. Natural Gas Production	641.5	306.5	581.7	1064.4
10. Gas Exports - Imports	35.2	35.2	35.2	253.8
11. Coal Consumption	278.0	278.0	272.2	232.1
12. Coal Production				
13. Coal Exports - Imports				
14. Renewables, Electric	67.1	67.1	67.1	67.1
15. Nuclear Energy	61.8	61.8	46.2	31.0
16. Renewables, Nonelectric	0.0	0.0	0.0	9.3
17. Electricity Generation Terawatt Hours (TWh)	1786.0	1523.5	1664.5	2653.3
18. Carbon Emissions Million Tons (MtC)	960.0	845.8	811.0	950.8
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Organization/Project: MERGE; MERGE model, Reference scenario (no carbon limitations).

Country/Region: China (A2)

Reference (including date) of most recent report: MERGE; A.S. Manne and R.G. Richels, "The Greenhouse Debate: Economic Efficiency, Burden Sharing and Hedging Strategies", The Energy Journal, vol. 16, no. 4, pp. 1-37, 1995.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	21.0	22.3	26.8	32.5
2. Real GNP (or GDP) Index 1990 = 100	100.0	149.2	207.8	293.9
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	683.4	799.7	943.1	1187.4
4. Total Production				
5. Oil Consumption	119.0	162.0	236.8	309.8
6. Oil Production	136.3	162.0	236.8	309.8
7. Oil Exports - Imports				
8. Natural Gas Consumption	14.1	41.0	147.0	108.4
9. Natural Gas Production	14.1	41.0	147.0	108.4
10. Gas Exports - Imports				
11. Coal Consumption	509.5	547.3	499.2	680.9
12. Coal Production				
13. Coal Exports - Imports				
14. Renewables, Electric	40.8	49.3	57.6	65.8
15. Nuclear Energy	0.0	0.0	0.0	0.0
16. Renewables, Nonelectric	0.0	0.0	2.5	22.5
17. Electricity Generation Terawatt Hours (TWh)	651.0	966.7	1416.9	2004.3
18. Carbon Emissions Million Tons (MtC)	623.0	723.3	799.3	1025.2
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Organization/Project: MERGE; MERGE model, Reference scenario (no carbon limitations).

Country/Region: OECD (A4)

Reference (including date) of most recent report: MERGE; A.S. Manne and R.G. Richels, "The Greenhouse Debate: Economic Efficiency, Burden Sharing and Hedging Strategies", The Energy Journal, vol. 16, no. 4, pp. 1-37, 1995.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	21.0	22.3	26.8	32.5
2. Real GNP (or GDP) Index 1990 = 100	100.0	131.5	162.7	204.7
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	4068.4	4718.2	5346.5	6080.3
4. Total Production				
5. Oil Consumption	1752.5	2125.5	2569.9	2769.2
6. Oil Production	730.8	658.8	885.2	709.4
7. Oil Exports - Imports	-1021.7	-1466.8	-1684.7	-2059.8
8. Natural Gas Consumption	749.7	707.5	618.9	1047.9
9. Natural Gas Production	714.5	672.3	583.7	794.0
10. Gas Exports - Imports	-35.2	-35.2	-35.2	-253.8
11. Coal Consumption	926.4	1245.4	1507.5	1744.3
12. Coal Production				
13. Coal Exports - Imports				
14. Renewables, Electric	265.4	265.4	265.4	265.4
15. Nuclear Energy	374.3	374.3	374.3	187.4
16. Renewables, Nonelectric	0.0	0.0	10.5	66.1
17. Electricity Generation Terawatt Hours (TWh)	6814.0	7795.8	9333.6	11537.2
18. Carbon Emissions Million Tons (MtC)	2902.0	3492.8	4087.1	4750.1
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Organization/Project: MERGE; MERGE model, Reference scenario (no carbon limitations).

Country/Region: World (A8)

Reference (including date) of most recent report: MERGE; A.S. Manne and R.G. Richels, "The Greenhouse Debate: Economic Efficiency, Burden Sharing and Hedging Strategies", The Energy Journal, vol. 16, no. 4, pp. 1-37, 1995.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	21.0	22.3	26.8	32.5
2. Real GNP (or GDP) Index 1990 = 100	100.0	130.0	171.2	226.0
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	8160.0	8978.9	10368.2	12561.9
4. Total Production				
5. Oil Consumption	3154.4	3690.7	4294.3	4250.1
6. Oil Production	3154.4	3690.7	4294.3	4250.1
7. Oil Exports - Imports				
8. Natural Gas Consumption	1741.3	1470.3	1798.4	3190.4
9. Natural Gas Production	1741.3	1470.3	1798.4	3190.4
10. Gas Exports - Imports				
11. Coal Consumption	2167.0	2672.8	3094.1	4035.3
12. Coal Production				
13. Coal Exports - Imports				
14. Renewables, Electric	608.8	656.8	695.6	734.3
15. Nuclear Energy	488.3	488.3	472.8	244.7
16. Renewables, Nonelectric	0.0	0.0	13.0	107.1
17. Electricity Generation Terawatt Hours (TWh)	11831.0	13386.6	16715.6	22566.2
18. Carbon Emissions Million Tons (MtC)	5864.0	6726.2	7862.7	9605.2
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Organization/Project: NEA; NEA, Nuclear Energy Agency

Country/Region: OECD (A4)

Reference (including date) of most recent report: Nuclear energy data and other non-published documents, May 1994.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel				
2. Real GNP (or GDP) Index 1990 = 100				
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption				
4. Total Production				
5. Oil Consumption				
6. Oil Production				
7. Oil Exports - Imports				
8. Natural Gas Consumption				
9. Natural Gas Production				
10. Gas Exports - Imports				
11. Coal Consumption				
12. Coal Production				
13. Coal Exports - Imports				
14. Renewables, Electric				
15. Nuclear Energy	412.0	457.0	518.0	
16. Renewables, Nonelectric				
17. Electricity Generation Terawatt Hours (TWh)				
18. Carbon Emissions Million Tons (MtC)				
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Notes:

Row 15: Original numbers in TWh, here converted to Mtoe by multiplying by 0.242. Numbers do not include data from Korea or Mexico.

Organization/Project: NEAHI; NEA, Nuclear Energy Agency, High Scenario.

Country/Region: Eastern Europe and former Soviet Union (A1)

Reference (including date) of most recent report: Nuclear energy data and other non-published documents, May 1994.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel				
2. Real GNP (or GDP) Index 1990 = 100				
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption				
4. Total Production				
5. Oil Consumption				
6. Oil Production				
7. Oil Exports - Imports				
8. Natural Gas Consumption				
9. Natural Gas Production				
10. Gas Exports - Imports				
11. Coal Consumption				
12. Coal Production				
13. Coal Exports - Imports				
14. Renewables, Electric				
15. Nuclear Energy		88.4	127.0	
16. Renewables, Nonelectric				
17. Electricity Generation Terawatt Hours (TWh)				
18. Carbon Emissions Million Tons (MtC)				
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Notes:

Row 15: Original numbers in TWh, here converted to Mtoe by multiplying by 0.242.

Organization/Project: NEAHI; NEA, Nuclear Energy Agency, High Scenario.

Country/Region: China (A2)

Reference (including date) of most recent report: Nuclear energy data and other non-published documents, May 1994.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel				
2. Real GNP (or GDP) Index 1990 = 100				
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption				
4. Total Production				
5. Oil Consumption				
6. Oil Production				
7. Oil Exports - Imports				
8. Natural Gas Consumption				
9. Natural Gas Production				
10. Gas Exports - Imports				
11. Coal Consumption				
12. Coal Production				
13. Coal Exports - Imports				
14. Renewables, Electric				
15. Nuclear Energy		3.1	12.3	
16. Renewables, Nonelectric				
17. Electricity Generation Terawatt Hours (TWh)				
18. Carbon Emissions Million Tons (MtC)				
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Notes:

Row 15: Original numbers in TWh, here converted to Mtoe by multiplying by 0.242.

Organization/Project: NEAHI; NEA, Nuclear Energy Agency, High Scenario.

Country/Region: World (A8)

Reference (including date) of most recent report: Nuclear energy data and other non-published documents, May 1994.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel				
2. Real GNP (or GDP) Index 1990 = 100				
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption				
4. Total Production				
5. Oil Consumption				
6. Oil Production				
7. Oil Exports - Imports				
8. Natural Gas Consumption				
9. Natural Gas Production				
10. Gas Exports - Imports				
11. Coal Consumption				
12. Coal Production				
13. Coal Exports - Imports				
14. Renewables, Electric				
15. Nuclear Energy		582.0	708.0	
16. Renewables, Nonelectric				
17. Electricity Generation Terawatt Hours (TWh)				
18. Carbon Emissions Million Tons (MtC)				
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Notes:

Row 15: Original numbers in TWh, here converted to Mtoe by multiplying by 0.242.

Organization/Project: NEALO; NEA, Nuclear Energy Agency, Low Scenario.

Country/Region: Eastern Europe and former Soviet Union (A1)

Reference (including date) of most recent report: Nuclear energy data and other non-published documents, May 1994.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel				
2. Real GNP (or GDP) Index 1990 = 100				
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption				
4. Total Production				
5. Oil Consumption				
6. Oil Production				
7. Oil Exports - Imports				
8. Natural Gas Consumption				
9. Natural Gas Production				
10. Gas Exports - Imports				
11. Coal Consumption				
12. Coal Production				
13. Coal Exports - Imports				
14. Renewables, Electric				
15. Nuclear Energy		76.8	92.5	
16. Renewables, Nonelectric				
17. Electricity Generation Terawatt Hours (TWh)				
18. Carbon Emissions Million Tons (MtC)				
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Notes:

Row 15: Original numbers in TWh, here converted to Mtoe by multiplying by 0.242.

Organization/Project: NEALO; NEA, Nuclear Energy Agency, Low Scenario.

Country/Region: China (A2)

Reference (including date) of most recent report: Nuclear energy data and other non-published documents, May 1994.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel				
2. Real GNP (or GDP) Index 1990 = 100				
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption				
4. Total Production				
5. Oil Consumption				
6. Oil Production				
7. Oil Exports - Imports				
8. Natural Gas Consumption				
9. Natural Gas Production				
10. Gas Exports - Imports				
11. Coal Consumption				
12. Coal Production				
13. Coal Exports - Imports				
14. Renewables, Electric				
15. Nuclear Energy		3.1	9.4	
16. Renewables, Nonelectric				
17. Electricity Generation Terawatt Hours (TWh)				
18. Carbon Emissions Million Tons (MtC)				
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Notes:

Row 15: Original numbers in TWh, here converted to Mtoe by multiplying by 0.242.

Organization/Project: NEALO; NEA, Nuclear Energy Agency, Low Scenario.

Country/Region: World (A8)

Reference (including date) of most recent report: Nuclear energy data and other non-published documents, May 1994.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel				
2. Real GNP (or GDP) Index 1990 = 100				
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption				
4. Total Production				
5. Oil Consumption				
6. Oil Production				
7. Oil Exports - Imports				
8. Natural Gas Consumption				
9. Natural Gas Production				
10. Gas Exports - Imports				
11. Coal Consumption				
12. Coal Production				
13. Coal Exports - Imports				
14. Renewables, Electric				
15. Nuclear Energy		556.0	591.0	
16. Renewables, Nonelectric				
17. Electricity Generation Terawatt Hours (TWh)				
18. Carbon Emissions Million Tons (MtC)				
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Notes:

Row 15: Original numbers in TWh, here converted to Mtoe by multiplying by 0.242.

Organization/Project: NEREF; New Earth 21 Model, Reference Scenario

Country/Region: Oceania (ANZ)

Reference (including date) of most recent report: Yasumasa Fujii et al.,
"Global Energy System and CO2 Emissions Control Policies", June
1993 (revised March 1994).

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	21.0	21.9	22.1	24.8
2. Real GNP (or GDP) Index 1990 = 100	100.0	134.5	164.6	201.8
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	111.9	106.6	113.2	117.2
4. Total Production	169.7	95.0	154.8	274.4
5. Oil Consumption	40.1	45.8	45.3	44.8
6. Oil Production	31.0	15.5	7.7	3.9
7. Oil Exports - Imports	-9.1	-30.3	-37.5	-41.0
8. Natural Gas Consumption	19.5	13.0	16.7	26.2
9. Natural Gas Production	21.1	13.0	16.7	26.2
10. Gas Exports - Imports	1.6	0.0	0.0	0.0
11. Coal Consumption	43.0	35.5	29.2	18.5
12. Coal Production	108.3	54.2	108.3	216.6
13. Coal Exports - Imports	65.3	18.7	79.1	198.1
14. Renewables, Electric	9.3	12.3	22.1	27.7
15. Nuclear Energy	0.0	0.0	0.0	0.0
16. Renewables, Nonelectric	0.0	0.0	0.0	0.0
17. Electricity Generation Terawatt Hours (TWh)	175.4	192.6	228.3	265.7
18. Carbon Emissions Million Tons (MtC)	86.2	79.7	75.1	69.5
19. Marginal Reduction Costs 1990 \$ per ton of carbon	0.0	0.0	0.0	0.0

Organization/Project: NEREF; New Earth 21 Model, Reference Scenario

Country/Region: Former USSR & Eastern Europe (A1)

Reference (including date) of most recent report: Yasumasa Fujii et al.,
"Global Energy System and CO2 Emissions Control Policies", June
1993 (revised March 1994).

