

Compliance with Climate Change Commitments: The G8 Record, 1975–2007

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On June 28, 1979, at the conclusion of their first Tokyo summit, the leaders of the Group of Seven (G7) major market democracies declared: “We need to expand alternative sources of energy, especially those which help to prevent further pollution, particularly increases of carbon dioxide and sulfur oxides in the atmosphere” (G7 1979). They thus acknowledged the need to halt immediately, at 1979 levels, the concentration of carbon dioxide (CO₂) in the world’s atmosphere. In the following five years, they and their partners in the Organisation for Economic Development and Co-operation (OECD) moved in this desired direction, as their CO₂ emissions into the atmosphere declined (Sustainable Energy Development Centre 2006, 48).

In acting so presciently, boldly and credibly in 1979, the G7 leaders were giving voice to the environmental values embedded in their institution at the start. At the conclusion of their first summit at Rambouillet, France, on November 15–17, 1975, the six leaders there declared: “Our common interests require that we continue to cooperate in order to reduce our dependence on imported energy through conservation and the development of alternative sources” (G7 1975). In 1976, now with Canada, they noted the need for the “rational use” of energy resources (G7 1976). In 1977, with the European Community present, they affirmed the value of “more efficient energy use” (G7 1977). At the first summit Germany hosted, at Bonn in 1978, they directly declared: “In energy development, the environment and human safety of the population must be safeguarded with greatest care” (G7 1978). And at their fifth summit in 1979 they took up carbon dioxide directly and declared that its concentration in the atmosphere must stabilize right away. The G7 summit subsequently moved from creating direction-setting principled consensus on climate change as in 1979 to generating specific, measurable, future-oriented collective decisional commitments on the subject starting in 1987.

This research report offers an overview of the G7 and now G8 summit’s climate change governance. It covers the domestic political, deliberative, direction-setting, decision-making, delivery and development of global governance functions that the G8 has. It pays particular attention to its members’ delivery of, or compliance with, the G8’s collective decisions, or commitments on climate change, for that is the ultimate test of the effectiveness of any international institution in the world. The compliance results are drawn largely from the existing research and data base of the G8 Research Group (G8RG) at the University of Toronto.

This study suggests that the G8 has been an effective centre of global climate governance, from its pioneering start in 1979 through to the present day. Its performance is distinguished by the large number of commitments it has made, above all at its three recent summits from 2005 to 2007. Moreover, its members have complied with these commitments to a substantial degree, at

an average solid B level of 75% (given its overall average score of +0.52 on a scientific scale ranging from +1 for full compliance through 0 for partial or “in progress” compliance, to –1 for no compliance or action opposite to that the commitment commands). Further work by the G8RG will focus on why the G8 members comply with the climate change commitments they have made. It will be left to others to assess how well other international institutions, notably those of the United Nations (UN) galaxy, govern climate, make commitments and, above all, induce their member countries to comply with the commitments they make there.

For purposes of this analysis, the issue area of climate change is defined in a broad but bounded way. It includes climate change itself, greenhouse gases, global warming, the Kyoto Protocol, emissions, carbon, carbon capture and storage (CCS), references to the Carbon Sequestration Leadership Forum (CSLF) carbon dioxide (CO₂) and the Gleneagles Plan of Action, as one of its three key areas is climate change. It includes the United Nations Framework Convention on Climate Change (UNFCCC) and the Global Environment Facility (GEF), because one of its six main functions is to provide grants for climate change projects in developing countries. It also includes sustainable development, because the United Nations defines climate change as falling within the scope of sustainable development.

An Overview of G8 Performance in Climate Governance

As Appendix A shows, since its 1975 start, the G7/8 summit has done little to help its leaders manage their domestic politics on climate change. But the G8 has deliberated directly on climate change from an every stage. It did so first in 1979, again in 1985 and regularly from 1987 to 2007. Its attention to its climate agenda has exploded during the three summits from 2005 to 2007. It started setting principled and normative directions for dealing with climate change in 1979, with a major effort since 2000 and all above in 2005 and 2007.

The G7/8 summit moved in 1987 from deliberating about climate, and setting principled and normative directions for dealing with it, to making specific, measurable, future-oriented collective decisions, or commitments about how it should be addressed. Since its first climate commitment in 1987 through to 2007, it has made 167 such commitments, for an annual average of eight commitments over these 21 years. Its decisional performance, in a ratchet-like rise, peaked first at the U.S.-hosted Houston Summit in 1990, again at the German-hosted Munich Summit in 1992 and then at the Canadian-hosted Halifax Summit in 1995. It peaked at even higher levels at America’s 1997 Denver Summit, Britain’s 2005 Gleneagles Summit, and Germany’s Heiligendamm Summit in 2007. The last three summits, from 2005 to 2007, account for a full 54%, or over half, of all the climate commitments the G7/8 has made.

As Appendix B shows, these commitments have covered an ever broadening range of component issues. The cumulative total of issues covered reached 41 by 2007. The greatest broadening, or bursts of decisional innovation, came at France’s Paris Summit in 1989, Canada’s Halifax Summit in 1995 and Britain’s Gleneagles Summit in 2005. In contrast, other summits, such as the St. Petersburg Summit in 2006, were primarily volume producers, generating numerous commitments but doing little to make commitments in new areas of climate change.

Over these 21 years, the G8 has concentrated its climate decision making on the core issues of UNFCCC and greenhouse gas emissions (each with 17 commitments). It has also given substantial attention to technology (14), climate change in general (11) and forests (10).

Compliance

There has long been good reason to believe that G7/8 members comply with these climate change commitments and do so quickly, within a year after the summit that made them was held. The pioneering study of compliance with G7 decisions, conducted by George von Furstenberg and Joseph Daniels (1991), examined the compliance record of G7 members on their economic and energy commitments from 1975 to 1989. It concluded that in energy — the field closest to climate change during those years — there was relatively high compliance. Indeed, only in the field of trade did the G7 members keep their commitments to a greater degree.

Subsequently, Ella Kokotsis (1999) examined the compliance record of the United States and Canada — the G7's most and least powerful members respectively — from 1988 to 1995 on core sustainable development commitments in three core issue areas: climate change, biodiversity and developing country debt relief. She found that G7 members' compliance was generally positive, with a net score of +26% on the +100% to -100% scale. Both countries had positive compliance. However, positive compliance arose in most issue areas, with the exception of biodiversity commitments by the United States. In comparison to Canada though, the United States was relatively "black," with a compliance rate of only +11%, while Canada was remarkably "green," with a compliance rate of +50%. Overall compliance was much higher on developing country debt at +73% than for climate change at +34% or biodiversity at -13%. Compliance from both countries increased from 1988 to 1995, reaching its peak around the time of the United Nations Conference on Environment and Development at Rio in June 1992.

