

APPENDIX 3

DATABASE OF GLOBAL FOSSIL FUEL CO2 EMISSION SCENARIO AND THEIR ASSUMPTIONS

Listed in chronological order.

GLOBAL CO₂ EMISSION SCENARIOS FROM FOSSIL FUEL CONSUMPTION
(billion tonnes C)

BEFORE 1985

Perry et al. (1977) Medium

1975	2000	2025
4.70	9.54	20.00

Perry et al. (1977) Low

1975	2000	2025
4.70	7.82	13.00

Perry et al. (1977) High

1975	2000	2025
4.70	11.26	27.00

Bacastow (1977)

1975	2000	2025	2050	2075	2100
4.70	13.50	38.60	110.50	316.60	407.10

Keeling et al. (1977) Medium

1975	2000	2025	2050	2075	2100
4.70	13.00	26.00	38.00	39.00	30.00

Keeling et al. (1977) Low

1975	2000	2025	2050	2075	2100
4.70	11.00	18.00	25.00	26.00	25.00

Keeling et al. (1977) High

1975	2000	2025	2050	2075	2100
4.70	16.00	50.00	86.00	50.00	46.00

Siegenthaler et al. (1978) Medium

1975	2000	2025	2050	2075	2100
4.70	10.10	24.70	47.45	49.00	26.60

Siegenthaler et al. (1978) Low

1975	2000	2025	2050	2075	2100
4.70	4.70	4.70	4.70	4.70	4.70

Siegenthaler et al. (1978) High

1975	2000	2025	2050	2075	2100
4.70	15.50	44.70	90.20	93.30	48.50

Nordhaus (1979)

1975	2000	2020	2025	2040	2050	2100
4.70	10.70	18.30	22.27	40.10	43.35	64.00

Niehaus et al. (1979) Medium

1975	2000	2020	2025	2040	2050	2060
4.70	13.00	13.00	11.86	9.00	7.94	7.00

Niehaus et al. (1979) Low

1975	2000	2020	2025	2040	2050	2060
4.70	8.20	4.00	3.13	1.50	1.22	1.00

Niehaus et al. (1979) High

1975	2000	2020	2025	2040	2050	2060
4.70	13.20	28.80	29.82	33.10	35.74	38.60

Colombo et al. (1979)

1975	2000	2025	2030
4.70	6.30	6.71	6.80

Rotty (1979) Medium

1975	2000	2025	2050	2075	2100
4.70	10.50	23.00	43.00	58.50	52.50

Rotty (1979) Low

1975	2000	2025	2050	2075	2100
4.70	10.00	19.00	28.00	30.00	27.00

Rotty (1979) High

1975	2000	2025	2050	2075	2100
4.70	11.00	27.00	58.00	87.00	78.00

Jason (1979)

1975	2000	2025	2050	2075
4.70	14.10	42.50	127.60	383.50

Sundquist et al. (1981)

1975	2000	2025	2030	2050	2075	2100
4.70	12.20	26.96	31.60	82.00	212.70	551.70

Häfele (1981) Medium

1975	2000	2025	2030
4.70	8.60	12.35	13.30

Häfele (1981) Low

1975	2000	2025	2030
4.70	7.50	9.37	9.80

Häfele (1981) High

1975	2000	2025	2030
4.70	9.70	15.33	16.80

Lovins et al. (1981)

1975	2000	2025	2050
4.70	2.90	1.00	1.00

Seidel (1983) Medium

1975	2000	2025	2050	2075	2100
4.7	7	10	15	31	50

Seidel (1983) Low

1975	2000	2025	2050	2075	2100
4.7	7	9	10	19	30

Seidel (1983) High

1975	2000	2025	2050	2075	2100
4.7	7	11	17	35	60

Rose et al. (1983) Medium

1975	2000	2025	2050
4.7	4.1	5.1	7.4

Rose et al. (1983) Low

1975	2000	2025	2050
4.7	3.6	3.1	2.8

Rose et al. (1983) High

1975	2000	2025	2050
4.7	7.3	10.4	15.1

Nordhaus et al. (1983) Medium

1975	2000	2025	2050	2100
4.7	5	10	15	20

Nordhaus et al. (1983) Low

1975	2000	2025	2050	2100
4.7	2	4	5	7

Nordhaus et al. (1983) High

1975	2000	2025	2050	2100
4.7	8	17	26	55

Edmonds et al. (1983)