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	21.0	21.9	22.1	24.8
2. Real GNP (or GDP) Index 1990 = 100	100.0	143.0	196.7	273.1
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	1800.8	1822.3	2082.5	2375.8
4. Total Production	1966.0	2153.3	2546.4	3988.3
5. Oil Consumption	532.5	507.8	580.4	663.1
6. Oil Production	628.2	507.8	580.4	1741.1
7. Oil Exports - Imports	95.7	0.0	0.0	1078.3
8. Natural Gas Consumption	629.4	557.6	627.9	701.0
9. Natural Gas Production	681.5	557.6	627.9	701.0
10. Gas Exports - Imports	52.1	0.0	0.0	0.0
11. Coal Consumption	499.0	558.0	596.9	586.3
12. Coal Production	516.4	889.0	1060.8	1120.8
13. Coal Exports - Imports	17.4	331.0	463.9	534.5
14. Renewables, Electric	73.5	106.0	156.4	304.7
15. Nuclear Energy	66.4	93.0	120.8	120.8
16. Renewables, Nonelectric	0.0	0.0	0.0	0.0
17. Electricity Generation Terawatt Hours (TWh)	2203.3	2204.2	2667.5	3099.0
18. Carbon Emissions Million Tons (MtC)	1282.1	1279.9	1417.0	1514.7
19. Marginal Reduction Costs 1990 \$ per ton of carbon	0.0	0.0	0.0	0.0

Organization/Project: NEREF; New Earth 21 Model, Reference Scenario

Country/Region: Centrally Planned Economy Asia (A2)

Reference (including date) of most recent report: Yasumasa Fujii et al.,
"Global Energy System and CO2 Emissions Control Policies", June
1993 (revised March 1994).

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	21.0	21.9	22.1	24.8
2. Real GNP (or GDP) Index 1990 = 100	100.0	155.9	233.9	354.0
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	707.0	977.6	1265.1	1693.8
4. Total Production	734.7	977.6	1179.2	1629.8
5. Oil Consumption	116.7	121.5	146.7	179.9
6. Oil Production	137.7	121.5	60.8	115.9
7. Oil Exports - Imports	21.0	0.0	-85.9	-64.1
8. Natural Gas Consumption	12.3	40.9	48.0	43.1
9. Natural Gas Production	12.3	40.9	48.0	43.1
10. Gas Exports - Imports	0.0	0.0	0.0	0.0
11. Coal Consumption	543.5	753.4	964.4	1237.1
12. Coal Production	550.2	753.4	964.4	1237.1
13. Coal Exports - Imports	6.7	0.0	0.0	0.0
14. Renewables, Electric	34.5	61.8	106.1	233.7
15. Nuclear Energy	0.0	0.0	0.0	0.0
16. Renewables, Nonelectric	0.0	0.0	0.0	0.0
17. Electricity Generation Terawatt Hours (TWh)	647.1	1115.3	1566.5	2405.6
18. Carbon Emissions Million Tons (MtC)	653.5	871.0	1103.7	1397.9
19. Marginal Reduction Costs 1990 \$ per ton of carbon	0.0	0.0	0.0	0.0

Notes:

Region includes other Asian Planned Economies.

Organization/Project: NEREF; New Earth 21 Model, Reference Scenario

Country/Region: World Total (A8)

Reference (including date) of most recent report: Yasumasa Fujii et al.,
"Global Energy System and CO2 Emissions Control Policies", June
1993 (revised March 1994).

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	21.0	21.9	22.1	24.8
2. Real GNP (or GDP) Index 1990 = 100	100.0	134.5	172.9	224.5
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	8152.6	8949.3	10287.7	12098.8
4. Total Production				
5. Oil Consumption	3280.0	3350.0	3544.2	3829.9
6. Oil Production				
7. Oil Exports - Imports				
8. Natural Gas Consumption	1625.7	1540.8	1718.4	1989.3
9. Natural Gas Production				
10. Gas Exports - Imports				
11. Coal Consumption	2239.7	2718.3	3266.5	3758.1
12. Coal Production				
13. Coal Exports - Imports				
14. Renewables, Electric	533.1	773.6	1083.9	1846.8
15. Nuclear Energy	474.2	566.6	674.8	674.8
16. Renewables, Nonelectric	0.0	0.0	0.0	0.0
17. Electricity Generation Terawatt Hours (TWh)	11374.0	13749.5	16992.0	21804.2
18. Carbon Emissions Million Tons (MtC)	5830.2	6287.2	7086.3	7957.2
19. Marginal Reduction Costs 1990 \$ per ton of carbon	0.0	0.0	0.0	0.0

Organization/Project: NEREF; New Earth 21 Model, Reference Scenario

Country/Region: Japan (JAPAN)

Reference (including date) of most recent report: Yasumasa Fujii et al.,
 "Global Energy System and CO2 Emissions Control Policies", June
 1993 (revised March 1994).

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	21.0	21.9	22.1	24.8
2. Real GNP (or GDP) Index 1990 = 100	100.0	134.5	164.6	201.8
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	428.7	475.9	503.6	526.8
4. Total Production	75.5	103.8	134.0	139.0
5. Oil Consumption	246.6	221.3	208.0	196.1
6. Oil Production	0.7	0.3	0.2	0.1
7. Oil Exports - Imports	-245.9	-221.0	-207.8	-196.0
8. Natural Gas Consumption	41.7	18.4	19.2	20.0
9. Natural Gas Production	1.8	0.9	0.5	0.2
10. Gas Exports - Imports	-39.9	-17.5	-18.7	-19.7
11. Coal Consumption	73.2	136.6	144.5	172.9
12. Coal Production	5.8	2.9	1.4	0.7
13. Coal Exports - Imports	-67.4	-133.7	-143.1	-172.1
14. Renewables, Electric	22.3	29.4	30.9	36.8
15. Nuclear Energy	44.9	70.2	101.1	101.1
16. Renewables, Nonelectric	0.0	0.0	0.0	0.0
17. Electricity Generation Terawatt Hours (TWh)	791.2	924.5	1063.4	1226.1
18. Carbon Emissions Million Tons (MtC)	296.1	325.4	322.9	341.8
19. Marginal Reduction Costs 1990 \$ per ton of carbon	0.0	0.0	0.0	0.0

Organization/Project: NEREF; New Earth 21 Model, Reference Scenario

Country/Region: Latin America (LATAM)

Reference (including date) of most recent report: Yasumasa Fujii et al.,
"Global Energy System and CO2 Emissions Control Policies", June
1993 (revised March 1994).

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	21.0	21.9	22.1	24.8
2. Real GNP (or GDP) Index 1990 = 100	100.0	144.4	200.6	281.1
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	439.5	568.9	725.0	952.8
4. Total Production	557.4	568.9	725.0	929.8
5. Oil Consumption	244.9	287.6	342.9	411.0
6. Oil Production	363.4	287.6	342.9	388.0
7. Oil Exports - Imports	118.5	0.0	0.0	-23.0
8. Natural Gas Consumption	74.8	79.6	95.6	137.1
9. Natural Gas Production	74.8	79.6	95.6	137.1
10. Gas Exports - Imports	0.0	0.0	0.0	0.0
11. Coal Consumption	22.3	43.3	44.9	54.5
12. Coal Production	21.7	43.3	44.9	54.5
13. Coal Exports - Imports	-0.6	0.0	0.0	0.0
14. Renewables, Electric	95.7	151.2	226.5	335.4
15. Nuclear Energy	1.8	7.1	15.2	15.2
16. Renewables, Nonelectric	0.0	0.0	0.0	0.0
17. Electricity Generation Terawatt Hours (TWh)	601.3	882.3	1128.5	1545.3
18. Carbon Emissions Million Tons (MtC)	262.9	321.1	376.5	464.4
19. Marginal Reduction Costs 1990 \$ per ton of carbon	0.0	0.0	0.0	0.0

Organization/Project: NEREF; New Earth 21 Model, Reference Scenario

Country/Region: Middle East & Northern Africa (AFME)

Reference (including date) of most recent report: Yasumasa Fujii et al.,
 "Global Energy System and CO2 Emissions Control Policies", June
 1993 (revised March 1994).

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	21.0	21.9	22.1	24.8
2. Real GNP (or GDP) Index 1990 = 100	100.0	143.9	208.3	303.9
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	386.1	412.3	605.3	910.1
4. Total Production	1193.0	2049.7	2477.2	1775.4
5. Oil Consumption	311.6	253.7	354.7	495.8
6. Oil Production	1102.2	1901.0	2294.2	1374.0
7. Oil Exports - Imports	790.6	1647.2	1939.4	878.2
8. Natural Gas Consumption	55.3	135.6	161.8	254.4
9. Natural Gas Production	85.1	135.6	161.8	373.1
10. Gas Exports - Imports	29.8	0.0	0.0	118.7
11. Coal Consumption	14.2	11.2	70.3	137.4
12. Coal Production	0.7	1.4	2.9	5.8
13. Coal Exports - Imports	-13.5	-9.8	-67.5	-131.7
14. Renewables, Electric	5.0	11.8	18.4	22.5
15. Nuclear Energy	0.0	0.0	0.0	0.0
16. Renewables, Nonelectric	0.0	0.0	0.0	0.0
17. Electricity Generation Terawatt Hours (TWh)	320.8	512.1	802.3	1341.7
18. Carbon Emissions Million Tons (MtC)	298.0	293.4	448.7	681.9
19. Marginal Reduction Costs 1990 \$ per ton of carbon	0.0	0.0	0.0	0.0

Organization/Project: NEREF; New Earth 21 Model, Reference Scenario

Country/Region: Western Europe (OECD)

Reference (including date) of most recent report: Yasumasa Fujii et al.,
 "Global Energy System and CO2 Emissions Control Policies", June
 1993 (revised March 1994).

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	21.0	21.9	22.1	24.8
2. Real GNP (or GDP) Index 1990 = 100	100.0	128.2	156.8	192.2
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	1447.9	1457.5	1551.6	1652.0
4. Total Production	881.8	755.4	694.5	575.4
5. Oil Consumption	615.2	598.4	575.9	554.7
6. Oil Production	205.1	102.5	51.3	25.6
7. Oil Exports - Imports	-410.2	-495.9	-524.7	-529.1
8. Natural Gas Consumption	235.4	200.4	212.3	224.9
9. Natural Gas Production	158.0	200.4	212.3	106.2
10. Gas Exports - Imports	-77.4	0.0	0.0	-118.7
11. Coal Consumption	313.2	323.5	391.1	458.1
12. Coal Production	234.6	117.3	58.7	29.3
13. Coal Exports - Imports	-78.6	-206.2	-332.4	-428.8
14. Renewables, Electric	103.7	142.2	154.1	196.1
15. Nuclear Energy	180.4	193.0	218.2	218.2
16. Renewables, Nonelectric	0.0	0.0	0.0	0.0
17. Electricity Generation Terawatt Hours (TWh)	2263.6	2521.8	2988.3	3589.3
18. Carbon Emissions Million Tons (MtC)	942.5	919.2	974.8	1031.1
19. Marginal Reduction Costs 1990 \$ per ton of carbon	0.0	0.0	0.0	0.0

Organization/Project: NEREF; New Earth 21 Model, Reference Scenario

Country/Region: North America (OECDN)

Reference (including date) of most recent report: Yasumasa Fujii et al.,
 "Global Energy System and CO2 Emissions Control Policies", June
 1993 (revised March 1994).

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	21.0	21.9	22.1	24.8
2. Real GNP (or GDP) Index 1990 = 100	100.0	128.2	156.8	192.2
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	2179.3	2285.1	2384.2	2481.9
4. Total Production	1896.7	1570.8	1609.1	1706.5
5. Oil Consumption	875.3	981.6	908.7	842.2
6. Oil Production	518.9	267.3	133.6	66.8
7. Oil Exports - Imports	-356.4	-714.3	-775.1	-775.3
8. Natural Gas Consumption	503.0	411.8	429.9	448.8
9. Natural Gas Production	503.0	411.8	429.9	448.8
10. Gas Exports - Imports	0.0	0.0	0.0	0.0
11. Coal Consumption	502.0	549.2	638.0	619.3
12. Coal Production	575.8	549.2	638.0	619.3
13. Coal Exports - Imports	73.8	0.0	0.0	0.0
14. Renewables, Electric	141.9	178.5	233.1	397.2
15. Nuclear Energy	157.5	164.0	174.4	174.4
16. Renewables, Nonelectric	0.0	0.0	0.0	0.0
17. Electricity Generation Terawatt Hours (TWh)	3456.6	3961.1	4587.6	5429.3
18. Carbon Emissions Million Tons (MtC)	1509.8	1575.9	1613.8	1551.1
19. Marginal Reduction Costs 1990 \$ per ton of carbon	0.0	0.0	0.0	0.0

Organization/Project: NEREF; New Earth 21 Model, Reference Scenario

Country/Region: South & East Asia (SEASI)

Reference (including date) of most recent report: Yasumasa Fujii et al.,
"Global Energy System and CO2 Emissions Control Policies", June
1993 (revised March 1994).