Since 1996 the G8RG has conducted an annual compliance assessment of the G8 summit's priority commitments. It has also completed special studies on climate change. It has been assisted by the G8RG at Oxford University's special study of compliance with climate change commitments by the G8 and "Plus Five" partners in 2006. As with the Kokotsis study, these assessments assign each country a score of +1 if it complies completely or almost completely with the commitment, 0 if it has partial compliance or has a "work in progress," and -1 if it does nothing or does the opposite of what the commitment states.

The G8 has complied with its currently measurable 167 climate change commitments made from 1987 to 2006 at an overall level of +52%, or about three quarters of the way up a scale ranging from -100% to +100%. With an overall compliance score of +80% in 2005 but only +33% in 2006, the two most recent measurable high commitment summits have an average compliance score of +57%. This is above the G7/8 average from 1987 to 2006. But the wide variation between the two years suggests that this recent above-average compliance is by no means routine or guaranteed.

All members, old and new, have compliance in the positive range. Compliance has been led by the above average performance of the European Union at +90%, Britain at +70%, Germany at +65%, Japan at +59%, Canada at +55% and France at 50%. They have been followed by the below average performers of the United States at +37%, Russia at +30% and Italy at +28%.

Across the component issues where the G8 has generated a large number of commitments, its record of compliance has varied a great deal. For its large volume issues, it has done best on climate change in general (+84%) and on greenhouse gas emissions (+47%). It has performed less well, if still positively, on sustainable development (+45%), the UNFCCC (+28%) and technology (+22%). Across all issues (of whatever commitment volume), it has done best on Kyoto (+100%), GEOSS (+100%), aviation (+100%) and renewable energy (+86%).

These conclusions should be treated as tentative, given that they are based on only 40 cases of commitments assessed for compliance thus far. Further work is required to come to more confident conclusions about how well G8 members comply with their collective climate change commitments, and why.

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Appendix A: The G8's Climate Change Performance, 1975–2007

Year	Bayne score	G8RG score	Domestic Political				Deliberation						Dir	Decis.	Deliv.	Dev'l Global Gov
			U S	Ja	U K	Ca	W	%W	P	%P	D	%D		Comm't	Comp.	
1975	A-	NA	0	0	0	0	0	0	0	0	0	0	0	0	NA	0
1976	D	NA	0	0	0	0	0	0	0	0	0	0	0	0	NA	0
1977	B-	NA	0	0	0	0	0	0	0	0	0	0	0	0	NA	0
1978	A	NA	0	0	0	0	0	0	0	0	0	0	0	0	NA	0
1979	B+	NA	0	0	0	0	28	1.3	1	2.6	1	50	0	0	NA	0
1980	C+	NA	0	0	0	0	0	0	0	0	0	0	0	0	NA	0
1981	C	NA	0	0	0	0	0	0	0	0	0	0	0	0	NA	0
1982	C	NA	0	0	0	0	0	0	0	0	0	0	0	0	NA	0
1983	B	NA	0	0	0	0	0	0	0	0	0	0	0	0	NA	0
1984	C-	NA	0	0	0	0	0	0	0	0	0	0	0	0	NA	0
1985	E	NA	0	0	0	0	88	2.9	1	1.9	1	50	0	0	NA	0
1986	B+	NA	0	0	0	0	0	0	0	0	0	0	0	0	NA	0
1987	D	NA	0	0	0	0	85	1.5	1	1.1	1	14.3	0	1	29(1)	0
1988	C-	NA	0	0	0	0	140	2.7	1	1.2	1	33.3	0	0	NA	0
1989	B+	NA	0	0	0	0	422	6	7	5	1	9.1	1	4	43(1)	0
1990	D	NA	0	0	0	0	491	5.9	5	3.6	1	33.3	0	7	43(1)	0
1991	B-	NA	0	0	0	0	236	2.4	5	2.8	1	20	0	5	41(2)	0
1992	D	NA	0	0	0	0	137	1.8	4	2.5	1	25	0	7	71(3)	0 (2)
1993	C+	NA	0	0	0	0	154	3.1	1	1.2	1	33.3	0	4	57(2)	0
1994	C	NA	0	0	0	0	107	2.6	2	2.1	1	50	0	4	72(2)	0 (1)
1995	B+	NA	0	0	0	0	87	0.7	3	1.1	1	25	0	7	29(1)	0 (1)
1996	B	B+	0	0	0	0	167	0.8	3	1.4	1	14.3	0	3	57(1)	0 (1)
1997	C-	A-	0	0	0	0	305	1.6	5	1.7	1	16.7	0	9	42(2)	0 (1)
1998	B+	B+	0	0	0	0	323	5.3	4	4.1	1	25	0	7	100(2)	0 (1)
1999	B+	C	0	0	0	0	198	1.3	1	0.3	1	25	0	4	NA	0 (1)
2000	B	B (B)	0	0	0	0	213	1.6	2	0.5	1	20	0	2	NA	0 (1)
2001	B	C	0	0	0	0	232	3.7	3	2.1	1	10	0	4	-4(3)	0 (1)
2002	B+	B	0	0	0	0	0	0	0	0	0	0	0	1	89(1)	0 (1)
2003	C+	B+	0	0	0	0	62	0.3	3	2.3	1	5.9	3	4	88(2)	1(1)
2004	C+	B+	0	0	1	0	0	0	0	0	0	0	0	3	89(2)	2
2005	A-	NA	0	0	1	0	2667	9.3	68	9.9	3	8.1	12	28	80(5)	0 (2) [2]
2006	NA	C+/B- (C)	0	0	0	0	1533	3.1	26	2.6	3	12	2	19	33(9)	0 [1]
2007	NA	B (B+)	0	3	0	1	4154	12.0	47	9.0	5	41.7	12	44	61(2)*	1 (1)
To/av	C+/B-	B (B-)	0	3	2	1	11829	2.12	193	1.79	29	15.8	30	167	52(40)	4 (15) [3]

Notes:

Bayne Grade: Bold indicates year where environment was a significant contributor to the overall grade.

G8RG Grade: Grade in parentheses represents grade for climate change only. Other scores represent overall grade for the summit for the year in question.

Domestic Political Management: refers to mentions to the G8 and climate change in the national policy addresses for the United States, Japan, the United Kingdom and Canada for the year in question. The unit of analysis is the sentence.