1975	2000	2025	2050
4.7	6.9	12.3	26.3

Reister (1984) for EPRI, Medium

1975	2000	2025	2050	2075	2100
4.7	7.3	10.8	15.8	15.1	13.7

Reister (1984) for EPRI, Low

1975	2000	2025	2050	2075	2100
4.7	7.2	10.1	14.2	12.7	11.2

Reister (1984) for EPRI, High

1975	2000	2025	2050	2075	2100
4.7	8.1	15.3	27.1	43.7	62.2

Reister (1984) for GRI, Medium

1975	2000	2025	2050	2075	2100
4.7	7.3	9.1	10.7	10.6	10.6

Reister (1984) for GRI, Low

1975	2000	2025	2050	2075	2100
4.7	6.9	8.5	9.7	9.8	9.9

Reister (1984) for GRI, High

1975	2000	2025	2050	2075	2100
4.7	7.3	11.5	18.5	27.9	37.1

Manne (1984) Medium

1975	2000	2025	2050
4.7	7.4	10.4	13.1

Manne (1984) Low

1975	2000	2025	2050
4.7	7.4	10.1	11.4

Manne (1984) High

1975	2000	2025	2050
4.7	7.4	10.7	14.8

Edmonds et al. (1984) Scenario B, Medium

1975	2000	2025	2050	2075
4.7	7.2	10.3	14.5	18.8

Edmonds et al. (1984) Scenario B, Low

1975	2000	2025	2050	2075
4.7	6.2	6.7	6.8	6.8

Edmonds et al. (1984) Scenario B, High

1975	2000	2025	2050	2075
4.7	10.9	29.8	58.1	86.9

Williams et al. (1984) Medium

1975	2025
4.7	4.6

Williams et al. (1984) High

1975	2000
4.7	5.4

Edmonds et al. (1985) A case, Medium

1975	2000	2025	2050	2075
4.7	6.2	8.7	10.7	12.6

Edmonds et al. (1985) A case, Low

1975	2000	2025	2050	2075
4.7	3.1	1.9	1.5	1.1

Edmonds et al. (1985) A case, High

1975	2000	2025	2050	2075
4.7	11.6	33.4	63.9	90.1

Edmonds et al. (1985) B case, Medium

1975	2000	2025	2050	2075
4.7	5.8	6.9	7.7	8.5

Edmonds et al. (1985) B case, Low

1975	2000	2025	2050	2075
4.7	3.2	2.4	2.3	1.8

Edmonds et al. (1985) B case, High

1975	2000	2025	2050	2075
4.7	8.4	19	47.2	91.1

Chandler (1985) Medium

1975	2000	2025
4.7	7.2	10.3

Chandler (1985) Low

1975	2000	2025
4.7	5.8	7

RECENT SCENARIOS

Rogner (1986)

1975	2000	2025	2050	2100
4.7	7	9	10	7.8

Mintzer (1987)

1975	2000	2025	2050	2075
4.5	5.0	7.5	11.5	15.5

METHAN E (1988)

1990	2020	2050	2100
5.74	6.06	5.15	1.15

METHAN E P (1988)

1990	2020	2050	2100
5.69	9.17	14.14	6.7

USEPA (1989) SCW

1985	2000	2025	2050	2075	2100
5.1	6.2	7.6	7.9	9	10.4

USEPA (1989) RCW

1985	2000	2025	2050	2075	2100
5.1	7	11.2	15.6	20.5	25

USEPA (1989) RCWA

1985	2000	2025	2050	2075	2100
5.1	7.8	19.8	34.6	49.6	54.8

IPCC (1990) 90BaU

1985	2000	2025	2050	2075	2100
5.1	6.5	9.9	13.5	17.7	21.7

IPCC (1990) EIS Ref.