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	21.0	21.9	22.1	24.8
2. Real GNP (or GDP) Index 1990 = 100	100.0	153.0	225.1	334.2
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	509.6	667.4	845.8	1113.9
4. Total Production	413.8	496.6	606.4	819.1
5. Oil Consumption	246.8	264.3	296.2	333.6
6. Oil Production	152.0	76.0	38.0	19.0
7. Oil Exports - Imports	-94.8	-188.3	-258.2	-314.6
8. Natural Gas Consumption	51.0	75.5	98.8	124.0
9. Natural Gas Production	84.8	93.0	117.5	143.8
10. Gas Exports - Imports	33.8	17.5	18.7	19.7
11. Coal Consumption	155.8	229.8	301.1	379.3
12. Coal Production	121.0	229.8	301.1	379.3
13. Coal Exports - Imports	-34.8	0.0	0.0	0.0
14. Renewables, Electric	35.5	61.2	107.3	234.7
15. Nuclear Energy	20.5	36.6	42.4	42.4
16. Renewables, Nonelectric	0.0	0.0	0.0	0.0
17. Electricity Generation Terawatt Hours (TWh)	673.2	1091.0	1532.0	2323.8
18. Carbon Emissions Million Tons (MtC)	384.4	484.9	594.6	716.7
19. Marginal Reduction Costs 1990 \$ per ton of carbon	0.0	0.0	0.0	0.0

Organization/Project: NEREF; New Earth 21 Model, Reference Scenario

Country/Region: Subsaharan Africa (AFSS)

Reference (including date) of most recent report: Yasumasa Fujii et al.,
 "Global Energy System and CO2 Emissions Control Policies", June
 1993 (revised March 1994).

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	21.0	21.9	22.1	24.8
2. Real GNP (or GDP) Index 1990 = 100	100.0	144.8	201.8	282.4
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	141.8	175.7	211.5	274.4
4. Total Production	264.0	178.2	161.2	261.2
5. Oil Consumption	50.2	67.9	85.5	108.8
6. Oil Production	140.9	70.4	35.2	95.6
7. Oil Exports - Imports	90.7	2.5	-50.3	-13.2
8. Natural Gas Consumption	3.5	8.0	8.2	9.8
9. Natural Gas Production	3.5	8.0	8.2	9.8
10. Gas Exports - Imports	0.0	0.0	0.0	0.0
11. Coal Consumption	73.8	77.8	85.9	95.0
12. Coal Production	105.3	77.8	85.9	95.0
13. Coal Exports - Imports	31.5	0.0	0.0	0.0
14. Renewables, Electric	11.6	19.3	29.2	58.1
15. Nuclear Energy	2.7	2.7	2.7	2.7
16. Renewables, Nonelectric	0.0	0.0	0.0	0.0
17. Electricity Generation Terawatt Hours (TWh)	241.7	344.6	430.5	578.5
18. Carbon Emissions Million Tons (MtC)	115.9	136.8	159.2	188.0
19. Marginal Reduction Costs 1990 \$ per ton of carbon	0.0	0.0	0.0	0.0

Organization/Project: NSUWG; NEPA (China), SPC (China), UNDP, GEF

Country/Region: China (A2)

Reference (including date) of most recent report: China: Issues and Options in GHGs Emission Control, Summary Report, December 1994; transcribed at IIASA by Wei Zhihong.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel				
2. Real GNP (or GDP) Index 1990 = 100	100.0	248.0	535.0	1004.0
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	691.0	1092.0	1666.0	2310.0
4. Total Production				
5. Oil Consumption	112.0			440.0
6. Oil Production				
7. Oil Exports - Imports				
8. Natural Gas Consumption	14.0			107.0
9. Natural Gas Production				
10. Gas Exports - Imports				
11. Coal Consumption	527.0			1550.0
12. Coal Production				
13. Coal Exports - Imports				
14. Renewables, Electric				
15. Nuclear Energy				
16. Renewables, Nonelectric				
17. Electricity Generation Terawatt Hours (TWh)	623.0	1300.0	2430.0	3840.0
18. Carbon Emissions Million Tons (MtC)	650.0	987.0	1512.0	2045.0
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Organization/Project: ODELL; EURICES/PRO, Prof. Peter Odell

Country/Region: 8. World (A8)

Reference (including date) of most recent report: Global Energy Prospects, 1994.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	21.3	15.2	16.8	19.3
2. Real GNP (or GDP) Index 1990 = 100	100.0	135.0	180.0	234.0
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	8580.0	10130.0	12165.0	14125.0
4. Total Production				
5. Oil Consumption	3100.0	3355.0	3770.0	4000.0
6. Oil Production				
7. Oil Exports - Imports				
8. Natural Gas Consumption	1740.0	2350.0	3220.0	4050.0
9. Natural Gas Production				
10. Gas Exports - Imports				
11. Coal Consumption	2190.0	2420.0	2690.0	2885.0
12. Coal Production				
13. Coal Exports - Imports				
14. Renewables, Electric	660.0	900.0	1080.0	1410.0
15. Nuclear Energy	540.0	665.0	825.0	1050.0
16. Renewables, Nonelectric	350.0	440.0	580.0	730.0
17. Electricity Generation Terawatt Hours (TWh)				
18. Carbon Emissions Million Tons (MtC)				
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Organization/Project: OLADE; OLADE

Country/Region: Latin America and Caribbean (LATAM)

Reference (including date) of most recent report: "Energy Prospects",
Phase II, Final Results, March 1993.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	18.0	21.6	22.4	
2. Real GNP (or GDP) Index 1990 = 100	100.0	132.6	185.2	
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	533.8	767.0	1018.2	
4. Total Production	677.6	909.0	1146.8	
5. Oil Consumption	283.5	410.4	528.7	
6. Oil Production	403.6	552.5	675.6	
7. Oil Exports - Imports	115.9	142.1	146.9	
8. Natural Gas Consumption	98.6	149.7	195.0	
9. Natural Gas Production	112.1	149.7	194.8	
10. Gas Exports - Imports				
11. Coal Consumption	19.7	39.7	72.9	
12. Coal Production	23.9	39.6	54.7	
13. Coal Exports - Imports	3.3	0.0	-18.2	
14. Renewables, Electric	38.5	55.7	84.0	
15. Nuclear Energy	1.7	3.4	7.6	
16. Renewables, Nonelectric	86.8	108.1	130.1	
17. Electricity Generation Terawatt Hours (TWh)	594.6	907.2	1434.2	
18. Carbon Emissions Million Tons (MtC)	276.3	406.9	567.2	
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Organization/Project: OWREF; OPEC World Energy Model (OWEM), Reference Case

Country/Region: OECD North America (OECDN)

Reference (including date) of most recent report: Submitted to the IEW Poll, December 1995.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	22.3	14.4	18.0	23.3
2. Real GNP (or GDP) Index 1990 = 100	100.0	127.6	158.3	191.2
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	2206.0	2622.1	2848.4	2979.8
4. Total Production	2028.3	2338.6	2513.1	2656.1
5. Oil Consumption	945.4	1049.3	1088.2	1086.5
6. Oil Production	670.9	677.5	623.2	580.7
7. Oil Exports - Imports	-281.8	-375.0	-468.2	-509.1
8. Natural Gas Consumption	513.7	635.1	729.1	789.3
9. Natural Gas Production	525.3	636.9	729.7	788.9
10. Gas Exports - Imports	-1.7	0.1	-1.4	-2.4
11. Coal Consumption	495.5	563.8	597.1	622.2
12. Coal Production	580.7	650.4	726.2	804.7
13. Coal Exports - Imports	66.8	91.9	137.8	194.9
14. Renewables, Electric				
15. Nuclear Energy				
16. Renewables, Nonelectric				
17. Electricity Generation Terawatt Hours (TWh)	3296.9	4383.9	4993.3	5493.1
18. Carbon Emissions Million Tons (MtC)	1590.9	1828.8	1958.2	2025.9
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Organization/Project: OWREF; OPEC World Energy Model (OWEM), Reference Case

Country/Region: OECD Europe (OECDE)

Reference (including date) of most recent report: Submitted to the IEW Poll, December 1995.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	22.3	14.4	18.0	23.3
2. Real GNP (or GDP) Index 1990 = 100	100.0	122.2	153.7	190.7
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	1418.2	1575.6	1718.6	1837.5
4. Total Production	826.3	997.9	1001.7	950.8
5. Oil Consumption	629.3	685.5	715.9	728.1
6. Oil Production	202.9	346.5	337.6	280.9
7. Oil Exports - Imports	-426.4	-341.1	-380.5	-449.3
8. Natural Gas Consumption	227.0	315.2	395.6	479.0
9. Natural Gas Production	155.4	186.9	196.6	199.7
10. Gas Exports - Imports	-73.9	-131.6	-203.1	-284.4
11. Coal Consumption	325.6	307.3	331.5	337.7
12. Coal Production	231.8	196.9	191.8	177.5
13. Coal Exports - Imports	-94.1	-135.2	-204.6	-291.0
14. Renewables, Electric				
15. Nuclear Energy				
16. Renewables, Nonelectric				
17. Electricity Generation Terawatt Hours (TWh)	2272.6	2543.3	2857.2	3154.8
18. Carbon Emissions Million Tons (MtC)	995.7	1079.7	1183.7	1256.3
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Organization/Project: OWREF; OPEC World Energy Model (OWEM), Reference Case

Country/Region: OECD Pacific (OECDP)

Reference (including date) of most recent report: Submitted to the IEW Poll, December 1995.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	22.3	14.4	18.0	23.3
2. Real GNP (or GDP) Index 1990 = 100	100.0	127.2	170.4	225.1
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	541.0	675.1	783.9	863.0
4. Total Production	232.5	304.9	370.2	414.8
5. Oil Consumption	286.1	322.0	340.6	346.6
6. Oil Production	30.1	24.9	17.4	13.2
7. Oil Exports - Imports	-258.2	-298.1	-324.2	-334.4
8. Natural Gas Consumption	61.9	84.0	109.5	140.5
9. Natural Gas Production	22.8	27.1	32.7	39.1
10. Gas Exports - Imports	-39.3	-56.9	-76.8	-101.5
11. Coal Consumption	120.5	162.4	190.5	204.6
12. Coal Production	107.3	146.2	176.7	191.1
13. Coal Exports - Imports	-15.6	-11.2	-8.6	-10.4
14. Renewables, Electric				
15. Nuclear Energy				
16. Renewables, Nonelectric				
17. Electricity Generation Terawatt Hours (TWh)	906.1	1193.0	1465.8	1687.1
18. Carbon Emissions Million Tons (MtC)	397.3	485.1	546.6	586.7
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Organization/Project: OWREF; OPEC World Energy Model (OWEM), Reference Case

Country/Region: OECD (A4)

Reference (including date) of most recent report: Submitted to the IEW Poll, December 1995.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	22.3	14.4	18.0	23.3
2. Real GNP (or GDP) Index 1990 = 100	100.0	125.2	158.8	197.8
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	4165.1	4872.8	5351.0	5680.3
4. Total Production	3087.2	3641.4	3885.0	4021.7
5. Oil Consumption	1860.8	2056.9	2144.7	2161.2
6. Oil Production	903.9	1048.8	978.2	874.8
7. Oil Exports - Imports	-966.4	-1014.2	-1172.9	-1292.9
8. Natural Gas Consumption	802.6	1034.2	1234.2	1408.8
9. Natural Gas Production	703.5	850.9	959.0	1027.7
10. Gas Exports - Imports	-114.9	-188.4	-281.3	-388.3
11. Coal Consumption	941.6	1033.5	1119.1	1164.5
12. Coal Production	919.8	993.5	1094.8	1173.3
13. Coal Exports - Imports	-42.8	-54.6	-75.4	-106.6
14. Renewables, Electric				
15. Nuclear Energy				
16. Renewables, Nonelectric				
17. Electricity Generation Terawatt Hours (TWh)	6475.6	8120.1	9316.3	10335.0
18. Carbon Emissions Million Tons (MtC)	2983.9	3393.6	3688.5	3868.9
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Organization/Project: OWREF; OPEC World Energy Model (OWEM), Reference Case

Country/Region: OPEC (A5)

