

2006 MIT Carbon Sequestration Initiative Survey of Public Attitude on Energy and the Environment

In 2003 and 2006, the MIT Carbon Sequestration Initiative sponsored surveys of a representative sample of the American public to measure attitudes toward and understanding of climate change and climate change-mitigation technologies. The majority of questions in the 2006 survey were identical to questions asked in the 2003 survey. The results compiled here include the questions asked in the 2006 survey with notes where the questions differ from 2003.

MIT and Knowledge Networks first conducted the survey from September 24 to October 13, 2003 using an Internet-based survey instrument. The survey was repeated using the same survey instrument but a different sample population from September 8 to September 25, 2006. Both surveys used a national sample representative of the general population of the United States. The samples were drawn from a membership panel maintained by Knowledge Networks. Panel members are provided free hardware and Internet access.

To correct for known deviations from the general population, Knowledge Networks develops sample weights. The data included here are appropriately weighted.

In 2003, 1,205 out of 1,710 panelists completed the survey, a 70 percent response rate. In 2006, 1,236 out of 1,596 panelists completed the survey, a 77 percent response rate. Both surveys have a margin of error of +/- 3 percent.

Question 1: Consider the following issues. What are the three most important issues facing the US today? [2006 survey included Iraq war, Fuel/oil prices, Illegal immigrants, and Quality of government leaders and did not include Unemployment, Foreign policy, Welfare, and Stock Market.]

Issue	Listed in Top Three (%)		Issue	Listed in Top Three (%)	
	9-10/03	9/06		9-10/03	9/06
Terrorism	42	41	Poverty	8	9
Iraq war	NA	32	Drugs	12	9
Health care	35	30	Taxes	11	7
Fuel/oil prices	NA	25	Income inequality	4	5
Illegal immigrants	NA	22	AIDS	4	3
Economy	35	18	Racism	4	3
Quality of government leaders	NA	17	Aging population	5	3
Social Security	13	15	Abortion	4	3
Education	19	14	Inflation	3	2
Family values	20	12	Unemployment	30	NA
Environment	9	12	Foreign policy	14	NA
Crime	14	10	Welfare	3	NA
Federal budget deficit	15	10	Stock market	2	NA

Question 2: Consider the following environmental problems. Which is the most important problem facing the US today? [Asked to select the top two, in order]

Environmental Problem	First or Second Ranked Problem (%)	
	9-10/03	9/06
Global warming	21	49
Destruction of ecosystems	31	32
Water pollution	39	25
Overpopulation	24	23
Toxic Waste	30	22
Ozone depletion	22	22
Urban sprawl	16	13
Smog	11	7
Endangered species	4	3
Acid rain	1	2

Question 3: *Many environmental issues involve difficult trade-offs with the economy. Which of the following statements best describes your view?*

Statement	9-10/03	9/06
The highest priority should be given to economic considerations such as jobs even if it hurts the environment.	8	7
Both the environment and the economy are important, but the economy should come first.	39	30
Both the environment and the economy are important, but the environment should come first.	45	51
The highest priority should be given to protecting the environment, even if it hurts the economy.	9	13

Question 4: *Have you heard of or read about any of the following in the past year? Check all that apply.* [2006 survey included Hybrid cars in place of More efficient cars.]

Technology or Energy Source	9-10/03	9/06
More efficient cars	70	NA
Hybrid cars	NA	83
Solar energy	64	71
Wind energy	50	57
Nuclear energy	54	57
More efficient appliances	49	53
Hydrogen cars	48	50
Bioenergy/biomass	10	20
Carbon capture and storage	4	5
Carbon sequestration	3	3
Iron fertilization	2	2
None of these	17	9

Question 5: *If the US Department of Energy has \$10 billion to spend, which do you think should be the top priority? [Asked to select the top two, in order]*

Priority	First or Second Ranked Priority (%)	
	9-10/03	9/06
New energy sources: solar, wind, or bioenergy/biomass	47	52
Anti-terrorism and security	32	29
New oil and gas reserves	21	24
More energy efficient cars and trucks	20	24
Energy conservation	18	18
Clean drinking water	19	13
Mass transportation	8	8
Ways to better manage toxic waste	12	8
Ways to remove carbon from atmosphere	4	6
Nuclear power	6	6
Hydropower	2	4
Nuclear waste disposal	7	3
More energy efficient buildings	3	3
Cleaner burning coal	2	2

Question 6: *Please select if “carbon sequestration” or “carbon capture and storage” can reduce each of the following environmental concerns.*