1985	2000	2010	2025
5.15	7.3	9.08	12.42

Ogawa (1990)

1975	2000	2025	2050	2075	2100
4.4	7.89	14.3	24.27	37.38	59.4

ERM, Edmonds et al. (1991) Scenario 1

1990	2000	2020	2050	2080	2100
5.77	6.71	8.18	11.84	18.1	22.58

ERM, Edmonds et al. (1991) Scenario 2

1990	2000	2005	2010	2020	2050	2080	2100
6.77	7.5	7.86	8.74	10.5	17.65	32.2	41.61

MR, Manne et al. (1991) Scenario 1

1990	2000	2010	2020	2050	2080	2100
6.03	6.97	8.153	9.52	14.992	26.95	39.64

MR, Manne et al. (1991) Scenario 2

1990	2000	2010	2020	2050	2080	2100
6.03	6.75	7.58	8.681	11.356	18.701	26.039

TEC, Okada et al. (1991)

1975	2000	2025	2050	2075	2100
4.0	7.0	10.0	15.0	22.0	39.0

Bach (1991)

1985	2000	2005	2025	2050	2075	2100
5.3	6.6	7.3	10.1	13.4	18.4	22.0

GREEN, Burniaux et al. (1991)

1990	2000	2005	2010	2020
5.71	6.86	7.44	8.116	9.87

IPCC (1992) IS92a

1990	2000	2025	2050	2100
6.0	7.0	10.7	13.2	19.8

IPCC (1992) IS92b

1990	2000	2025	2050	2100
6.0	6.8	10.3	12.5	18.6

IPCC (1992) IS92c

1990	2000	2025	2050	2100
6.0	6.0	7.4	6.5	4.6

IPCC (1992) IS92d

1990	2000	2025	2050	2100
6.0	6.4	8.6	8.4	9.9

IPCC (1992) IS92e

1990	2000	2025	2050	2100
6.0	7.6	13.5	18.6	34.9

IPCC (1992) IS92f

1990	2000	2025	2050	2100
6.0	7.3	12.6	15.8	25.9

GREEN, Burniaux et al. (1992)

1985	1990	1995	2000	2005	2010	2030	2050
5.254	5.653	6.046	6.510	6.974	7.560	10.861	15.660

IEA, Vouyoukas (1992)

1990	2000	2005
6.824	8.451	9.173

ITF-D4, Shishido (1992)

1990	1995	2000	2005	2010
5.54	6.17	6.83	7.76	9.01

ECS (1992) LP model

1990	2020
5.5	8.06

IEW (1992) median

1990	2020
6.017	8.31

World Bank, Anderson et al. (1992)

1990	2020	2050
6	10	20

CRTM, Rutherford (1992)

1990	2020	2030	2040	2050	2060	2070	2080	2090	2100
6.0	9.0	11.0	12.0	11.5	14.0	18.0	23.0	29.0	36.0

AIM, Matsuoka et al. (1993) Low

1985	2000	2025	2050	2075	2100
5.1	5.88	7.56	8.72	9.5	11.15

AIM, Matsuoka et al. (1993) High

1985	2000	2025	2050	2075	2100
5.1	7.01	13.66	21.19	29.81	39.67

MERGE, Manne et al. (1993)

1990	2000	2020	2050	2100	2150	2200
6.2	7.4	10.1	15.3	28.0	30.9	20.9

DICE, Nordhaus (1993) — include land use change, cement and CH4

1965	1985	1995	2005	2025	2075
4.42	7.53	9.28	11.07	14.62	21.96

IEA, Vouyoukas et al. (1993)

1990	2010
5.703	8.376

FUGI 7.0, Onishi (1993)

1990	1992	1994	1995	1996	1998	2000
5.720	5.881	6.166	6.326	6.494	6.876	7.291

WEC (1993) Case B

1990	2020
5.90	8.37

CETA, Peck et al. (1993)

1990	2000	2010	2020	2030	2040	2050	2060	2070	2080	2090
5.76	7.28	8.85	10.65	11.36	8.93	10.91	17.90	23.22	28.43	33.59
2100	2110	2120	2130	2140	2150	2160	2170	2180	2190	2200
39.06	44.19	47.07	41.28	25.13	15.45	9.66	6.19	3.10	1.86	1.11