Reference (including date) of most recent report: Submitted to the IEW Poll, December 1995.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	22.3	14.4	18.0	23.3
2. Real GNP (or GDP) Index 1990 = 100	100.0	147.4	218.5	322.9
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	359.0	501.3	664.7	896.4
4. Total Production	1444.0	1855.7	2511.4	3033.8
5. Oil Consumption	204.2	284.3	346.0	409.1
6. Oil Production	1231.4	1507.3	1959.6	2226.5
7. Oil Exports - Imports	1005.2	1223.1	1613.5	1817.4
8. Natural Gas Consumption	144.3	192.9	285.9	444.0
9. Natural Gas Production	199.0	312.1	503.6	745.5
10. Gas Exports - Imports	54.6	115.8	212.7	293.5
11. Coal Consumption	4.5	15.3	19.7	23.8
12. Coal Production	7.6	27.3	35.2	42.5
13. Coal Exports - Imports	3.0	16.6	21.3	25.8
14. Renewables, Electric				
15. Nuclear Energy				
16. Renewables, Nonelectric				
17. Electricity Generation Terawatt Hours (TWh)	25.8	38.4	56.9	84.2
18. Carbon Emissions Million Tons (MtC)	260.0	366.7	479.5	633.8
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Organization/Project: OWREF; OPEC World Energy Model (OWEM), Reference Case

Country/Region: Non-OPEC Developing Countries (A6)

Reference (including date) of most recent report: Submitted to the IEW Poll, December 1995.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	22.3	14.4	18.0	23.3
2. Real GNP (or GDP) Index 1990 = 100	100.0	148.2	216.1	313.5
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	1027.1	1489.8	1947.8	2410.3
4. Total Production	874.0	1186.6	1462.4	1787.3
5. Oil Consumption	497.7	748.7	958.2	1118.0
6. Oil Production	363.1	480.3	532.7	596.2
7. Oil Exports - Imports	-141.9	-272.2	-430.4	-527.4
8. Natural Gas Consumption	88.6	144.2	210.3	320.7
9. Natural Gas Production	95.6	147.0	197.9	275.9
10. Gas Exports - Imports	7.0	2.4	-13.0	-45.7
11. Coal Consumption	356.4	487.5	617.3	731.8
12. Coal Production	330.9	449.9	569.7	675.4
13. Coal Exports - Imports	-25.1	-43.2	-54.6	-64.8
14. Renewables, Electric				
15. Nuclear Energy				
16. Renewables, Nonelectric				
17. Electricity Generation Terawatt Hours (TWh)	366.9	475.9	704.5	1042.8
18. Carbon Emissions Million Tons (MtC)	830.4	1203.7	1549.8	1868.4
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Organization/Project: OWREF; OPEC World Energy Model (OWEM), Reference Case

Country/Region: OECDN (A8)

Reference (including date) of most recent report: Submitted to the IEW Poll, December 1995.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	22.3	14.4	18.0	23.3
2. Real GNP (or GDP) Index 1990 = 100	100.0	131.7	178.9	238.4
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	7812.6	9233.9	10799.0	12263.2
4. Total Production	7894.5	9136.3	10725.5	12188.1
5. Oil Consumption	3164.3	3613.4	4091.9	4409.6
6. Oil Production	3222.2	3608.6	4086.6	4404.2
7. Oil Exports - Imports	17.7	-14.6	-16.5	-17.5
8. Natural Gas Consumption	1614.5	1928.6	2381.6	2922.7
9. Natural Gas Production	1629.4	1867.9	2322.9	2812.4
10. Gas Exports - Imports	-4.8	-69.6	-70.6	-126.4
11. Coal Consumption	2281.8	2693.1	3110.5	3462.4
12. Coal Production	2291.0	2660.9	3101.1	3503.0
13. Coal Exports - Imports	-32.5	-47.7	-61.8	-76.1
14. Renewables, Electric				
15. Nuclear Energy				
16. Renewables, Nonelectric				
17. Electricity Generation Terawatt Hours (TWh)	7310.2	9210.1	10889.7	12607.4
18. Carbon Emissions Million Tons (MtC)	5931.0	6933.2	8047.2	9019.3
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Organization/Project: PLMCP; Polish Ministry for Central Planning

Country/Region: Poland (POL)

Reference (including date) of most recent report: Submitted by J.S.
Michna, February 1993.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	20.4	19.0	25.0	40.0
2. Real GNP (or GDP) Index 1990 = 100	100.0	137.0	215.0	338.2
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	100.6	105.0	115.4	125.8
4. Total Production	98.3	93.3	89.3	60.1
5. Oil Consumption	15.4	21.1	26.2	30.2
6. Oil Production	0.2	0.2	0.2	0.2
7. Oil Exports - Imports	-15.2	-19.9	-26.0	-30.0
8. Natural Gas Consumption	9.7	12.9	18.9	27.5
9. Natural Gas Production	3.2	4.1	4.2	4.2
10. Gas Exports - Imports	-6.5	-8.8	-14.7	-23.3
11. Coal Consumption	131.1	118.3	119.0	105.0
12. Coal Production	150.7	135.1	133.0	119.0
13. Coal Exports - Imports	19.6	16.8	14.0	7.0
14. Renewables, Electric	1.4	2.0	2.5	3.0
15. Nuclear Energy	0.0	0.0	0.0	20.0
16. Renewables, Nonelectric				
17. Electricity Generation Terawatt Hours (TWh)	136.3	155.0	190.0	265.0
18. Carbon Emissions Million Tons (MtC)	111.0	117.0	103.6	121.4
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Organization/Project: PLMIT; Polish Ministry for Industry and Trade,
"Change-N" scenario

Country/Region: Poland (POL)

Reference (including date) of most recent report: Institute for
Fundamental Technical Problems "Energy Policy and Draft Program
for Poland up to 2010", July 1993.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	19.6	20.7	26.1	
2. Real GNP (or GDP) Index 1990 = 100	100.0	118.2	161.2	
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	100.6	110.0	118.1	
4. Total Production	96.9	85.1	89.8	
5. Oil Consumption	15.7	22.1	25.7	
6. Oil Production	0.0	0.0	0.0	
7. Oil Exports - Imports	-15.7	-22.1	-25.7	
8. Natural Gas Consumption	8.9	11.3	15.0	
9. Natural Gas Production	2.3	4.8	4.7	
10. Gas Exports - Imports	-6.6	-6.5	-10.3	
11. Coal Consumption	78.2	75.4	71.7	
12. Coal Production	94.6	80.3	85.1	
13. Coal Exports - Imports	16.4	4.8	13.4	
14. Renewables, Electric	0.3	0.5	0.9	
15. Nuclear Energy	0.0	0.0	0.0	
16. Renewables, Nonelectric	0.0	0.4	1.0	
17. Electricity Generation Terawatt Hours (TWh)	134.6	154.2	187.0	
18. Carbon Emissions Million Tons (MtC)	102.7	110.4	117.0	
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Organization/Project: PNREF; Paul Scherrer Institute, Nuclear Available,
Double Oil Price, Base.

Country/Region: Switzerland (SWISS)

Reference (including date) of most recent report: MARKAL-MACRO runs for
Switzerland. Swiss country study submitted to the CHALLENGE
project, September 1995.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	20.0	30.0	40.0	40.0
2. Real GNP (or GDP) Index 1990 = 100	100.0	114.7	131.7	152.6
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	28.4	30.8	32.1	34.6
4. Total Production	14.0	16.0	17.7	20.1
5. Oil Consumption	12.2	10.2	8.8	8.0
6. Oil Production	0.0	0.0	0.0	0.0
7. Oil Exports - Imports	-12.2	-10.2	-8.8	-8.0
8. Natural Gas Consumption	1.8	4.2	5.0	5.5
9. Natural Gas Production	0.0	0.0	0.0	0.0
10. Gas Exports - Imports	-1.8	-4.2	-5.0	-5.5
11. Coal Consumption	0.4	0.4	0.6	1.0
12. Coal Production	0.0	0.0	0.0	0.0
13. Coal Exports - Imports	-0.4	-0.4	-0.6	-1.0
14. Renewables, Electric	7.7	8.1	8.6	8.4
15. Nuclear Energy	5.3	6.9	8.1	10.6
16. Renewables, Nonelectric	1.0	1.0	1.0	1.0
17. Electricity Generation Terawatt Hours (TWh)	59.4	69.1	76.5	87.3
18. Carbon Emissions Million Tons (MtC)	11.7	11.5	11.1	11.1
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Organization/Project: PREM; Russia Energy Project, East-West Center,
Honolulu and GAPMER, Moscow.

Country/Region: Former Soviet Union, Base Case (USSR)

Reference (including date) of most recent report: Update of Pacific Energy
Outlook: EWC, Honolulu, May 1995.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel				
2. Real GNP (or GDP) Index 1990 = 100				
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption				
4. Total Production				
5. Oil Consumption	425.0	290.0	355.0	
6. Oil Production	571.0	440.0	535.0	
7. Oil Exports - Imports	146.0	150.0	180.0	
8. Natural Gas Consumption	587.0	606.0	740.0	
9. Natural Gas Production	677.0	706.0	880.0	
10. Gas Exports - Imports	90.0	100.0	140.0	
11. Coal Consumption	319.0	260.0	290.0	
12. Coal Production	332.0	260.0	320.0	
13. Coal Exports - Imports	13.0	0.0	30.0	
14. Renewables, Electric				
15. Nuclear Energy				
16. Renewables, Nonelectric				
17. Electricity Generation Terawatt Hours (TWh)				
18. Carbon Emissions Million Tons (MtC)				
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Organization/Project: PSREF; Paul Scherrer Institute, Nuclear Moratorium,
Double Oil Price, Base.

Country/Region: Switzerland (SWISS)

Reference (including date) of most recent report: MARKAL-MACRO runs for
Switzerland. Swiss country study submitted to the CHALLENGE
project, September 1995.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	20.0	30.0	40.0	40.0
2. Real GNP (or GDP) Index 1990 = 100	100.0	114.6	131.6	152.2
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	28.4	30.8	31.7	33.1
4. Total Production	14.0	16.0	16.5	16.9
5. Oil Consumption	12.2	10.2	8.8	7.9
6. Oil Production	0.0	0.0	0.0	0.0
7. Oil Exports - Imports	-12.2	-10.2	-8.8	-7.9
8. Natural Gas Consumption	1.8	4.2	5.0	6.0
9. Natural Gas Production	0.0	0.0	0.0	0.0
10. Gas Exports - Imports	-1.8	-4.2	-5.0	-6.0
11. Coal Consumption	0.3	0.5	1.4	2.3
12. Coal Production	0.0	0.0	0.0	0.0
13. Coal Exports - Imports	-0.3	-0.5	-1.4	-2.3
14. Renewables, Electric	7.7	8.1	8.6	9.0
15. Nuclear Energy	5.3	6.9	6.9	6.9
16. Renewables, Nonelectric	1.0	1.0	1.0	0.9
17. Electricity Generation Terawatt Hours (TWh)	59.5	69.1	76.0	84.8
18. Carbon Emissions Million Tons (MtC)	11.6	11.5	11.9	12.8
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Organization/Project: SHEM; National Energy Administration

Country/Region: Sudan (SUDAN)

Reference (including date) of most recent report: Submitted to the IEW in June 1994.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel				
2. Real GNP (or GDP) Index 1990 = 100	100.0	140.0	168.0	202.0
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	6.3	9.4	14.2	21.3
4. Total Production	5.1	7.7	11.5	17.2
5. Oil Consumption	1.2	2.1	3.5	6.0
6. Oil Production	0.0	0.0	0.0	0.0
7. Oil Exports - Imports	-1.2	-2.1	-3.5	-6.0
8. Natural Gas Consumption				
9. Natural Gas Production				
10. Gas Exports - Imports				
11. Coal Consumption				
12. Coal Production				
13. Coal Exports - Imports				
14. Renewables, Electric	0.2	0.4	0.7	1.2
15. Nuclear Energy				
16. Renewables, Nonelectric	5.0	7.5	11.3	16.9
17. Electricity Generation Terawatt Hours (TWh)	1.3	2.3	4.0	6.8
18. Carbon Emissions Million Tons (MtC)				
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Notes:

Item 14: Original numbers in TWh; here multiplied by 0.243

Item 16: Biomass

Organization/Project: SIOPT; Siberian Energy Institute, Optimistic scenario

Country/Region: Former USSR (USSR)

Reference (including date) of most recent report: Yuri Kononov, October 1993.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	21.0	25.6	33.1	39.0
2. Real GNP (or GDP) Index 1990 = 100	100.0	85.0	119.0	170.0
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	1365.0	1310.0	1365.0	1510.0
4. Total Production	1645.0	1530.0	1655.0	1745.0
5. Oil Consumption	387.0	270.0	257.0	250.0
6. Oil Production	560.0	380.0	380.0	340.0
7. Oil Exports - Imports	173.0	110.0	123.0	90.0
8. Natural Gas Consumption	573.0	615.0	682.0	800.0
9. Natural Gas Production	660.0	730.0	820.0	930.0
10. Gas Exports - Imports	87.0	115.0	138.0	130.0
11. Coal Consumption	279.0	247.0	269.0	275.0
12. Coal Production	297.0	259.0	279.0	290.0
13. Coal Exports - Imports	18.0	12.0	10.0	15.0
14. Renewables, Electric	46.0	49.0	54.0	58.0
15. Nuclear Energy	44.0	41.0	54.0	60.0
16. Renewables, Nonelectric	36.0	73.0	70.0	65.0
17. Electricity Generation Terawatt Hours (TWh)	1700.0	1700.0	1990.0	2450.0
18. Carbon Emissions Million Tons (MtC)	965.0	855.0	910.0	975.0
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Organization/Project: SIREA; Siberian Energy Institute, Realistic scenario