Environmental Concern	Percent Can Reduce		Percent Does Not Reduce		Percent Not Sure	
	9-10/03	9/06	9-10/03	9/06	9-10/03	9/06
Toxic waste	16	17	8	12	76	71
Ozone depletion	21	26	5	8	74	66
Global warming	23	28	5	6	73	66
Acid rain	21	20	6	8	73	73
Smog	29	31	3	4	68	65
Water pollution	23	22	5	8	72	69

Question 7: *There is a growing concern about increasing levels of carbon dioxide in the atmosphere. How do you think the following contribute to these levels?*

Technology or Practice	Increases Carbon Dioxide (%)		Decreases Carbon Dioxide (%)		No Impact (%)		Not Sure (%)	
	9-10/03	9/06	9-10/03	9/06	9-10/03	9/06	9-10/03	9/06
Automobiles	78	77	3	3	2	2	18	17
Factories	73	74	3	4	2	2	23	21
Coal burning power plants	70	73	2	4	3	2	25	20
Home heating	53	52	3	4	9	8	36	36
Breathing	41	39	5	6	28	29	26	26
Nuclear power plants	30	32	8	8	20	18	43	41
Farming	13	13	28	30	19	19	40	38
Trees	7	5	66	68	8	9	19	18
Oceans	4	4	29	31	26	28	41	37
Windmills	3	2	21	26	49	49	27	23

Question 8: *How much was your electric bill last month?*

Amount	9-10/03	9/06
Under \$10	1	0
\$10-25	3	2
\$26-50	14	8
\$51-75	16	14
\$76-100	19	14
\$101-150	21	25
\$151-200	12	13
More than \$200	8	15
Don't know	6	9

Question 9: *If it solved global warming, would you be willing to pay [dollar value] more per month on your electricity bill? (Dollar value started at \$5, if a respondent chose “yes” it increased to \$10 then \$25, \$50, and \$100.)*

Expressed Willingness to Pay	9-10/03	9/06
Less than \$5	24	21
\$5 to \$9.99	23	19
\$10 to \$24.99	31	29
\$25 to \$49.99	13	13
\$50 to \$99.99	4	8
\$100 or greater	5	10

Question X: *One way to reduce greenhouse gases is to tax emissions. This would increase the price for gasoline, heating oil, and electricity. Such taxes would reduce use of oil and coal and make it easier to introduce new technologies, such as solar and wind power.*

A proposal currently before Congress would keep the amount paid in taxes by the typical family the same, but the plan would shift taxes from being placed on income to being placed on emissions. This proposal would:

- *Cut the income tax of a typical family by \$1000*
- *Increase the amount the typical family pays for electricity by \$25 per month*
- *Increase the price of gasoline by 60¢ per gallon*
- *Decrease greenhouse gas emissions by 50%*

Would you oppose or support this proposal? [Only included in 2006 survey.]

Opinion	9/06
Strongly support	10
Support	26
Neither support nor oppose	30
Oppose	19
Strongly oppose	14

Question 10: *From what you know about global warming, which of following statements comes closest to your opinion?*

Opinion	9-10/03	9/06
Global warming has been established as a serious problem and immediate action is necessary.	17	28
There is enough evidence that global warming is taking place and some action should be taken.	36	34
We don't know enough about global warming and more research is necessary before we take any actions.	24	18
Concern about global warming is unwarranted.	7	6
No opinion	16	14

Question 10a: *Do you think most scientists agree with one another about global warming, or do you think there is a lot of disagreement?* [Only included in 2006 survey.]

Opinion	9/06
Most agree	34
A lot of disagreement	45
Not sure	21

Question 11: *Assuming that global warming is a problem, what do you think the US is likely to do about it?*

Likely Action	9-10/03	9/06
I believe that firms and government researchers will develop new technologies to solve the problem.	21	19
I believe we will have to change our lifestyles to reduce energy consumption.	32	35
I believe we will learn to live with and adapt to a warmer climate.	17	13
I believe global warming is a problem but the US won't do anything about it.	24	28
I believe we will do nothing since global warming is not a problem.	7	5

Question 12a: *Do you think the federal government should do more to try to deal with global warming?* [Only included in 2006 survey.]