IMAGE 2.0, Alcamo et al. (1993) Conventional Wisdom Scenario

1990	2025	2050	2075	2100
6.1	12.5	15.5	23.0	24.5

AGE, Manne et al. (1993)

1990	2000	2010	2020	2030	2040	2050
6.0	6.8	7.6	9.2	11.2	13.1	14.5

12RT, Manne (1993)

1990	2000	2010	2020	2030	2040	2050
6.0	6.6	7.6	9.4	10.0	12.0	14.0

GLOBAL 2100, Manne et al. (1994)

1990	2000	2020	2040	2060	2080	2100
6	6.7	8.4	11.2	12.4	15.6	21.3

ESCAPE, Rotmans et al. (1994)

1990	2000	2025	2050	2075	2100
5.85	6.85	10.32	14.15	17.52	20.21

POPULATION GROWTH ASSUMPTIONS (billions)

Mesarovic (1974) Low

1975	1990	2000	2025	2050	2100
4.0	5.3	6.0	7.4	7.8	7.8

Mesarovic (1974) High

1975	1990	2000	2025	2050	2100
4.0	5.4	6.5	11.0	18.0	48.0

United Nations (1980) Medium

1980	2000	2025	2050	2075	2100
4.432	6.119	8.195	9.513	10.097	10.185

United Nations (1980) Growth

1980	2000	2025	2050	2075	2100
4.441	6.337	9.135	11.69	13.642	14.927

United Nations (1980) High

1980	2000	2025	2050	2075	2100
4.441	6.337	9.135	11.629	13.355	14.199

United Nations (1980) Low

1980	2000	2025	2050	2075	2100
4.42	5.837	7.168	7.687	7.662	7.524

United Nations (1980) Decline

1980	2000	2025	2050	2075	2100
4.42	5.837	7.168	7.667	7.562	7.247

Nordhaus et al. (1983) Low

1975	1980	1985	1990	2000	2010	2025	2030	2050	2075	2100
4.00	4.29	4.60	4.93	5.66	6.01	6.56	6.51	6.25	5.95	5.66

Nordhaus et al. (1983) High

1975	1980	1985	1990	2000	2010	2025	2030	2050	2075	2100
4.00	4.42	4.88	5.38	6.56	7.69	9.76	10.16	11.91	14.54	17.74

US Bureau of Census (1987)

1985	2000	2025	2050	2075	2100
4.869	6.265	8.651	10.804	12.804	13.495

World Bank (1988)

1990	2000	2025	2050	2075	2100
5.261	6.176	8.190	9.528	10.177	10.421

United Nations (1992) Medium

1975	1990	2000	2025	2050	2075	2100
4.079	5.292	6.261	8.504	10.019	10.841	11.186

United Nations (1992) High

1975	1990	2000	2025	2050	2075	2100
4.079	5.292	6.420	9.444	12.51	15.708	19.156

United Nations (1992) Medium High

1975	1990	2000	2025	2050	2075	2100
4.079	5.292	6.420	9.444	12.49	15.32	17.59

United Nations (1992) Medium Low

1975	1990	2000	2025	2050	2075	2100
4.079	5.292	6.093	7.591	7.817	7.199	6.415

United Nations (1992) Low

1975	1990	2000	2025	2050	2075	2100
4.079	5.292	6.093	7.591	7.813	7.082	6.009

United Nations (1992) TFR Constant

1975	1990	2000	2025	2050	2075	2100
4.079	5.311	6.463	10.978	21.161	46.261	109.40

World3, Meadows et al. (1992) Low

1970	1990	2000	2010	2030	2050	2075	2100
3.8	5.3	5.8	5.9	6.0	6.2	4.0	3.6

World3, Meadows et al. (1992) High

1970	1990	2000	2010	2030	2050	2075	2100
3.8	6.2	7.7	8.7	10.0	10.9	12.8	14.1

GREEN, Oliveira-Martins et al. (1992)