Country/Region: Former USSR (USSR)

Reference (including date) of most recent report: Yuri Kononov, October 1993.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	21.0	25.6	33.1	39.0
2. Real GNP (or GDP) Index 1990 = 100	100.0	70.0	100.0	140.0
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	1365.0	1240.0	1280.0	1365.0
4. Total Production	1645.0	1450.0	1570.0	1670.0
5. Oil Consumption	387.0	245.0	228.0	230.0
6. Oil Production	560.0	340.0	360.0	330.0
7. Oil Exports - Imports	173.0	95.0	132.0	100.0
8. Natural Gas Consumption	573.0	600.0	676.0	760.0
9. Natural Gas Production	660.0	715.0	800.0	890.0
10. Gas Exports - Imports	87.0	115.0	134.0	130.0
11. Coal Consumption	279.0	238.0	242.0	267.0
12. Coal Production	297.0	248.0	252.0	278.0
13. Coal Exports - Imports	18.0	10.0	10.0	11.0
14. Renewables, Electric	46.0	49.0	53.0	56.0
15. Nuclear Energy	44.0	41.0	47.0	53.0
16. Renewables, Nonelectric	36.0	56.0	60.0	65.0
17. Electricity Generation Terawatt Hours (TWh)	1700.0	1650.0	1900.0	2250.0
18. Carbon Emissions Million Tons (MtC)	965.0	815.0	850.0	930.0
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Organization/Project: STPET; Ministry for Fuel and Energy, Russian State Energy Program

Country/Region: Russia (RUS)

Reference (including date) of most recent report: V.V. Bushuev, "New Energy Policy of Russia: Basic Concepts", Energetik no. 5, 1993.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel				
2. Real GNP (or GDP) Index 1990 = 100	100.0	105.0	130.0	150.0
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	890.0	882.0	950.0	1030.0
4. Total Production	1313.0	1208.0	1337.0	1424.0
5. Oil Consumption	220.0	227.0	212.0	252.0
6. Oil Production	515.0	345.0	385.0	510.0
7. Oil Exports - Imports	295.0	118.0	173.0	258.0
8. Natural Gas Consumption	365.0	429.0	393.0	445.0
9. Natural Gas Production	533.0	620.0	699.0	774.0
10. Gas Exports - Imports	168.0	191.0	306.0	329.0
11. Coal Consumption	241.0	239.0	275.0	294.0
12. Coal Production	241.0	239.0	275.0	294.0
13. Coal Exports - Imports				
14. Renewables, Electric	167.0	183.0	240.0	290.0
15. Nuclear Energy	118.0	135.0	170.0	230.0
16. Renewables, Nonelectric				
17. Electricity Generation Terawatt Hours (TWh)	1082.0	1158.0	1415.0	1760.0
18. Carbon Emissions Million Tons (MtC)	762.0	650.0	685.0	642.0
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Notes:

GDP and all 2020 estimates by V. Okorokov;

8-10: Original numbers in billion cubic meters, multiplied by 0.8323;

12: Original numbers in million tons, multiplied by 0.6543.

Organization/Project: TEREf; Tata Energy Research Institute

Country/Region: India, Base Case (INDIA)

Reference (including date) of most recent report: TERI Energy Economy Evaluation and Simulation (TEESE) Model, June 1995.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	16.2	16.2	16.2	
2. Real GNP (or GDP) Index 1990 = 100	100.0	136.0	290.0	
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	212.0	351.0	588.0	
4. Total Production	192.0	310.6	476.0	
5. Oil Consumption	54.0	82.0	134.0	
6. Oil Production	33.0	45.0	47.0	
7. Oil Exports - Imports	-26.7	-52.5	-111.0	
8. Natural Gas Consumption	10.7	28.4	48.9	
9. Natural Gas Production	14.9	28.4	30.3	
10. Gas Exports - Imports	0.0	0.0	-18.6	
11. Coal Consumption	138.8	228.0	387.0	
12. Coal Production	137.5	224.0	380.0	
13. Coal Exports - Imports	-1.3	-4.0	-7.0	
14. Renewables, Electric				
15. Nuclear Energy	0.5	0.8	0.8	
16. Renewables, Nonelectric				
17. Electricity Generation Terawatt Hours (TWh)	289.0	568.0	947.0	
18. Carbon Emissions Million Tons (MtC)	178.5	292.0	478.0	
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Notes:

10. Imbalance due to flaring.

Organization/Project: TSREF; INET/ITEESA, Tsinghua University, Beijing,
Reference scenario

Country/Region: China (A2)

Reference (including date) of most recent report: Submitted to CHALLENGE,
September 1993.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	20.0	20.0	20.0	20.0
2. Real GNP (or GDP) Index 1990 = 100	100.0	216.0	405.0	690.0
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	690.0	1022.0	1400.0	1760.0
4. Total Production	722.0	1040.0	1389.0	1692.0
5. Oil Consumption	117.3	165.0	230.0	290.0
6. Oil Production	138.3	180.0	210.0	220.0
7. Oil Exports - Imports	21.0	15.0	-20.0	-70.0
8. Natural Gas Consumption	14.2	28.0	72.0	115.0
9. Natural Gas Production	14.2	28.0	65.0	98.0
10. Gas Exports - Imports	0.0	0.0	-7.0	-17.0
11. Coal Consumption	529.2	752.0	944.0	1121.0
12. Coal Production	544.2	772.0	960.0	1140.0
13. Coal Exports - Imports	15.0	20.0	16.0	19.0
14. Renewables, Electric	29.0	68.0	116.0	152.0
15. Nuclear Energy	0.0	9.0	36.0	78.0
16. Renewables, Nonelectric	0.2	0.4	1.8	4.0
17. Electricity Generation Terawatt Hours (TWh)	623.0	1500.0	2450.0	3450.0
18. Carbon Emissions Million Tons (MtC)	639.0	911.0	1184.0	1436.0
19. Marginal Reduction Costs 1990 \$ per ton of carbon		0.0	0.0	0.0

Organization/Project: VEREF; Veiki, Reference case (mixed coal and nuclear scenario)

Country/Region: Hungary (HNGRY)

Reference (including date) of most recent report: Submitted to CHALLENGE, February 1993.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel	20.0	20.0	30.0	40.0
2. Real GNP (or GDP) Index 1990 = 100	100.0	130.0	220.0	370.0
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	29.7	30.2	33.2	38.2
4. Total Production	14.1	12.8	9.7	12.1
5. Oil Consumption	8.2	10.2	10.9	11.5
6. Oil Production	1.9	1.8	1.3	1.0
7. Oil Exports - Imports	-6.3	-8.4	-9.6	-10.5
8. Natural Gas Consumption	8.9	10.4	12.5	13.1
9. Natural Gas Production	3.7	3.2	2.4	1.8
10. Gas Exports - Imports	-5.2	-7.2	-10.1	-11.3
11. Coal Consumption	6.6	5.8	6.1	6.3
12. Coal Production	5.1	4.1	2.4	2.2
13. Coal Exports - Imports	-1.5	-1.6	-3.7	-4.1
14. Renewables, Electric	0.1	0.1	0.1	0.1
15. Nuclear Energy	3.3	3.5	3.5	7.0
16. Renewables, Nonelectric				
17. Electricity Generation Terawatt Hours (TWh)	39.5	37.0	47.1	60.0
18. Carbon Emissions Million Tons (MtC)	21.6	23.4	25.0	27.1
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Organization/Project: WECA; World Energy Council, Case A

Country/Region: Centrally Planned Asia (A2)

Reference (including date) of most recent report: September 1993.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel				
2. Real GNP (or GDP) Index 1990 = 100	100.0			607.8
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	732.0			2071.0
4. Total Production				
5. Oil Consumption	100.0			282.0
6. Oil Production				
7. Oil Exports - Imports				
8. Natural Gas Consumption	14.0			163.0
9. Natural Gas Production				
10. Gas Exports - Imports				
11. Coal Consumption	575.0			1408.0
12. Coal Production				
13. Coal Exports - Imports				
14. Renewables, Electric	30.0			91.0
15. Nuclear Energy	0.0			46.0
16. Renewables, Nonelectric	13.0			80.0
17. Electricity Generation Terawatt Hours (TWh)	699.0			2888.0
18. Carbon Emissions Million Tons (MtC)	716.9			1867.6
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Notes:

14: Hydro.

Region includes other Asian Planned Economies.

Organization/Project: WECA; World Energy Council, Case A

Country/Region: 8. World (A8)

Reference (including date) of most recent report: September 1993.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel				
2. Real GNP (or GDP) Index 1990 = 100	100.0			306.1
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	7877.0			15886.0
4. Total Production				
5. Oil Consumption	2773.0			4594.0
6. Oil Production				
7. Oil Exports - Imports				
8. Natural Gas Consumption	1718.0			3647.0
9. Natural Gas Production				
10. Gas Exports - Imports				
11. Coal Consumption	2317.0			4854.0
12. Coal Production				
13. Coal Exports - Imports				
14. Renewables, Electric	464.0			1001.0
15. Nuclear Energy	442.0			982.0
16. Renewables, Nonelectric	164.0			809.0
17. Electricity Generation Terawatt Hours (TWh)	11607.7			26560.0
18. Carbon Emissions Million Tons (MtC)	5944.2			11462.6
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Notes:

14: Hydro.

Organization/Project: WECA; World Energy Council, Case A

Country/Region: Central and Eastern Europe (EEUR)

Reference (including date) of most recent report: September 1993.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel				
2. Real GNP (or GDP) Index 1990 = 100	100.0			222.4
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	288.0			355.0
4. Total Production				
5. Oil Consumption	49.0			78.0
6. Oil Production				
7. Oil Exports - Imports				
8. Natural Gas Consumption	64.0			102.0
9. Natural Gas Production				
10. Gas Exports - Imports				
11. Coal Consumption	156.0			117.0
12. Coal Production				
13. Coal Exports - Imports				
14. Renewables, Electric	5.0			6.0
15. Nuclear Energy	11.0			36.0
16. Renewables, Nonelectric	4.0			16.0
17. Electricity Generation Terawatt Hours (TWh)	362.0			645.0
18. Carbon Emissions Million Tons (MtC)	230.0			257.9
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Notes:

14: Hydro.

Organization/Project: WECA; World Energy Council, Case A

Country/Region: Latin America (LATAM)

Reference (including date) of most recent report: September 1993.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel				
2. Real GNP (or GDP) Index 1990 = 100	100.0			484.4
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	452.0			2053.0
4. Total Production				
5. Oil Consumption	218.0			715.0
6. Oil Production				
7. Oil Exports - Imports				
8. Natural Gas Consumption	80.0			434.0
9. Natural Gas Production				
10. Gas Exports - Imports				
11. Coal Consumption	22.0			441.0
12. Coal Production				
13. Coal Exports - Imports				
14. Renewables, Electric	80.0			265.0
15. Nuclear Energy	3.0			49.0
16. Renewables, Nonelectric	50.0			148.0
17. Electricity Generation Terawatt Hours (TWh)	598.1			3210.0
18. Carbon Emissions Million Tons (MtC)	257.9			1357.8
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Notes:

14: Hydro.

Organization/Project: WECA; World Energy Council, Case A

Country/Region: Middle East & North Africa (NAFME)

Reference (including date) of most recent report: September 1993.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel				
2. Real GNP (or GDP) Index 1990 = 100	100.0			470.8
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	296.0			1258.0
4. Total Production				
5. Oil Consumption	167.0			597.0
6. Oil Production				
7. Oil Exports - Imports				
8. Natural Gas Consumption	117.0			500.0
9. Natural Gas Production				
10. Gas Exports - Imports				
11. Coal Consumption	7.0			125.0
12. Coal Production				
13. Coal Exports - Imports				
14. Renewables, Electric	5.0			20.0
15. Nuclear Energy	0.0			0.0
16. Renewables, Nonelectric	1.0			16.0
17. Electricity Generation Terawatt Hours (TWh)	311.4			1751.0
18. Carbon Emissions Million Tons (MtC)	222.5			958.7
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Notes:

14: Hydro.

Organization/Project: WECA; World Energy Council, Case A

Country/Region: Western Europe (OECD)

Reference (including date) of most recent report: September 1993.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel				
2. Real GNP (or GDP) Index 1990 = 100	100.0			203.7
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	1442.0			1793.0
4. Total Production				
5. Oil Consumption	568.0			540.0
6. Oil Production				
7. Oil Exports - Imports				
8. Natural Gas Consumption	254.0			379.0
9. Natural Gas Production				
10. Gas Exports - Imports				
11. Coal Consumption	333.0			369.0
12. Coal Production				
13. Coal Exports - Imports				
14. Renewables, Electric	99.0			148.0
15. Nuclear Energy	169.0			249.0
16. Renewables, Nonelectric	19.0			109.0
17. Electricity Generation Terawatt Hours (TWh)	2468.4			4048.0
18. Carbon Emissions Million Tons (MtC)	1001.1			1096.8
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Notes:

14: Hydro.