Deliberative: refers to number of times climate change is referenced in the G8 leaders' documents for the year in question. The unit is the total number of words (W), paragraphs (P) and documents (D). % of x refers to the percentage of the overall words, paragraphs and documents for the year in question.

Directional: refers to the number of times climate change is referenced in the chapeau or chair's summary for the year in question. The unit of analysis is the sentence.

Decisional: refers to the number of commitments where climate change is the key issue.

Delivery: refers the overall compliance score for climate change commitments measured for the year in question. Number in parentheses represents total number of commitments measured. All scores come from the G8RG. *The 2007 score comes from the G8RG interim report for that year. It is not included in the overall average or total. The overall average may not add up from the numbers in the columns due to certain countries being excluded from commitments in some years. See appendix C for further details.

Development of Global Governance: refers to the number of official bodies created on climate change for the year in question. Number in parentheses represents the number of environment ministers meetings held for the year in question. Number in square brackets represents the number of G20 environment and energy meetings held for the year in question

Appendix B: Climate Change Commitments by Issue, 1987–2007

Issue	87	88	89	90	91	92	93	94	95	96	97	98	99	00	01	02	03	04	05	06	07	Total	Compliance
Environmental problems	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.29
Greenhouse gases	0	0	1	1	1	1	0	0	0	0	1	2	0	0	0	0	0	0	3*	2	5	17	0.47
WMO network	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	-1.00
UNFCCC	0	0	1	1	1	1	0	0	0	0	0	0	1	1*	0	0	1	0	4	3	3	17	0.36
Sinks (general)	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	N/A
Forests	0	0	0	3	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	4	10	N/A
Research/science	0	0	0	1	1	1	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	5	0.71
Funding LDCs	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	N/A
GEF	0	0	0	0	0	1	1	1	0	0	2	1	0	0	1	0	0	0	0	0	0	7	0.61
CSD	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	3	N/A
National action plan	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0.36
Post-2000 initiatives	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	2	N/A
Reports/planning	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	3	4	N/A
Sustainable development	0	0	0	0	0	0	0	0	3	0	1	0	1	0	1	1	0	0	0	0	2	9	0.45
Polluter pays	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	N/A
Rio conference	0	0	0	0	0	0	0	0	1	1	2	0	0	1	0	0	0	0	0	0	0	5	N/A
COP	0	0	0	0	0	0	0	0	1	1	1	1	0	1*	1	0	1	0	0	0	0	7	0.34
Global warming	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	N/A
DC limits	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	2	N/A
Monitoring	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	2	N/A
Kyoto	0	0	0	0	0	0	0	0	0	0	0	3	1	1*	0	0	0	0	1	0	0	6	1
Renewable energy	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	0	4	0.86
Sequestration/CSLF	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	3*	1	2	7	N/A	
Technology	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	5*	1	7	14	0.22	
DC technology	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	N/A	
GEOSS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	3	1	0.84
Climate change general	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	3	7	11	0.84	
Awareness	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1*	0	0	1	N/A	
Dialogue	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	2	N/A	
Gleneagles Dialogue	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	1	4	0.67	
Transport	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	2	4	0.33	
Aviation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	2	1	N/A
GCOS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	N/A	
Energy use	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	2	0.22	
Energy intensity	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0.33	
Hydrocarbons	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	2	-0.11	
Energy alternatives	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	2	0.33	
Major economies join	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	N/A
Sharing practices	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	N/A
Emission profiles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	N/A
Assist DC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	N/A
TOTAL	1	0	4	7	5	7	4	4	7	3	9	7	4	4*	4	1	4	3	30*	19	44	(171)	

Notes:

*Commitment encompassed more than one issue area and therefore does not necessarily add up to the total number of commitments calculated for that issues or year.

Bold reflects top three scores in respective areas. N/A = Data not available.

COP = Conference of the Parties to the United Nations Framework Convention on Climate Change; CSD = United Nations Commission on Sustainable Development; CSLF = Carbon Sequestration Leadership Forum; DC = developing countries; GCOS = Global Climate Observing System; GEOSS = Global Earth Observation System of Systems; GHG = greenhouse gases, including limits, reductions, stabilization, minimizing and mitigation.; LDC = least developed countries; UNFCCC = United Nations Framework Convention on Climate Change; WMO = World Meteorological Organization.