View	9/06
Should do more	72
Should do less	5
Is doing the right amount now	24

Question 13: *The following technologies have been proposed to address global warming. If you were responsible for designing a plan to address global warming, which of the following technologies would you use?*

Technology	Survey Date	Definitely Use (%)	Probably Use (%)	Not Sure (%)	Probably Not Use (%)	Definitely Not Use (%)
Solar energy: Using the energy from the sun for heating or electricity production.	9-10/03	54	29	15	2	1
	9/06	59	25	14	1	1
Energy efficient appliances: Producing appliances that use less energy to accomplish the same tasks.	9-10/03	57	25	15	3	1
	9/06	60	23	16	1	1
Energy efficient cars: Producing cars that use less energy to drive the same distance.	9-10/03	54	27	16	2	2
	9/06	60	23	16	1	1
Wind energy: Producing electricity from the wind, traditionally in a windmill.	9-10/03	48	28	18	5	1
	9/06	55	24	18	2	1
Carbon sequestration: Using trees to absorb carbon dioxide from the atmosphere.	9-10/03	39	29	24	6	3
	9/06	43	25	27	3	2
Bioenergy/biomass: Producing energy from trees or agricultural wastes.	9-10/03	26	33	30	8	2
	9/06	36	30	29	3	3
Nuclear energy: Producing energy from a nuclear reaction.	9-10/03	15	23	28	21	13
	9/06	17	22	38	13	11
Carbon capture and storage: Capturing carbon dioxide from power plant exhaust and storing in underground reservoirs.	9-10/03	10	20	38	21	12
	9/06	13	17	48	14	8
Iron fertilization of oceans: Adding iron to the ocean to increase its uptake of carbon dioxide from the atmosphere.	9-10/03	5	15	44	24	13
	9/06	8	12	52	17	11

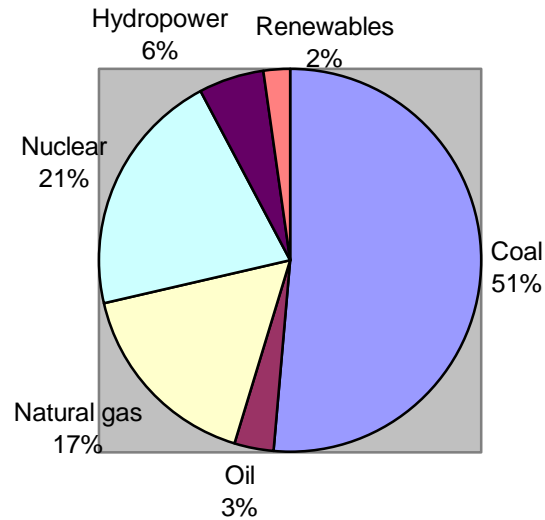
Question 14: *How can we best address the issue of global warming?* In the survey, we provided half of the sample with information on cost and current use and provided half of the sample with no additional information. The next page includes the information.

Options	Percent without information		Percent with information	
	9-10/03 (n=691)	9/06 (n=626)	9-10/03 (n=614)	9/06 (n=610)
Do nothing. We can live with global warming.	4	2	5	4
Invest in research and development. A new technology will solve global warming.	24	23	28	25
Continue using fossil fuels but with capture and storage of carbon dioxide.	6	3	16	10
Expand nuclear power.	7	8	11	11
Expand renewables (solar and wind power).	49	50	25	35
Reduce electricity consumption, even if it means lower economic growth.	4	7	10	12
Do nothing. There is no threat of global warming.	7	6	6	4

Information for Question 14:

Now we would like to present some facts on electricity production and prices.

The following chart shows our reliance on fossil fuels (coal, oil and natural gas) for producing electricity.



Based on published studies, we can summarize electricity production costs as follows:

- Using coal and natural gas, the typical family pays \$1,200 per year for electricity.
- Using all nuclear power would emit no carbon dioxide and would increase electricity costs for families to \$2,400 per year.
- Using carbon capture and storage along with coal and natural gas would reduce carbon dioxide emissions by 90% and would also increase electricity costs to \$2,400 per year.
- Using renewables (solar and wind power) would increase annual electricity costs to \$4,000.

Question 15: *Do you believe that we have a responsibility to look out for the interests of future generations, even if it means making ourselves worse off?*

Response	9-10/03	9/06
Yes	87	84
No	13	16

Question 16: *We currently assist other nations through foreign aid and charitable donations, do you think we should increase that assistance, let it stay the same, decrease our assistance or remove it entirely?*

Response	9-10/03	9/06
Increase	6	10
Stay the same	35	35
Decrease	48	43
Remove it entirely	12	12

Question 17: *How do you heat your home?*

Heat Source	9-10/03	9/06
Oil	9	8
Electricity	31	34
Natural Gas	50	44
Wood	3	3
No Heating	2	2
Don't know	2	4
Other	4	5