Organization/Project: WECA; World Energy Council, Case A

Country/Region: North America (OECDN)

Reference (including date) of most recent report: September 1993.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel				
2. Real GNP (or GDP) Index 1990 = 100	100.0			203.7
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	2119.0			2397.0
4. Total Production				
5. Oil Consumption	809.0			756.0
6. Oil Production				
7. Oil Exports - Imports				
8. Natural Gas Consumption	497.0			600.0
9. Natural Gas Production				
10. Gas Exports - Imports				
11. Coal Consumption	508.0			477.0
12. Coal Production				
13. Coal Exports - Imports				
14. Renewables, Electric	127.0			163.0
15. Nuclear Energy	145.0			181.0
16. Renewables, Nonelectric	34.0			221.0
17. Electricity Generation Terawatt Hours (TWh)	3475.5			4807.0
18. Carbon Emissions Million Tons (MtC)	1549.0			1537.9
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Notes:

14: Hydro.

Organization/Project: WECA; World Energy Council, Case A

Country/Region: Pacific Countries (PACW)

Reference (including date) of most recent report: September 1993.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel				
2. Real GNP (or GDP) Index 1990 = 100	100.0			315.1
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	760.0			1775.0
4. Total Production				
5. Oil Consumption	386.0			639.0
6. Oil Production				
7. Oil Exports - Imports				
8. Natural Gas Consumption	94.0			281.0
9. Natural Gas Production				
10. Gas Exports - Imports				
11. Coal Consumption	159.0			433.0
12. Coal Production				
13. Coal Exports - Imports				
14. Renewables, Electric	39.0			101.0
15. Nuclear Energy	64.0			232.0
16. Renewables, Nonelectric	18.0			88.0
17. Electricity Generation Terawatt Hours (TWh)	1407.0			3547.0
18. Carbon Emissions Million Tons (MtC)	556.6			1187.4
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Notes:

14: Hydro.

Organization/Project: WECA; World Energy Council, Case A

Country/Region: South Asia (SASIA)

Reference (including date) of most recent report: September 1993.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel				
2. Real GNP (or GDP) Index 1990 = 100	100.0			484.4
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	242.0			1561.0
4. Total Production				
5. Oil Consumption	60.0			364.0
6. Oil Production				
7. Oil Exports - Imports				
8. Natural Gas Consumption	25.0			184.0
9. Natural Gas Production				
10. Gas Exports - Imports				
11. Coal Consumption	126.0			784.0
12. Coal Production				
13. Coal Exports - Imports				
14. Renewables, Electric	20.0			94.0
15. Nuclear Energy	1.0			84.0
16. Renewables, Nonelectric	10.0			51.0
17. Electricity Generation Terawatt Hours (TWh)	343.3			2009.0
18. Carbon Emissions Million Tons (MtC)	202.9			1273.2
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Notes:

14: Hydro.

Organization/Project: WECA; World Energy Council, Case A

Country/Region: Sub-Saharan Africa (AFSS)

Reference (including date) of most recent report: September 1993.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel				
2. Real GNP (or GDP) Index 1990 = 100	100.0			574.4
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	125.0			979.0
4. Total Production				
5. Oil Consumption	38.0			275.0
6. Oil Production				
7. Oil Exports - Imports				
8. Natural Gas Consumption	4.0			184.0
9. Natural Gas Production				
10. Gas Exports - Imports				
11. Coal Consumption	68.0			435.0
12. Coal Production				
13. Coal Exports - Imports				
14. Renewables, Electric	9.0			46.0
15. Nuclear Energy	1.0			12.0
16. Renewables, Nonelectric	6.0			28.0
17. Electricity Generation Terawatt Hours (TWh)	224.4			1064.0
18. Carbon Emissions Million Tons (MtC)	107.5			820.3
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Notes:

14: Hydro.

Organization/Project: WECA; World Energy Council, Case A

Country/Region: Former USSR (USSR)

Reference (including date) of most recent report: September 1993.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel				
2. Real GNP (or GDP) Index 1990 = 100	100.0			197.8
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	1421.0			1644.0
4. Total Production				
5. Oil Consumption	378.0			348.0
6. Oil Production				
7. Oil Exports - Imports				
8. Natural Gas Consumption	569.0			821.0
9. Natural Gas Production				
10. Gas Exports - Imports				
11. Coal Consumption	365.0			263.0
12. Coal Production				
13. Coal Exports - Imports				
14. Renewables, Electric	50.0			65.0
15. Nuclear Energy	47.0			93.0
16. Renewables, Nonelectric	11.0			53.0
17. Electricity Generation Terawatt Hours (TWh)	1718.4			2591.0
18. Carbon Emissions Million Tons (MtC)	1079.1			1104.9
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Notes:

14: Hydro.

Organization/Project: WECB; World Energy Council, Case B

Country/Region: Centrally Planned Asia (A2)

Reference (including date) of most recent report: September 1993.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel				
2. Real GNP (or GDP) Index 1990 = 100	100.0			444.7
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	732.0			1751.0
4. Total Production				
5. Oil Consumption	100.0			273.0
6. Oil Production				
7. Oil Exports - Imports				
8. Natural Gas Consumption	14.0			126.0
9. Natural Gas Production				
10. Gas Exports - Imports				
11. Coal Consumption	575.0			1154.0
12. Coal Production				
13. Coal Exports - Imports				
14. Renewables, Electric	30.0			105.0
15. Nuclear Energy	0.0			40.0
16. Renewables, Nonelectric	13.0			54.0
17. Electricity Generation Terawatt Hours (TWh)	699.0			2653.0
18. Carbon Emissions Million Tons (MtC)	716.9			1560.6
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Notes:

14: Hydro.

Region includes other Asian Planned Economies.

Organization/Project: WECB; World Energy Council, Case B

Country/Region: 8. World (A8)

Reference (including date) of most recent report: September 1993.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel				
2. Real GNP (or GDP) Index 1990 = 100	100.0			264.9
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	7877.0			12030.0
4. Total Production				
5. Oil Consumption	2773.0			3768.0
6. Oil Production				
7. Oil Exports - Imports				
8. Natural Gas Consumption	1718.0			2976.0
9. Natural Gas Production				
10. Gas Exports - Imports				
11. Coal Consumption	2317.0			3035.0
12. Coal Production				
13. Coal Exports - Imports				
14. Renewables, Electric	464.0			920.0
15. Nuclear Energy	442.0			792.0
16. Renewables, Nonelectric	164.0			539.0
17. Electricity Generation Terawatt Hours (TWh)	11607.7			23012.0
18. Carbon Emissions Million Tons (MtC)	5944.2			8366.6
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Notes:

14: Hydro.

Organization/Project: WECB; World Energy Council, Case B

Country/Region: Central and Eastern Europe (EEUR)

Reference (including date) of most recent report: September 1993.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel				
2. Real GNP (or GDP) Index 1990 = 100	100.0			222.4
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	288.0			314.0
4. Total Production				
5. Oil Consumption	49.0			67.0
6. Oil Production				
7. Oil Exports - Imports				
8. Natural Gas Consumption	64.0			105.0
9. Natural Gas Production				
10. Gas Exports - Imports				
11. Coal Consumption	156.0			98.0
12. Coal Production				
13. Coal Exports - Imports				
14. Renewables, Electric	5.0			6.0
15. Nuclear Energy	11.0			27.0
16. Renewables, Nonelectric	4.0			11.0
17. Electricity Generation Terawatt Hours (TWh)	362.0			594.0
18. Carbon Emissions Million Tons (MtC)	230.0			230.0
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Notes:

14: Hydro.

Organization/Project: WECB; World Energy Council, Case B

Country/Region: Latin America (LATAM)

Reference (including date) of most recent report: September 1993.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel				
2. Real GNP (or GDP) Index 1990 = 100	100.0			363.9
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	452.0			1218.0
4. Total Production				
5. Oil Consumption	218.0			483.0
6. Oil Production				
7. Oil Exports - Imports				
8. Natural Gas Consumption	80.0			296.0
9. Natural Gas Production				
10. Gas Exports - Imports				
11. Coal Consumption	22.0			79.0
12. Coal Production				
13. Coal Exports - Imports				
14. Renewables, Electric	80.0			235.0
15. Nuclear Energy	3.0			26.0
16. Renewables, Nonelectric	50.0			99.0
17. Electricity Generation Terawatt Hours (TWh)	598.1			2345.0
18. Carbon Emissions Million Tons (MtC)	257.9			681.5
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Notes:

14: Hydro.

Organization/Project: WECB; World Energy Council, Case B

Country/Region: Middle East & North Africa (NAFME)

Reference (including date) of most recent report: September 1993.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel				
2. Real GNP (or GDP) Index 1990 = 100	100.0			363.8
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	296.0			825.0
4. Total Production				
5. Oil Consumption	167.0			368.0
6. Oil Production				
7. Oil Exports - Imports				
8. Natural Gas Consumption	117.0			412.0
9. Natural Gas Production				
10. Gas Exports - Imports				
11. Coal Consumption	7.0			17.0
12. Coal Production				
13. Coal Exports - Imports				
14. Renewables, Electric	5.0			18.0
15. Nuclear Energy	0.0			0.0
16. Renewables, Nonelectric	1.0			11.0
17. Electricity Generation Terawatt Hours (TWh)	311.4			1340.0
18. Carbon Emissions Million Tons (MtC)	222.5			591.5
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Notes:

14: Hydro.

Organization/Project: WECB; World Energy Council, Case B

Country/Region: Western Europe (OECD)

Reference (including date) of most recent report: September 1993.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel				
2. Real GNP (or GDP) Index 1990 = 100	100.0			203.7
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	1442.0			1705.0
4. Total Production				
5. Oil Consumption	568.0			534.0
6. Oil Production				
7. Oil Exports - Imports				
8. Natural Gas Consumption	254.0			354.0
9. Natural Gas Production				
10. Gas Exports - Imports				
11. Coal Consumption	333.0			352.0
12. Coal Production				
13. Coal Exports - Imports				
14. Renewables, Electric	99.0			149.0
15. Nuclear Energy	169.0			244.0
16. Renewables, Nonelectric	19.0			73.0
17. Electricity Generation Terawatt Hours (TWh)	2468.4			3900.0
18. Carbon Emissions Million Tons (MtC)	1001.1			1058.0
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Notes:

14: Hydro.

Organization/Project: WECB; World Energy Council, Case B

Country/Region: North America (OECDN)

Reference (including date) of most recent report: September 1993.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel				
2. Real GNP (or GDP) Index 1990 = 100	100.0			203.7
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	2119.0			2290.0
4. Total Production				
5. Oil Consumption	809.0			793.0
6. Oil Production				
7. Oil Exports - Imports				
8. Natural Gas Consumption	497.0			601.0
9. Natural Gas Production				
10. Gas Exports - Imports				
11. Coal Consumption	508.0			400.0
12. Coal Production				
13. Coal Exports - Imports				
14. Renewables, Electric	127.0			162.0
15. Nuclear Energy	145.0			188.0
16. Renewables, Nonelectric	34.0			147.0
17. Electricity Generation Terawatt Hours (TWh)	3475.5			4633.0
18. Carbon Emissions Million Tons (MtC)	1549.0			1485.5
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Notes:

14: Hydro.

Organization/Project: WECB; World Energy Council, Case B

Country/Region: Pacific Countries (PACW)

Reference (including date) of most recent report: September 1993.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel				
2. Real GNP (or GDP) Index 1990 = 100	100.0			264.9
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	760.0			1316.0
4. Total Production				
5. Oil Consumption	386.0			524.0
6. Oil Production				
7. Oil Exports - Imports				
8. Natural Gas Consumption	94.0			216.0
9. Natural Gas Production				
10. Gas Exports - Imports				
11. Coal Consumption	159.0			269.0
12. Coal Production				
13. Coal Exports - Imports				
14. Renewables, Electric	39.0			86.0
15. Nuclear Energy	64.0			162.0
16. Renewables, Nonelectric	18.0			59.0
17. Electricity Generation Terawatt Hours (TWh)	1407.0			3069.0
18. Carbon Emissions Million Tons (MtC)	556.6			870.4
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Notes:

14: Hydro.

Organization/Project: WECB; World Energy Council, Case B

Country/Region: South Asia (SASIA)

Reference (including date) of most recent report: September 1993.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel				
2. Real GNP (or GDP) Index 1990 = 100	100.0			363.9
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	242.0			723.0
4. Total Production				
5. Oil Consumption	60.0			207.0
6. Oil Production				
7. Oil Exports - Imports				
8. Natural Gas Consumption	25.0			94.0
9. Natural Gas Production				
10. Gas Exports - Imports				
11. Coal Consumption	126.0			289.0
12. Coal Production				
13. Coal Exports - Imports				
14. Renewables, Electric	20.0			70.0
15. Nuclear Energy	1.0			30.0
16. Renewables, Nonelectric	10.0			34.0
17. Electricity Generation Terawatt Hours (TWh)	343.3			1364.0
18. Carbon Emissions Million Tons (MtC)	202.9			546.9
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Notes:

14: Hydro.