Appendix C: Compliance with Climate Change Commitments

Commitment	Issue	Ave	U.S.	JAP	UK	GER	FRA	ITA	CDA	RUS	EU
1987 (1/1)		+29%	00%	00%	+100%	00%	00%	00%	+100%	N/A	N/A
1987-32	Environmental problems	+0.29	0	0	+1	0	0	0	+1	N/A	N/A
1989 (1/4)		+43%	-100%	+100%	+100%	+100%	00%	00%	+100%	N/A	N/A
1989-1	Limit greenhouse gases	+0.43	-1	+1	+1	+1	0	0	+1	N/A	N/A
1990 (1/7)		+43%	-100%	00%	00%	+100%	+100%	+100%	+100%	N/A	N/A
1990-1	Limit greenhouse gases	+0.43	-1	0	0	+1	+1	+1	+1	N/A	N/A
1991 (2/5)		+41%	-100%	00%	+50%	+100%	+50%	+50%	+100%	N/A	N/A
1991-1	Convention on climate change	+0.14	-1	0	0	+1	0	0	+1	N/A	N/A
1991-4	Limit greenhouse gases	+0.67	-1	N/A	+1	+1	+1	+1	+1	N/A	N/A
1992 (3/7)		+71%	+33%	+100%	+67%	+100%	+67%	+33%	+100%	N/A	N/A
1992-1	UNFCCC	+0.71	+1	+1	+1	+1	0	0	+1	N/A	N/A
1992-2	Global Environment Facility	+0.71	-1	+1	+1	+1	+1	+1	+1	N/A	N/A
1992-6	Climate change science	+0.71	+1	+1	0	+1	+1	0	+1	N/A	N/A
1993 (2/4)		+57%	+100%	+100%	+50%	00%	00%	+50%	+100%	N/A	N/A
1993-1	National action plan	+0.14	+1	+1	0	-1	-1	0	+1	N/A	N/A
1993-3	Global Environment Facility	+1.00	+1	+1	+1	+1	+1	+1	+1	N/A	N/A
1994 (2/4)		+72%	+100%	+50%	+100%	+100%	+50%	00%	+100%	N/A	N/A
1994-1	National action plan	+0.57	+1	0	+1	+1	0	0	+1	N/A	N/A
1994-3	Global Environment Facility	+0.86	+1	+1	+1	+1	+1	0	+1	N/A	N/A
1995 (1/7)		+29%	+100%	00%	+100%	-100%	00%	00%	+100%	N/A	N/A
1995-23	COP	+0.29	+1	0	+1	-1	0	0	+1	N/A	N/A
1996 3		+57%	+100%	+100%	+100%	+100%	00%	00%	00%	N/A	N/A
1996-87	COP	+0.57	+1	+1	+1	+1	0	0	0	N/A	N/A
1997 (2/9)		+42%	-50%	+50%	+100%	+100%	+100%	-50%	-50%	00%	+100%
1997-8	COP3	+0.50	0	+1	+1	+1	+1	-1	0	+1	N/A
1997-9	Limit GHG	+0.11	-1	0	+1	+1	+1	0	-1	-1	+1
1998 (2/7)		+100%	+100%	+100%	+100%	+100%	+100%	+100%	+100%	+100%	N/A
1998-34	Kyoto Protocol	+1.00	+1	+1	+1	+1	+1	+1	+1	+1	N/A
1998-xx ^a	Signing of Kyoto Protocol	+1.00	+1	N/A	N/A	N/A	N/A	N/A	N/A	+1	N/A
2001 (3/4)		-4%	00%	00%	00%	00%	00%	00%	00%	-33%	N/A
2001-44	COP6	0.00	0	0	0	0	0	0	0	0	N/A
2001-xx	Global Environment Facility	-0.13	0	0	0	0	0	0	0	-1	N/A
2001-xx	Sustainable development	0.00	0	0	0	0	0	0	0	0	N/A
2002 (1/1)		+89%	00%	+100%	+100%	+100%	+100%	+100%	+100%	+100%	+100%
2002-8	Sustainable development	+0.89	0	+1	+1	+1	+1	+1	+1	+1	+1
2003 (2/4)		+88%	+100%	+100%	+50%	+100%	+100%	+100%	+50%	+100%	+100%
2003-75	Renewable energy	+0.75	+1	+1	0	+1	+1	+1	+0	+1	N/A
2003-92	World CCC	+1.00	+1	+1	+1	+1	+1	+1	+1	+1	+1
2004 (2/3)		+89%	+100%	+100%	+100%	+100%	+100%	+50%	+100%	+50%	+100%
2004(s)-3	GEOSS	+1.00	+1	+1	+1	+1	+1	+1	+1	+1	+1
2004-S2	Renewable energy	+0.78	+1	+1	+1	+1	+1	0	+1	0	+1
2005 (5/28)		+80%	+80%	+60%	+100%	+100%	+100%	+40%	+80%	+60%	+100%
2005-xx	Renewable energy	+1.00	+1	+1	+1	+1	+1	+1	+1	+1	+1
2005-xx	Climate change	+0.89	+1	+1	+1	+1	+1	0	+1	+1	+1
2005-1	UNFCCC	+0.44	0	0	+1	+1	+1	-1	0	+1	+1
2005-9	Gleneagles Dialogue	+0.67	+1	0	+1	+1	+1	+1	+1	-1	+1
2005-15	Aviation	+1.00	+1	+1	+1	+1	+1	+1	+1	+1	+1
2006 (9/19)		+33%	+30%	+50%	+60%	+40%	+20%	+10%	+10%	00%	+80%
2006-62	Sustainable energy use	+0.22	0	0	+1	0	0	0	0	0	+1
2006-99	Energy intensity	+0.33	0	0	+1	0	0	0	0	+1	+1
2006-110	Hydrocarbons	-0.11	-1	+1	-1	0	+1	-1	+1	0	-1
2006-116 ^b	Surface transportation	+0.33	+0.5	0	+0.5	+0.5	+0.5	0	+0.5	-0.5	+1
2006-123	Alternative energy	+0.33	+1	+1	0	+1	-1	0	0	0	+1
2006-138	Technology	+0.22	+1	+1	+1	0	0	0	-1	-1	+1
2006-156	Renewable Energy	+0.89	+1	+1	+1	+1	0	+1	+1	+1	+1
2006-162	Climate change	+0.78	+1	+1	+1	+1	+1	+1	0	0	+1
2006-165	UNFCCC	0.00	-1	0	+1	0	0	0	-1	0	+1
Average		+52%	+37%	+59%	+70%	+65%	+50%	+28%	+55%	+30%	+90%

Notes: N = 40; total number of commitments = 167; xx = commitment identifier not available. N/A = not available.

COP = Conference of the Parties to the United Nations Framework Convention on Climate Change; CSD = United Nations Commission on Sustainable Development; GEOSS: Global Earth Observation System of Systems; GHG = greenhouse gases; UNFCCC = United Nations Framework Convention on Climate Change; WMO = World Meteorological Organization; WSSD = World Summit on Sustainable Development.

a.1998-xx = This commitment deals with signing the Kyoto Protocol, which only applies to the U.S. and Russia in 1998, as all other G8 countries had already signed.

b.2006-116 was measured by both the G8RG-Toronto and G8RG-Oxford. The score represented here is an amalgamation of the two slightly different measures.

Appendix D: Climate Change Commitments Text

1987 (1)

1987-32. We underline our own responsibility to encourage efforts to tackle effectively environmental problems of worldwide impact such as stratospheric ozone depletion, climate change, acid rains, endangered species, hazardous substances, air and water pollution, and destruction of tropical forests.

1988 (0)

1989 (4)

1989-1. We strongly advocate common efforts to limit emissions of carbon dioxide and other greenhouse gases, which threaten to induce climate change, endangering the environment and ultimately the economy

1989-2. We need to strengthen the world-wide network of observatories for greenhouse gases and support the World Meteorological Organization initiative to establish a global climatological reference network to detect climate changes.

1989-3. We call for the adoption of sustainable forest management practices, with a view to preserving the scale of world forests.

1989-4. We believe that the conclusion of a framework or umbrella convention on climate change to set out general principles or guidelines is urgently required to mobilize and rationalise the efforts made by the international community. Specific protocols containing concrete commitments could be fitted into the framework as scientific evidence requires and permits.

1990 (7)

1990-1. We are committed to undertake common efforts to limit greenhouse gases, such as carbon dioxide.

1990-2. We reiterate our support for the negotiation of a framework convention on climate change, under the auspices of the UNEP and WMO. The convention should be completed by 1992.