1985	1990	1995	2000	2005	2010	2030	2050
4.821	5.260	5.716	6.175	6.631	7.078	8.792	9.982

World Bank, Anderson et al. (1992)

1990	2025	2050
5.289	8.303	10.000

FUGI 7.0, Onishi (1993)

1990 1995 2000

5.296 5.753 6.226

CETA, Peck et al. (1993)

average annual growth rate over the next 10 years (%)

1990	2000	2010	2020	2030	2040	2050	2060	2070	2080	2090
1.62	1.14	1.14	0.88	0.62	0.62	0.27	0.27	0.18	0.10	0.10

2100	2110	2120	2130	2140	2150	2160	2170	2180	2190	2200
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

G-CUBED, McKibbin et al. (1993)

average annual growth rate over the next 10 - 100 years (%)

1990 2000 2020 2100

1.6 1.3 0.8 0.0

MERGE, Manne et al. (1993)

1990 2000 2020 2050 2100 2150 2200

5.3 6.2 7.8 9.5 10.4 10.4 10.4

ECONOMIC GROWTH ASSUMPTIONS (GDP or PER CAPITA GDP)

Mesarovic (1974) Asia

GDP/cap (US\$), index

1990	1995	2004	2020	2028
292.4	379.6	583.4	1344	2014
1	1.2982216	1.9952120	4.5964432	6.8878248

Mesarovic (1974) Developed Country

GDP/cap (US\$), index

1970	1979	1988	2000	2009	2020	2026
2602	3790	4963	7502	10080	13350	15760
0.4893927	0.7128357	0.9334574	1.4110009	1.8958797	2.5109121	2.9641929

Kaya et al. (1974) Asia

GDP/cap (US\$), index

1975	1984	1991	1997	2004	2011	2017
148.7	192.3	242.4	293.8	365.6	443.2	551.8
0.6134488	0.7933168	1	1.2120462	1.5082508	1.8283828	2.2764026
2023	2027					
669.4	761					
2.7615511	3.1394389					

Kaya et al. (1974) Developed Country

GDP/cap (US\$), index

1967	1977	1986	1998	2010	2023	2028
3149	4770	7037	10920	15850	22070	23790
0.3865212	0.5854895	0.8637504	1.3403660	1.9454947	2.7089632	2.9200832

Herrera (1976) Asia

GDP/cap (US\$), index

1964	1971	1979	1985	1991	1998	2004
101	120.7	144.2	170.2	195.7	231.	269.2
0.5160960	0.6167603	0.7368421	0.8696985	1.	1.1803781	1.3755748
2010	2017	2024	2031	2042		
317.8	374.8	442.	528.5	698.9		
1.6239141	1.9151762	2.2585590	2.7005620	3.5712825		

Herrera (1976) Developed Country

GDP/cap (US\$), index

1961	1973	1983	1993	2006	2018	2031
1404	2179	3008	4202	5935	7846	9563
0.3693724	0.5732639	0.7913621	1.1054865	1.5614142	2.0641712	2.5158895
2039						
10400						
2.7360923						

Leontief (1976) Asia

GDP/cap (US\$), index

1975	1983	1990	1996	2001
154.9	208.4	262.8	331.6	397.4
0.5894216	0.7929984	1	1.2617960	1.5121765

Leontief (1976) Developed Country

GDP/cap (US\$), index

1970	1978	1986	2000
2935	4166	5759	8922
0.4497201	0.6383421	0.8824322	1.3670881

Nordhaus (1983)

average annual growth rate of GDP/cap over the next 1 - 74 years (%)

1975	2000	2001	2025	2026	2100
2.3	2.3	1.6	1.6	1.0	1.0

Edmonds et al. (1985) Low

average annual growth rate of GDP/cap over the next 50 - 75 years (%)

1975	2050
1.8	1.8

Edmonds et al. (1985) High

average annual growth rate of GDP/cap over the next 50 - 75 years (%)