Organization/Project: WECB; World Energy Council, Case B

Country/Region: Subsaharan Africa (AFSS)

Reference (including date) of most recent report: September 1993.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel				
2. Real GNP (or GDP) Index 1990 = 100	100.0			432.2
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	125.0			391.0
4. Total Production				
5. Oil Consumption	38.0			165.0
6. Oil Production				
7. Oil Exports - Imports				
8. Natural Gas Consumption	4.0			29.0
9. Natural Gas Production				
10. Gas Exports - Imports				
11. Coal Consumption	68.0			141.0
12. Coal Production				
13. Coal Exports - Imports				
14. Renewables, Electric	9.0			31.0
15. Nuclear Energy	1.0			6.0
16. Renewables, Nonelectric	6.0			19.0
17. Electricity Generation Terawatt Hours (TWh)	224.4			698.0
18. Carbon Emissions Million Tons (MtC)	107.5			310.2
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Notes:

14: Hydro.

Organization/Project: WECB; World Energy Council, Case B

Country/Region: Former USSR (USSR)

Reference (including date) of most recent report: September 1993.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel				
2. Real GNP (or GDP) Index 1990 = 100	100.0			197.8
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	1421.0			1497.0
4. Total Production				
5. Oil Consumption	378.0			355.0
6. Oil Production				
7. Oil Exports - Imports				
8. Natural Gas Consumption	569.0			744.0
9. Natural Gas Production				
10. Gas Exports - Imports				
11. Coal Consumption	365.0			236.0
12. Coal Production				
13. Coal Exports - Imports				
14. Renewables, Electric	50.0			58.0
15. Nuclear Energy	47.0			69.0
16. Renewables, Nonelectric	11.0			36.0
17. Electricity Generation Terawatt Hours (TWh)	1718.4			2417.0
18. Carbon Emissions Million Tons (MtC)	1079.1			1031.9
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Notes:

14: Hydro.

Organization/Project: WECB1; World Energy Council, Case B1

Country/Region: Centrally Planned Asia (A2)

Reference (including date) of most recent report: September 1993.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel				
2. Real GNP (or GDP) Index 1990 = 100	100.0			444.7
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	732.0			1751.0
4. Total Production				
5. Oil Consumption	100.0			260.0
6. Oil Production				
7. Oil Exports - Imports				
8. Natural Gas Consumption	14.0			125.0
9. Natural Gas Production				
10. Gas Exports - Imports				
11. Coal Consumption	575.0			1141.0
12. Coal Production				
13. Coal Exports - Imports				
14. Renewables, Electric	30.0			104.0
15. Nuclear Energy	0.0			40.0
16. Renewables, Nonelectric	13.0			80.0
17. Electricity Generation Terawatt Hours (TWh)	699.0			2653.0
18. Carbon Emissions Million Tons (MtC)	716.9			1535.5
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Notes:

14: Hydro.

Region includes other Asian Planned Economies.

Organization/Project: WECB1; World Energy Council, Case B1

Country/Region: 8. World (A8)

Reference (including date) of most recent report: September 1993.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel				
2. Real GNP (or GDP) Index 1990 = 100	100.0			264.9
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	7877.0			14684.0
4. Total Production				
5. Oil Consumption	2773.0			4532.0
6. Oil Production				
7. Oil Exports - Imports				
8. Natural Gas Consumption	1718.0			3561.0
9. Natural Gas Production				
10. Gas Exports - Imports				
11. Coal Consumption	2317.0			3814.0
12. Coal Production				
13. Coal Exports - Imports				
14. Renewables, Electric	464.0			988.0
15. Nuclear Energy	442.0			980.0
16. Renewables, Nonelectric	164.0			809.0
17. Electricity Generation Terawatt Hours (TWh)	11607.7			25498.0
18. Carbon Emissions Million Tons (MtC)	5944.2			10227.6
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Notes:

14: Hydro.

Organization/Project: WECB1; World Energy Council, Case B1

Country/Region: Central and Eastern Europe (EEUR)

Reference (including date) of most recent report: September 1993.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel				
2. Real GNP (or GDP) Index 1990 = 100	100.0			222.4
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	288.0			355.0
4. Total Production				
5. Oil Consumption	49.0			71.0
6. Oil Production				
7. Oil Exports - Imports				
8. Natural Gas Consumption	64.0			118.0
9. Natural Gas Production				
10. Gas Exports - Imports				
11. Coal Consumption	156.0			108.0
12. Coal Production				
13. Coal Exports - Imports				
14. Renewables, Electric	5.0			6.0
15. Nuclear Energy	11.0			36.0
16. Renewables, Nonelectric	4.0			16.0
17. Electricity Generation Terawatt Hours (TWh)	362.0			645.0
18. Carbon Emissions Million Tons (MtC)	230.0			252.4
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Notes:

14: Hydro.

Organization/Project: WECB1; World Energy Council, Case B1

Country/Region: Latin America (LATAM)

Reference (including date) of most recent report: September 1993.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel				
2. Real GNP (or GDP) Index 1990 = 100	100.0			363.9
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	452.0			1923.0
4. Total Production				
5. Oil Consumption	218.0			813.0
6. Oil Production				
7. Oil Exports - Imports				
8. Natural Gas Consumption	80.0			401.0
9. Natural Gas Production				
10. Gas Exports - Imports				
11. Coal Consumption	22.0			258.0
12. Coal Production				
13. Coal Exports - Imports				
14. Renewables, Electric	80.0			254.0
15. Nuclear Energy	3.0			51.0
16. Renewables, Nonelectric	50.0			148.0
17. Electricity Generation Terawatt Hours (TWh)	598.1			3076.0
18. Carbon Emissions Million Tons (MtC)	257.9			1219.8
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Notes:

14: Hydro.

Organization/Project: WECB1; World Energy Council, Case B1

Country/Region: Middle East & North Africa (NAFME)

Reference (including date) of most recent report: September 1993.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel				
2. Real GNP (or GDP) Index 1990 = 100	100.0			363.9
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	296.0			1096.0
4. Total Production				
5. Oil Consumption	167.0			524.0
6. Oil Production				
7. Oil Exports - Imports				
8. Natural Gas Consumption	117.0			485.0
9. Natural Gas Production				
10. Gas Exports - Imports				
11. Coal Consumption	7.0			53.0
12. Coal Production				
13. Coal Exports - Imports				
14. Renewables, Electric	5.0			18.0
15. Nuclear Energy	0.0			0.0
16. Renewables, Nonelectric	1.0			16.0
17. Electricity Generation Terawatt Hours (TWh)	311.4			1596.0
18. Carbon Emissions Million Tons (MtC)	222.5			808.6
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Notes:

14: Hydro.

Organization/Project: WECB1; World Energy Council, Case B1

Country/Region: Western Europe (OECD)

Reference (including date) of most recent report: September 1993.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel				
2. Real GNP (or GDP) Index 1990 = 100	100.0			203.7
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	1442.0			1705.0
4. Total Production				
5. Oil Consumption	568.0			528.0
6. Oil Production				
7. Oil Exports - Imports				
8. Natural Gas Consumption	254.0			353.0
9. Natural Gas Production				
10. Gas Exports - Imports				
11. Coal Consumption	333.0			322.0
12. Coal Production				
13. Coal Exports - Imports				
14. Renewables, Electric	99.0			149.0
15. Nuclear Energy	169.0			244.0
16. Renewables, Nonelectric	19.0			109.0
17. Electricity Generation Terawatt Hours (TWh)	2468.4			3900.0
18. Carbon Emissions Million Tons (MtC)	1001.1			1019.8
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Notes:

14: Hydro.

Organization/Project: WECB1; World Energy Council, Case B1

Country/Region: North America (OECDN)

Reference (including date) of most recent report: September 1993.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel				
2. Real GNP (or GDP) Index 1990 = 100	100.0			203.7
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	2119.0			2290.0
4. Total Production				
5. Oil Consumption	809.0			737.0
6. Oil Production				
7. Oil Exports - Imports				
8. Natural Gas Consumption	497.0			599.0
9. Natural Gas Production				
10. Gas Exports - Imports				
11. Coal Consumption	508.0			381.0
12. Coal Production				
13. Coal Exports - Imports				
14. Renewables, Electric	127.0			164.0
15. Nuclear Energy	145.0			190.0
16. Renewables, Nonelectric	34.0			221.0
17. Electricity Generation Terawatt Hours (TWh)	3475.5			4633.0
18. Carbon Emissions Million Tons (MtC)	1549.0			1416.0
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Notes:

14: Hydro.

Organization/Project: WECB1; World Energy Council, Case B1

Country/Region: Pacific Countries (PACW)

Reference (including date) of most recent report: September 1993.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel				
2. Real GNP (or GDP) Index 1990 = 100	100.0			264.9
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	760.0			1631.0
4. Total Production				
5. Oil Consumption	386.0			601.0
6. Oil Production				
7. Oil Exports - Imports				
8. Natural Gas Consumption	94.0			261.0
9. Natural Gas Production				
10. Gas Exports - Imports				
11. Coal Consumption	159.0			362.0
12. Coal Production				
13. Coal Exports - Imports				
14. Renewables, Electric	39.0			96.0
15. Nuclear Energy	64.0			223.0
16. Renewables, Nonelectric	18.0			88.0
17. Electricity Generation Terawatt Hours (TWh)	1407.0			3378.0
18. Carbon Emissions Million Tons (MtC)	556.6			1064.7
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Notes:

14: Hydro.

Organization/Project: WECB1; World Energy Council, Case B1

Country/Region: South Asia (SASIA)

Reference (including date) of most recent report: September 1993.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel				
2. Real GNP (or GDP) Index 1990 = 100	100.0			363.9
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	242.0			1169.0
4. Total Production				
5. Oil Consumption	60.0			257.0
6. Oil Production				
7. Oil Exports - Imports				
8. Natural Gas Consumption	25.0			164.0
9. Natural Gas Production				
10. Gas Exports - Imports				
11. Coal Consumption	126.0			544.0
12. Coal Production				
13. Coal Exports - Imports				
14. Renewables, Electric	20.0			86.0
15. Nuclear Energy	1.0			67.0
16. Renewables, Nonelectric	10.0			51.0
17. Electricity Generation Terawatt Hours (TWh)	343.3			1708.0
18. Carbon Emissions Million Tons (MtC)	202.9			911.3
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Notes:

14: Hydro.

Organization/Project: WECB1; World Energy Council, Case B1

Country/Region: Subsaharan Africa (AFSS)

Reference (including date) of most recent report: September 1993.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel				
2. Real GNP (or GDP) Index 1990 = 100	100.0			432.2
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	125.0			754.0
4. Total Production				
5. Oil Consumption	38.0			359.0
6. Oil Production				
7. Oil Exports - Imports				
8. Natural Gas Consumption	4.0			45.0
9. Natural Gas Production				
10. Gas Exports - Imports				
11. Coal Consumption	68.0			274.0
12. Coal Production				
13. Coal Exports - Imports				
14. Renewables, Electric	9.0			40.0
15. Nuclear Energy	1.0			8.0
16. Renewables, Nonelectric	6.0			28.0
17. Electricity Generation Terawatt Hours (TWh)	224.4			885.0
18. Carbon Emissions Million Tons (MtC)	107.5			627.3
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Notes:

14: Hydro.

Organization/Project: WECB1; World Energy Council, Case B1

Country/Region: Former USSR (USSR)

Reference (including date) of most recent report: September 1993.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel				
2. Real GNP (or GDP) Index 1990 = 100	100.0			197.8
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	1421.0			2009.0
4. Total Production				
5. Oil Consumption	378.0			382.0
6. Oil Production				
7. Oil Exports - Imports				
8. Natural Gas Consumption	569.0			1010.0
9. Natural Gas Production				
10. Gas Exports - Imports				
11. Coal Consumption	365.0			371.0
12. Coal Production				
13. Coal Exports - Imports				
14. Renewables, Electric	50.0			70.0
15. Nuclear Energy	47.0			122.0
16. Renewables, Nonelectric	11.0			53.0
17. Electricity Generation Terawatt Hours (TWh)	1718.4			3025.0
18. Carbon Emissions Million Tons (MtC)	1079.1			1372.3
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Notes:

14: Hydro.