1990-3. Work on implementing protocols should be undertaken as expeditiously as possible and should consider all sources and sinks.

1990-4. We are determined to take action to increase forests... and we are ready for a new dialogue with developing countries on ways and means to support their efforts to provide sustainable forest management.

1990-5. We are ready to cooperate with the Government of Brazil on a comprehensive pilot programme to counteract the threat to tropical rain forests in that country.

1990-6. The Tropical Forestry Action Plan must be reformed and strengthened, placing more emphasis on forest conservation.

1990-7. We support accelerated scientific and economic research and analysis on the dynamics and potential impact of climate change, and on potential responses of developed and developing countries.

1991 (5)

1991-1. Achieving, by the time of UNCED, a framework convention on climate change

1991-2. Allocation of financial assistance to developing countries for environmental projects geared toward emissions reductions and the protection of CO₂ sinks; and contribute to the core fund of the GEF

1991-3. support scientific research

1991-4. establish concrete strategies to limit net emission of greenhouse gases.

1991-5. We will financially support the implementation of the preliminary state of the [Brazilian] pilot programme.

1992 (7)

1992-1. Ratify FCCC by 1993

1992-2. replenish the GEF

1992-3. support the endorsement of the CSD

1992-4. proceed with forest principle initiatives

1992-5. implement actions geared at emissions reductions

1992-6. continued scientific efforts in the area of climate change

1992-7. develop a national action plan by the end of 1993

1993 (4)

1993-1. publish a national action plan by the end of 1993

1993-2. Continue support for the Commission on Sustainable Development (CSD)

1993-3. Bolster the continuation of the GEF through financial replenishment

1993-4. Produce initiatives on sound forest management

1994 (4)

1994-1. implementing national action plans

1994-2. developing climate change initiatives for the post-2000 period

1994-3. replenishing the Global Environmental Facility

1994-4. producing reports on achievements made in time for the Halifax summit

1995 (7)

1995-10: make sustainable development a central goal of [the relevant organizations and multilateral institutions'] policies and programs, including by intensifying and deepening the integration of environmental considerations into all aspects of [the relevant organizations multilateral institutions'] programs

1995-11: encourage countries to follow sound economic, environmental and social policies and to create the appropriate legal and structural framework for sustainable development.

1995-14. continue to provide resources for the infrastructure needed for sustainable development, where these are not available from the private sector.

1995-21. In their policies, operations and procurement, G-7 governments must show leadership in improving the environment. This will require the appropriate mix of economic instruments, innovative accountability mechanisms, environmental impact assessment and voluntary measures. Efforts must focus on pollution prevention, the "polluter pays" principle, internalization of environmental costs, and the integration of environmental considerations into policy and decision making in all sectors.

1995-22. establishing a review process for strengthening Rio commitments

1995-23. setting more ambitious timetables and objectives to follow-up on the Berlin Conference of the Parties

1995-25. contributing to the completion of the CSD intergovernmental panel on forests

1996 (3)

1996-85. In view of the threats such as global warming, desertification, deforestation, depleting resources and threatened species, and unsustainable urban development, we place top priority on integrating environmental protection more completely into all of our policies.

1996-86. 1997 will be a pivotal year for the environment. We renew our commitment to all agreements reached at Rio, and pledge to work for a successful outcome of the 1997 special session of the United Nations General Assembly which would lead to their better implementation.

1996-87. We commit ourselves to strong action and anticipate in 1997 a successful outcome of the Conference of the Parties to the Climate Change Convention. (+0.14)

1997 (9)

1997-5. This is a pivotal year for efforts to promote sustainable development and protect the environment. We are determined to address the environmental challenges that will affect the quality of life of future generations and to enhance public awareness, especially among our youth, of the importance of advancing sustainable development goals.

1997-6. We discussed the progress that has been made since the 1992 Rio Earth Summit in defining and promoting sustainable development, and we commit ourselves to taking action in areas critical to advancing this agenda. Sustainable development demands the full integration of environment, economic and social policies; should be based upon democratic governance and respect for human rights; and should have poverty eradication as one of its ultimate objectives.

1997-7. In this connection, we reaffirm the vital contribution of civil society. We urge the United Nations General Assembly, at its Special Session to be held next week, to reaffirm and give impetus to the Rio commitments, to take stock of implementation since Rio, and, most importantly, to develop a manageable list of priority issues to address in future work on sustainable development.

1997-8. At the Third Conference of the Parties to the UN Framework Convention on Climate Change in Kyoto, we must forge a strong agreement that is consistent with the Berlin Mandate and contains quantified and legally-binding emission targets that will result in reductions of greenhouse gas emissions by 2010. (+0.50)

1997-9. We intend to commit to meaningful, realistic and equitable targets that will result in reductions of greenhouse gas emissions by 2010.

1997-10. Developing countries must also take measurable steps, recognizing that their obligations will increase as their economies grow. We agree to work in partnership with them to that effect by implementing technological development and diffusion and supporting environmental education and capacity building.[referring to greenhouse gas emissions]

1997-11. We agree to work together to enhance international efforts to further develop global systems for monitoring climate change and other environmental trends

1997-22. We reaffirm the importance of the Global Environmental Facility as the leading multilateral funding mechanism for the global environment. We will work to strengthen its finances and enhance its effectiveness.

1997-23. In this regard, we will each do our part to contribute to a successful replenishment of the Facility. [referring to the GEF]

1998 (7)

1998-31. The greatest environmental threat to our future prosperity remains climate change. We confirm our determination to address it, and endorse the results of our Environment Ministers' meeting at Leeds Castle.

1998-xx. The adoption at Kyoto of a Protocol with legally binding targets was a historic turning point in our efforts to reduce greenhouse gas emissions. We welcome the recent signature of the Protocol by some of us and confirm the intention of the rest of us to sign it within the next year,

and resolve to make an urgent start on the further work that is necessary to ratify and make Kyoto a reality. To this end:

1998-33. we will each undertake domestically the steps necessary to reduce significantly greenhouse gas emissions;

1998-34. [we] resolve to make an urgent start on the further work that is necessary to ratify and make Kyoto a reality." To this end: "...we will work further on flexible mechanisms such as international market-based emissions trading, joint implementation and the clean development mechanism, and on sinks. We aim to draw up rules and principles that will ensure an enforceable, accountable, verifiable open and transparent trading system and an effective compliance regime. (+1.00)

1998-36. we will work together and with others to prepare for the Buenos Aires meeting of COP4 this autumn.

1998-37. We will also look at ways of working with all countries to increase global participation in establishing targets to limit or reduce greenhouse gas emissions.