1975	2050
2.6	2.6

IPCC (1990) EIS-Ref-OECD-E

average annual growth rate of GDP/cap over the next 10 - 75 years (%), index

1990	2000	2025
3.28	2.502	1.5
1.	1.3809002	2.5613609

IPCC (1990) EIS-Ref-OECD-W

average annual growth rate of GDP/cap over the next 10 - 75 years (%), index

1990	2000	2025
2.2	1.887	0.
1.	1.2431082	1.9837106

IPCC (1990) 90BAU-Asia

average annual growth rate of GDP/cap over the next 10 - 50 years (%), index

1990	2000	2025	2050
2.62	2.46	2.9	2.5
1.	1.2951500	2.3778195	4.8591830

IPCC (1990) 90BAU-OECD-E

average annual growth rate of GDP/cap over the next 10 - 50 years (%), index

1990	2000	2025	2050
2.38	1.802	1.5	1.1
1.	1.2651768	1.9772382	2.8688646

IPCC (1990) 90BAU-OECD-W

average annual growth rate of GDP/cap over the next 10 - 50 years (%), index

1990	2000	2025	2050
2.1	1.787	1.363	1.1
1.	1.2309982	1.9167491	2.6887577

World Bank (1991) East-Asia, Base

average annual growth rate of GDP/cap over the next 10 - 50 years (%), index

1965	1990	2000
5.2	5.3	0
0.2815830	1	1.6760374

World Bank (1991) East-Asia, Downside

average annual growth rate of GDP/cap over the next 10 - 50 years (%), index

1965	1990	2000
5.2	4.2	0
0.2815830	1	1.5089581

World Bank (1991) Developed Countries, Base

average annual growth rate of GDP/cap over the next 10 - 50 years (%), index

1965	1973	1980	1990	2000
3.7	2.3	2.3	2.5	0
0.5080239	0.6793822	0.7966061	1.	1.2800845

World Bank (1991) Developed Countries, Downside

average annual growth rate of GDP/cap over the next 10 - 50 years (%), index

1965	1973	1980	1990	2000
3.7	2.3	2.3	1.8	0
0.5080239	0.6793822	0.7966061	1	1.1953023

ITF-D4, Shishido (1992)

average annual growth rate of GDP over the next 5 - 6 years (%)

1990	1996	2001	2006
3.0	3.0	3.1	3.4

World Bank, Anderson et al. (1992)

gross world production (trillion US\$)

1990	2000	2020	2050
18.0	25.0	41.0	105.0

GREEN, Oliveira Martins et al. (1993)

GDP (trillion US\$)

1985	1990	1995	2000	2005	2010	2030
12.189	14.162	18.429	19.036	21.467	24.060	39.371
2050						
59.883						

FUGI 7.0, Onishi (1993)

GDP (trillion US\$)

1990	1995	2000
14.3829	15.7268	18.2175

AIM, Matsuoka et al. (1993) Asia, Low

index of GDP/cap

1990	2025	2100
1.	2.293	12.81

AIM, Matsuoka et al. (1993) Asia, High

index of GDP/cap

1990	2025	2100
1.	3.448	44.856

AIM, Matsuoka et al. (1993) Developed Country, Low

index of GDP/cap

1990	2025	2100
1.	1.842	4.505

AIM, Matsuoka et al. (1993) Developed Country, High

index of GDP/cap

1990	2025	2100
1.	2.489	9.488

IEA, Vouyoukas (1993)

average annual growth rate of GDP over the next 20 years (%)

1990
2.7

CETA, Peck et al. (1993)

gross world production (trillion US\$)

1990	2000	2010	2020	2030	2040	2050
22.920	30.547	38.724	48.866	60.327	72.875	87.577
2060	2070	2080	2090	2100	2110	2120
103.926	124.351	148.460	176.620	211.239	253.685	297.431
2130	2140	2150	2160	2170	2180	2190
336.315	364.994	383.054	396.719	409.041	420.500	432.613
2200						
445.645						

G-CUBED, McKibbin et al. (1993)

average annual growth rate of GDP over the next 10 - 100 years (%)

1990	2000	2020	2100
2.5	2.2	1.7	0.9

DICE, Nordhaus (1993)

gross world production (trillion US\$ in 1989)

1985	1995	2005	2025	2075
17.890	24.073	31.095	46.928	88.217