Organization/Project: WECC; World Energy Council, Case C

Country/Region: Centrally Planned Asia (A2)

Reference (including date) of most recent report: September 1993.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel				
2. Real GNP (or GDP) Index 1990 = 100	100.0			444.7
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	732.0			1552.0
4. Total Production				
5. Oil Consumption	100.0			247.0
6. Oil Production				
7. Oil Exports - Imports				
8. Natural Gas Consumption	14.0			71.0
9. Natural Gas Production				
10. Gas Exports - Imports				
11. Coal Consumption	575.0			967.0
12. Coal Production				
13. Coal Exports - Imports				
14. Renewables, Electric	30.0			76.0
15. Nuclear Energy	0.0			38.0
16. Renewables, Nonelectric	13.0			154.0
17. Electricity Generation Terawatt Hours (TWh)	699.0			2012.0
18. Carbon Emissions Million Tons (MtC)	716.9			1300.7
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Notes:

14: Hydro.

Region includes other Asian Planned Economies.

Organization/Project: WECC; World Energy Council, Case C

Country/Region: 8. World (A8)

Reference (including date) of most recent report: September 1993.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel				
2. Real GNP (or GDP) Index 1990 = 100	100.0			264.9
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	7877.0			10211.0
4. Total Production				
5. Oil Consumption	2773.0			2899.0
6. Oil Production				
7. Oil Exports - Imports				
8. Natural Gas Consumption	1718.0			2484.0
9. Natural Gas Production				
10. Gas Exports - Imports				
11. Coal Consumption	2317.0			2129.0
12. Coal Production				
13. Coal Exports - Imports				
14. Renewables, Electric	464.0			661.0
15. Nuclear Energy	442.0			694.0
16. Renewables, Nonelectric	164.0			1344.0
17. Electricity Generation Terawatt Hours (TWh)	11607.7			18596.0
18. Carbon Emissions Million Tons (MtC)	5944.2			6338.4
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Notes:

14: Hydro.

Organization/Project: WECC; World Energy Council, Case C

Country/Region: Central and Eastern Europe (EEUR)

Reference (including date) of most recent report: September 1993..

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel				
2. Real GNP (or GDP) Index 1990 = 100	100.0			222.4
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	288.0			262.0
4. Total Production				
5. Oil Consumption	49.0			59.0
6. Oil Production				
7. Oil Exports - Imports				
8. Natural Gas Consumption	64.0			76.0
9. Natural Gas Production				
10. Gas Exports - Imports				
11. Coal Consumption	156.0			74.0
12. Coal Production				
13. Coal Exports - Imports				
14. Renewables, Electric	5.0			5.0
15. Nuclear Energy	11.0			25.0
16. Renewables, Nonelectric	4.0			23.0
17. Electricity Generation Terawatt Hours (TWh)	362.0			528.0
18. Carbon Emissions Million Tons (MtC)	230.0			178.9
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Notes:

14: Hydro.

Organization/Project: WECC; World Energy Council, Case C

Country/Region: Latin America (LATAM)

Reference (including date) of most recent report: September 1993.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel				
2. Real GNP (or GDP) Index 1990 = 100	100.0			363.9
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	452.0			1162.0
4. Total Production				
5. Oil Consumption	218.0			378.0
6. Oil Production				
7. Oil Exports - Imports				
8. Natural Gas Consumption	80.0			245.0
9. Natural Gas Production				
10. Gas Exports - Imports				
11. Coal Consumption	22.0			117.0
12. Coal Production				
13. Coal Exports - Imports				
14. Renewables, Electric	80.0			148.0
15. Nuclear Energy	3.0			25.0
16. Renewables, Nonelectric	50.0			250.0
17. Electricity Generation Terawatt Hours (TWh)	598.1			1832.0
18. Carbon Emissions Million Tons (MtC)	257.9			601.6
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Notes:

14: Hydro.

Organization/Project: WECC; World Energy Council, Case C

Country/Region: Middle East & North Africa (NAFME)

Reference (including date) of most recent report: September 1993.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel				
2. Real GNP (or GDP) Index 1990 = 100	100.0			363.8
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	296.0			764.0
4. Total Production				
5. Oil Consumption	167.0			330.0
6. Oil Production				
7. Oil Exports - Imports				
8. Natural Gas Consumption	117.0			378.0
9. Natural Gas Production				
10. Gas Exports - Imports				
11. Coal Consumption	7.0			12.0
12. Coal Production				
13. Coal Exports - Imports				
14. Renewables, Electric	5.0			9.0
15. Nuclear Energy	0.0			0.0
16. Renewables, Nonelectric	1.0			35.0
17. Electricity Generation Terawatt Hours (TWh)	311.4			1063.0
18. Carbon Emissions Million Tons (MtC)	222.5			533.2
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Notes:

14: Hydro.

Organization/Project: WECC; World Energy Council, Case C

Country/Region: Western Europe (OECD)

Reference (including date) of most recent report: September 1993.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel				
2. Real GNP (or GDP) Index 1990 = 100	100.0			203.7
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	1442.0			1304.0
4. Total Production				
5. Oil Consumption	568.0			375.0
6. Oil Production				
7. Oil Exports - Imports				
8. Natural Gas Consumption	254.0			313.0
9. Natural Gas Production				
10. Gas Exports - Imports				
11. Coal Consumption	333.0			147.0
12. Coal Production				
13. Coal Exports - Imports				
14. Renewables, Electric	99.0			114.0
15. Nuclear Energy	169.0			224.0
16. Renewables, Nonelectric	19.0			131.0
17. Electricity Generation Terawatt Hours (TWh)	2468.4			3214.0
18. Carbon Emissions Million Tons (MtC)	1001.1			647.7
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Notes:

14: Hydro.

Organization/Project: WECC; World Energy Council, Case C

Country/Region: North America (OECDN)

Reference (including date) of most recent report: September 1993.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel				
2. Real GNP (or GDP) Index 1990 = 100	100.0			203.7
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	2119.0			1793.0
4. Total Production				
5. Oil Consumption	809.0			493.0
6. Oil Production				
7. Oil Exports - Imports				
8. Natural Gas Consumption	497.0			487.0
9. Natural Gas Production				
10. Gas Exports - Imports				
11. Coal Consumption	508.0			213.0
12. Coal Production				
13. Coal Exports - Imports				
14. Renewables, Electric	127.0			134.0
15. Nuclear Energy	145.0			160.0
16. Renewables, Nonelectric	34.0			306.0
17. Electricity Generation Terawatt Hours (TWh)	3475.5			3817.0
18. Carbon Emissions Million Tons (MtC)	1549.0			958.3
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Notes:

14: Hydro.

Organization/Project: WECC; World Energy Council, Case C

Country/Region: Pacific Countries (PACW)

Reference (including date) of most recent report: September 1993.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel				
2. Real GNP (or GDP) Index 1990 = 100	100.0			264.9
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	760.0			1090.0
4. Total Production				
5. Oil Consumption	386.0			437.0
6. Oil Production				
7. Oil Exports - Imports				
8. Natural Gas Consumption	94.0			189.0
9. Natural Gas Production				
10. Gas Exports - Imports				
11. Coal Consumption	159.0			150.0
12. Coal Production				
13. Coal Exports - Imports				
14. Renewables, Electric	39.0			60.0
15. Nuclear Energy	64.0			126.0
16. Renewables, Nonelectric	18.0			129.0
17. Electricity Generation Terawatt Hours (TWh)	1407.0			2407.0
18. Carbon Emissions Million Tons (MtC)	556.6			651.2
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Notes:

14: Hydro.

Organization/Project: WECC; World Energy Council, Case C

Country/Region: South Asia (SASIA)

Reference (including date) of most recent report: September 1993.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel				
2. Real GNP (or GDP) Index 1990 = 100	100.0			363.9
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	242.0			667.0
4. Total Production				
5. Oil Consumption	60.0			203.0
6. Oil Production				
7. Oil Exports - Imports				
8. Natural Gas Consumption	25.0			57.0
9. Natural Gas Production				
10. Gas Exports - Imports				
11. Coal Consumption	126.0			185.0
12. Coal Production				
13. Coal Exports - Imports				
14. Renewables, Electric	20.0			48.0
15. Nuclear Energy	1.0			25.0
16. Renewables, Nonelectric	10.0			150.0
17. Electricity Generation Terawatt Hours (TWh)	343.3			1036.0
18. Carbon Emissions Million Tons (MtC)	202.9			407.4
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Notes:

14: Hydro.

Organization/Project: WECC; World Energy Council, Case C

Country/Region: Sub-Saharan Africa (AFSS)

Reference (including date) of most recent report: September 1993.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel				
2. Real GNP (or GDP) Index 1990 = 100	100.0			432.2
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	125.0			368.0
4. Total Production				
5. Oil Consumption	38.0			146.0
6. Oil Production				
7. Oil Exports - Imports				
8. Natural Gas Consumption	4.0			15.0
9. Natural Gas Production				
10. Gas Exports - Imports				
11. Coal Consumption	68.0			104.0
12. Coal Production				
13. Coal Exports - Imports				
14. Renewables, Electric	9.0			15.0
15. Nuclear Energy	1.0			5.0
16. Renewables, Nonelectric	6.0			84.0
17. Electricity Generation Terawatt Hours (TWh)	224.4			581.0
18. Carbon Emissions Million Tons (MtC)	107.5			245.0
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Notes:

14: Hydro.

Organization/Project: WECC; World Energy Council, Case C

Country/Region: Former USSR (USSR)

Reference (including date) of most recent report: September 1993.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel				
2. Real GNP (or GDP) Index 1990 = 100	100.0			197.8
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption	1421.0			1248.0
4. Total Production				
5. Oil Consumption	378.0			230.0
6. Oil Production				
7. Oil Exports - Imports				
8. Natural Gas Consumption	569.0			655.0
9. Natural Gas Production				
10. Gas Exports - Imports				
11. Coal Consumption	365.0			159.0
12. Coal Production				
13. Coal Exports - Imports				
14. Renewables, Electric	50.0			52.0
15. Nuclear Energy	47.0			65.0
16. Renewables, Nonelectric	11.0			85.0
17. Electricity Generation Terawatt Hours (TWh)	1718.4			2107.0
18. Carbon Emissions Million Tons (MtC)	1079.1			787.4
19. Marginal Reduction Costs 1990 \$ per ton of carbon				

Notes:

14: Hydro.

Organization/Project: YOHEB; Gary Yohe, Wesleyan University, Base Case
(50th percentile)

Country/Region: World (A8)

Reference (including date) of most recent report: Integrated Assessment
Model, results submitted to the IEW Poll, December 1995.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel				
2. Real GNP (or GDP) Index 1990 = 100	100.0	124.0	152.0	183.0
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption				
4. Total Production				
5. Oil Consumption				
6. Oil Production				
7. Oil Exports - Imports				
8. Natural Gas Consumption				
9. Natural Gas Production				
10. Gas Exports - Imports				
11. Coal Consumption				
12. Coal Production				
13. Coal Exports - Imports				
14. Renewables, Electric				
15. Nuclear Energy				
16. Renewables, Nonelectric				
17. Electricity Generation Terawatt Hours (TWh)				
18. Carbon Emissions Million Tons (MtC)	5865.0	7301.0	8797.0	10324.0
19. Marginal Reduction Costs 1990 \$ per ton of carbon	0.0	1.7	5.2	8.1

Organization/Project: YOHEH; Gary Yohe, Wesleyan University, 95th percentile

Country/Region: World (A8)

Reference (including date) of most recent report: Integrated Assessment Model, results submitted to the IEW Poll, December 1995.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel				
2. Real GNP (or GDP) Index 1990 = 100	100.0	133.0	177.0	223.0
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption				
4. Total Production				
5. Oil Consumption				
6. Oil Production				
7. Oil Exports - Imports				
8. Natural Gas Consumption				
9. Natural Gas Production				
10. Gas Exports - Imports				
11. Coal Consumption				
12. Coal Production				
13. Coal Exports - Imports				
14. Renewables, Electric				
15. Nuclear Energy				
16. Renewables, Nonelectric				
17. Electricity Generation Terawatt Hours (TWh)				
18. Carbon Emissions Million Tons (MtC)	5865.0	7424.0	11913.0	15217.0
19. Marginal Reduction Costs 1990 \$ per ton of carbon	0.0	1.7	5.4	9.5

Organization/Project: YOHEL; Gary Yohe, Wesleyan University, 5th percentile

Country/Region: World (A8)

Reference (including date) of most recent report: Integrated Assessment Model, results submitted to the IEW Poll, December 1995.

	1990	2000	2010	2020
1. International Crude Oil Price 1990 \$ per barrel				
2. Real GNP (or GDP) Index 1990 = 100	100.0	116.0	133.0	158.0
Primary Commercial Energy, Million Tons of Oil Equivalent				
3. Total Consumption				
4. Total Production				
5. Oil Consumption				
6. Oil Production				
7. Oil Exports - Imports				
8. Natural Gas Consumption				
9. Natural Gas Production				
10. Gas Exports - Imports				
11. Coal Consumption				
12. Coal Production				
13. Coal Exports - Imports				
14. Renewables, Electric				
15. Nuclear Energy				
16. Renewables, Nonelectric				
17. Electricity Generation Terawatt Hours (TWh)				
18. Carbon Emissions Million Tons (MtC)	5865.0	6093.0	6119.0	6510.0
19. Marginal Reduction Costs 1990 \$ per ton of carbon	0.0	1.7	4.7	7.8