1998-38. We will aim to reach agreement as soon as possible on how the clean development mechanism can work, including how it might best draw on the experience and expertise of existing institutions, including the Global Environment Facility.

1999 (4)

1999-29. To underscore our commitment to sustainable development, we will step up our efforts to build a coherent global and environmentally responsive framework of multilateral agreements and institutions.

1999-32. We will work towards timely progress in implementing the Buenos Aires Plan of Action with a view to early entry into force of the Kyoto Protocol.

1999-33. We underline the importance of taking action to reduce greenhouse gas emissions through rational and efficient use of energy and through other cost-effective means. To this end, we commit ourselves to develop and implement domestic measures including under the UN Framework Convention on Climate Change.

1999-34. We will also promote increasing global participation of developing countries in limiting greenhouse gas emissions.

2000 (2)

2000-85. "We will endeavor will all our partners to prepare a future-oriented agenda for Rio+10 in 2002"

2000-86. "We are determined to achieve a successful outcome at the Sixth Conference of the Parties to the FCCC (COP6), in order to achieve the goals of the Kyoto Protocol through undertaking strong domestic actions and supplemental flexibility mechanisms."

2001 (4)

2001-42. In this context, we agree on the importance of intensifying co-operation on climate related science and research.

2001-44. Attempt to reduce greenhouse gas emissions through the Sixth Conference of the Parties in Bonn (COP6) and other relevant fora. (0.00)

2001-XX: Global Environment Facility (GEF)

2001-XX: Sustainable Development

2002 (1)

2002-8. We agreed on the importance of reaffirming the Doha Agenda and the Monterrey Consensus and to work at the upcoming Johannesburg Summit to produce meaningful partnerships for sustainable development and measurable results.

2003 (4)

2003-71. We will promote rapid innovation and market introduction of clean technologies, in both developed and developing countries, including at the Milan Conference of the Parties of the United Nations Framework Convention on Climate Change and beyond, at the International Energy Agency (IEA) and other international fora such as the UN Economic Commission for Europe, the Expert Group on Technology Transfer, etc., finding appropriate methodologies to involve the private sector.

2003-75: We commit to participating in the International Conference on Renewable Energies, spring 2004 in Bonn. (+0.75)

2003-81. Expand significantly the availability if and access to cleaner, more efficient fossil fuel technologies and carbon sequestration systems and pursue joint research and development and expanded international co-operation, including demonstration projects.

2003-92. We will discuss various aspects of the global climate change problem at the World Conference on Climate Control (Moscow, September 2003).

2004 (3)

2004-1. Last year at Evian we agreed "to support the development of cleaner, sustainable and more efficient technologies." 1. We reaffirm our conviction that "cooperative scientific research on transformation technologies offers potential to improve public health by cutting pollution and reduce greenhouse gas emission to address the challenge of global climate change."

2004(S)-2: We recognized the need for balanced energy policies, which increase energy supplies and encourage more efficient energy use and conservation, including through new technologies. (+0.78)

2004(S)-3. Held First and Second Earth Observation Summits (EOS) and adopted a Framework document on a Global Earth Observation System of Systems (GEOSS). Planning to adopt a final

10-year strategic implementation plan on GEOSS at Third EOS in 2005 and working to identify the international mechanism to provide coordination and oversight for GEOSS. (0.00)

2005 (28)

2005-xx: We resolved to take urgent action to meet the challenges we face. The Gleneagles Plan of Action which we have agreed demonstrates our commitment. We will take measures to develop markets for clean energy technologies, to increase their availability in developing countries, and to help vulnerable communities adapt to the impact of climate change. (+1.00)

2005-xx. We will advance the global effort to tackle climate change at the UN Climate Change Conference in Montreal later this year. Those of us who have ratified the Kyoto Protocol remain committed to it, and will continue to work to make it a success. (+0.89)

2005:1 - We reaffirm our commitment to the UNFCCC and to its ultimate objective to stabilise greenhouse gas concentrations in the atmosphere at a level that prevents dangerous anthropogenic interference with the climate system.

2005:2 - promote innovation, energy efficiency, conservation, improve policy, regulatory and financing frameworks; and accelerate deployment of cleaner technologies, particularly lower emitting technologies

2005: 4 - raise awareness of climate change and our other multiple challenges, and the means of dealing with them; and make available the information which business and consumers need to make better use of energy and reduce emissions.

2005:5 - We will work with developing countries on building capacity to help them improve their resilience and integrate adaptation goals into sustainable development strategies. We therefore agree to take forward a Dialogue on Climate Change, Clean Energy and Sustainable Development, and invite other interested countries with significant energy needs to join us.

2005:7 - monitor implementation of the commitments made in the Gleneagles Plan of Action and explore how to build on this progress; and

2005:9 - We will ask our Governments to take the Dialogue forward. [Gleneagles]

2005:11 - Those of us who have ratified the Kyoto Protocol welcome its entry into force and will work to make it a success.

2005:12 - We will work together to advance the goals and objectives we have agreed today to inform the work of the UN Climate Change Conference in Montreal 2005.

2005:13 - We are committed to move forward in that forum the global discussion on long-term co-operative action to address climate change.

2005:15 - work with the IPCC to provide, as part of its forthcoming Fourth Assessment Report, an up-to-date assessment of the latest evidence on aviation's impacts on the climate;

2005:16 - support climate science research, aimed at improving our understanding of specific issues such as contrails and cirrus cloud effects, to inform technological and operational responses;

2005:17 - encourage co-ordination among our existing national research programmes on longterm technology developments with the potential to significantly reduce emissions.

2005:20 - develop partnerships, including sectoral and cross-border partnerships, with industry to reduce the greenhouse gas emissions intensity of the major industrial sectors of our economies; and

2005:21 - continue to support the work of the UNFCCC clearing house on technology transfer *TT:Clear* in disseminating information on available technologies, and cooperate further on sharing information on best practices and national policies to encourage the deployment of energy efficiency technologies.

2005:23 - inviting the IEA to carry out a global study of recently constructed plants, building on the work of its Clean Coal Centre, to assess which are the most cost effective and have the highest efficiencies and lowest emissions, and to disseminate this information widely; and

2005:25 - endorsing the objectives and activities of the Carbon Sequestration Leadership Forum (CSLF), and encouraging the Forum to work with broader civil society and to address the barriers to the public acceptability of CCS technology;

2005:26 - inviting the IEA to work with the CSLF to hold a workshop on short-term opportunities for CCS in the fossil fuel sector, including from Enhanced Oil Recovery and CO₂ removal from natural gas production;

2005:27 - inviting the IEA to work with the CSLF to study definitions, costs, and scope for 'capture ready' plant and consider economic incentives;

2005:28 - collaborating with key developing countries to research options for geological CO₂ storage;

2005:29 - working with industry and with national and international research programmes and partnerships to explore the potential of CCS technologies, including with developing countries.

2005:46 - support a market-led approach to encouraging energy efficiency and accelerating investment and the deployment of cleaner technologies which will help transition to a low emission future;

2005:51 - use standards, or use pricing and regulatory signals to provide confidence in the near and long-term value of investments, so as to reduce emissions of greenhouse gases and/or pollutants.

2005:54 - market-based instruments including fiscal or other incentives for the development and deployment of technologies, tradable certificates and trading of credits for reductions of emissions of greenhouse gases or pollutants; an

2005:57 - We will build on the work in other fora, including the UNFCCC Experts Group on Technology Transfer, to support necessary capacity building, enabling environments and information dissemination.

2005:60 - support efforts to help developing countries and regions obtain full benefit from GEOSS, including from the Global Climate Observing System (GCOS) such as placement of observational systems to fill data gaps, developing of in country and regional capacity for analysing and interpreting observational data, and development of decision-support systems and tools relevant to local needs;

2005:61 - in particular, work to strengthen the existing climate institutions in Africa, through GCOS, with a view to developing fully operational regional climate centres in Africa.

2006 (19)

2006 – 54: We also reaffirm our commitment to the United Nations Framework Convention on Climate Change (UNFCCC) and to meet our shared multiple objectives of reducing greenhouse gas emissions, improving the global environment, enhancing energy security, and cutting air pollution in conjunction with our vigorous efforts to reduce energy poverty.

2006-62. [Recognizing the shared interest of energy producing and consuming countries in promoting global energy security, we, the Leaders of the G8, commit to: ...] environmentally sound development and use of energy, and deployment and transfer of clean energy technologies which help to tackle climate change...

2006 – 75: addressing climate change and sustainable development.

2006 – 95: We will move forward with timely implementation of the Gleneagles Plan of Action.

2006 – 96: We have instructed our relevant ministers to continue the dialogue on climate change, clean energy and sustainable development and report its outcomes to the G8 summit in 2008.

2006-99. consider national goals for reducing energy intensity of economic development to be reported by the end of the year;

2006 – 110: raising the environmental and efficiency levels for processing hydrocarbons;

2006 – 112: improving energy infrastructure, including minimizing oil and oil products losses in transportation and gas emissions from gas systems;

2006-116. [For making transportation more energy efficient and environmentally advanced we shall...] develop programs in our respective countries, consistent with national circumstances, to provide incentives for consumers to adopt efficient vehicles, including clean diesels and hybrids; and introduce on a large scale efficient public hybrid and/or clean diesel transportation systems, where appropriate...

2006 – 122: continue to consider the impact of the air transport sector on energy consumption and greenhouse gas emissions noting international cooperation on these issues.

2006-123. We will work to develop low-carbon and alternative energy, to make wider use of renewables and to develop and introduce innovative technologies throughout the entire energy sector.

2006 – 124: We shall further encourage the activities of the Carbon Sequestration Leadership Forum (CSLF) aimed at preparing and implementing demonstration projects on CO₂ capture and storage and on the development of zero emission power plants

2006-138. [*Despite the increased role of alternative sources in the energy mix, hydrocarbons are expected to continue to play a leading role in total energy consumption well into this century*]...Therefore we will work with the private sector to accelerate utilization of innovative technologies that advance more efficient hydrocarbon production and reduce the environmental impact of its production and use.

2006-156. “We will facilitate development of local energy resources, including those based on core generation technologies and on renewable energy, such as hydropower, wind power, geothermal power, biomass, and the effective use of solar energy, to contribute to poverty reduction and long-term energy sustainability in developing countries.”

2006-162. We reaffirm our intention to deliver on commitments made in Gleneagles in order to meet our shared ... objectives of reducing greenhouse gas emissions.

2006 – 163: We also affirm our commitment to the UNFCCC's ultimate objective of stabilizing greenhouse gas concentrations in the atmosphere at a level that prevents dangerous anthropogenic interference with the climate system.

2006 – 164: We will continue to work to reduce greenhouse gas and deal effectively with the challenge of climate change.

2006-165. With respect to climate change, we reaffirm our shared commitment under the UNFCCC and its related mechanisms.

2006 – 166: We look forward to the next Ministerial meeting in Mexico in October 2006, where we will continue to identify opportunities for greater collaboration to tackle climate change, while pursuing energy security and sustainable development through deployment of cleaner, more efficient and low-carbon energy technologies, finance and market mechanisms, including, as appropriate, Clean Development Mechanism, Joint Implementation, emissions trade, and adaptation.

2007 (44)

2007-24: We firmly agree that resolute and concerted international action is urgently needed in order to reduce global greenhouse gas emissions and increase energy security.

2007-25: We are committed to take strong leadership in combating climate change.

2007-26: We confirm our determination to work among ourselves and with the global community on global solutions that address climate change while supporting growth and economic development.

2007-27: We commit ourselves to implement approaches which optimally combine effective climate protection with energy security

2007-28: To this end, we are committed to the further development of the international regime to combat climate change, especially in the run-up to the UN Climate Change Conference in Indonesia at the end of this year.

2007-29: To maintain the momentum of those achievements [with the UNCCC] we herewith strongly reaffirm our commitment to Global Energy Security Principles, including our commitment to enhance dialogue on relevant shareholders' perspectives on growing interdependence, security of supply and demand issues, facilitate diversification of different types of contracts, including market-based long-term and spot contracts, promote investment in upstream and downstream assets internationally, support the principles of the Energy Charter and the efforts of the participating countries to improve international energy co-operation.

2007-30: [To maintain the momentum of that groundbreaking achievement, we] will prepare national reports with the assistance of the IEA, evaluating G8 member states' efforts to adhere to those principles, for delivery at the 2008 G8 summit

2007-31: We are therefore committed to taking strong and early action to tackle climate change in order to stabilize greenhouse gas concentrations at a level that would prevent dangerous anthropogenic interference with the climate system

2007-32: In setting a global goal for emissions reductions in the process we have agreed today involving all major emitters, we will consider seriously the decisions made by the European Union, Canada and Japan which include at least a halving of global emissions by 2050

2007-33: We commit to achieving these goals and invite the major emerging economies to join us in this endeavor.

2007-34: We reaffirm, as G8 leaders, our responsibility to act.

2007 – 35: [We acknowledge that the UN climate process is the appropriate forum for negotiating future global action on climate change.] We are committed to moving forward in that forum and call on all parties to actively and constructively participate in the UN Climate Change Conference in Indonesia in December 2007 with a view to achieving a comprehensive post 2012-agreement (post Kyoto-agreement) that should include all major emitters.

2007 – 36: We have urgently to develop, deploy and foster the use of sustainable, less carbon intensive, clean energy and climate-friendly technologies in all areas of energy production and use.

2007-37: We have to develop and create supportive market conditions for accelerating commercialization of new less carbon intensive, clean-energy and climate-friendly technologies.

2007-38: [Therefore, we will] stimulate global development, commercialization, deployment and access to technologies (related to the previous climate friendly technologies)

2007-39: [Therefore, we will] promote major emerging and developing economies' participation in international technology partnerships and collaborations (related to the previous climate friendly technologies)

2007-40: [Therefore, we will] scale up national, regional and international research and innovation activities and (related to the previous climate friendly technologies)

2007-41: [Therefore, we will] undertake strategic planning and develop technology roadmaps to strengthen the role of advanced technology in addressing climate change

2007-44: We are determined to assist in reducing emissions from deforestation, especially in developing countries.

2007-45: [To this end, we will] continue to support existing processes to combat illegal logging.

2007-46: [To this end, we will] remain engaged in supporting developing countries to achieve their self-commitments for halting forest loss and to implement sustainable forest management, as stated in various regional initiatives, i.e., the Congo Basin and the Asia Forest Partnerships.

2007-47: At the St. Petersburg Summit, we agreed to enhance international co-operation in the area of sustainable forest management.

2007-48: Building on these initiatives, we are determined and urge the international community to strengthen co-operation and the sharing of best practices at all levels.

2007-49: We are committed to enhancing resiliency to climate variability and climate change in a way that fully supports our common goal of sustainable development.

2007-50: We emphasise our willingness to continue and enhance cooperation with and support for developing countries in adapting to climate change and enhancing their resilience to climate variability, in particular those most vulnerable to the negative impacts of climate change.

2007-51: We also emphasise our willingness to work with developing countries on the costs and benefits of climate change adaptation measures to help integrating them in national development planning.

2007-52: We reaffirm our commitment to assist with climate research and risk assessments including through helping developing countries benefit from satellite observation systems.

2007-53: We will also endeavour under the Montreal Protocol to ensure the recovery of the ozone layer by accelerating the phase-out of HCFCs [hydrochlorofluorocarbons] in a way that supports energy efficiency and climate change objectives.

2007-54: We will continue to exercise leadership in the development of the Global Earth Observation System of Systems (GEOSS).

2007-55: We will report on the progress achieved in the areas mentioned above at the G8 Summit in 2008.

2007-62: [To this end, we will] promote international research, encourage investment and development cooperation aimed at energy efficient technologies and other greenhouse gas mitigation options.

2007-73: To this end we will ask our governments to foster a large number of possible measures and various instruments that can clearly reduce energy demand and CO₂ emissions in the transport sector, including inter alia innovative engine concepts, alternative fuels, city planning measures, public transport, best possible inter-linkage of transport methods, increase the share of alternative fuels and energy carriers (biofuels, hydrogen, LPG/CNG [liquefied petroleum gas/compressed natural gas], electricity, hybrid, etc.) in total fuel consumption; fuel diversification, for example the synthetic and cellulosic biofuels and CO₂-free hydrogen, particularly in combination with the fuel cell, will be decisive in reducing transport CO₂ emissions, provided that second generation biofuel technologies become commercially available.

2007-74: step up coordination on development of international biofuel quality standards from various feedstocks to achieve optimal interoperability and emission profiles

2007-76: monitor the implementation of the necessary measures and discuss progress at two-year intervals during the Environmentally Friendly Vehicles Conference the results of which shall be reported to G8-leaders

2007-77: introduce energy efficiency labels for new cars along the lines of those already on some white goods.

2007-84: [In recognition of the increasingly urgent needs to achieve longer term greenhouse gas abatement, we will work on accelerating development and deployment of carbon capture and storage (CCS), including by] prioritising national and international research and development efforts and encouraging international research and technology cooperation, to minimise efficiency losses of the different carbon capture technologies and to clarify geo-technical conditions for secure CO₂ storage, encourage research, development and deployment of clean coal technologies in both developed and emerging economies with the highest energy needs

2007-85: [In recognition of the increasingly urgent needs to achieve longer term greenhouse gas abatement, we will work on accelerating development and deployment of carbon capture and storage (CCS), including by] supporting national and international geoscientific and political efforts in the field of CCS on ensuring security of storage and the provision of necessary legal frameworks to create a stable investment climate, thereby working in co-operation with industry as well as national and international research programmes

2007-86: [In recognition of the increasingly urgent needs to achieve longer term greenhouse gas abatement, we will work on accelerating development and deployment of carbon capture and storage (CCS), including by] reinforcing our commitment made under the Gleneagles and St.

Petersburg Plans of Action to support the initiatives taken by IEA and Carbon Sequestration Leadership Forum (CSLF)

2007-92: Those of us who have or are considering plans relating to the use and/or development of safe and secure nuclear energy believe that its development will contribute to global energy security, while simultaneously reducing harmful air pollution and addressing the climate change challenge.

2007-93: [We will] reaffirm our commitment to work toward reduction or, where appropriate, the elimination of tariff and non-tariff barriers to environment goods and services through the WTO [World Trade Organization] Doha negotiations which will also help us to address our shared security and climate goals

2007-102: We firmly agree on the need to further enhancing the contribution of mineral resources to sustainable growth and will continue to support resource rich countries in their efforts to further expand their resource potential while promoting sustainable development and good governance

2007-138: [We agreed to address] Sharing knowledge for improving energy efficiency and technology cooperation with the aim to contribute to reducing CO₂-emissions, consistent with the Gleneagles Dialogue on Climate Change, Clean Energy and Sustainable Development, and the St. Petersburg Plan of Action on Global Energy Security

2007-195: We reaffirm our commitment made in Gleneagles to helping Africa strengthen its adaptive capacity on climate change and work with African countries in the context of their national development strategies

2007-197: We will further promote responsible sustainable bio-energy production, generated from renewable biomass resources, with a view to contributing to climate protection without jeopardizing food security and the environment

