

A Rising Belief that Everyday Energy Use Affects Global Warming

Findings from the University of Michigan Energy Survey
March 2018

KEY FINDINGS

- ▶ Over the past four years, an increasing number of Americans say that energy use affects the environment "a lot."
 - ▶ A rising number of Americans say that global warming is the aspect of the environment most affected by energy use, a view now held by 36% of respondents compared to 25% when we launched the survey in Fall 2013.
 - ▶ Americans are more concerned about the effect of energy on the environment than they are about the affordability of energy, and much more concerned about its environmental and cost impacts than they are about the reliability of energy.
 - ▶ Concern about the environmental impact of energy has risen significantly over the past four years, while no statistically significant trend has been seen in American's levels of concern about the affordability or reliability of energy.
 - ▶ The belief that global warming is the environmental concern most affected by energy use has risen twice as fast among women as it has among men.
 - ▶ Respondents in the Northeast have consistently had the highest level of belief that energy use most affects global warming. So the rising national trend is explained by significantly increasing levels of this belief in the other three regions (Midwest, West and South).
 - ▶ The South in particular has seen a large jump in the belief that global warming is the aspect of the environment most impacted by energy use, with the number of Southerners holding that view rising from 20% of in Fall 2013 to 34% as of last year.
 - ▶ Both the degree of belief that energy use affects the environment and levels of concern about the issue are fairly uniform across income brackets, in contrast to the differences in perspective seen by gender and by region.
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Launched in Fall 2013, the University of Michigan Energy Survey has been tracking American consumers' attitudes about energy for just over four years. It runs as a quarterly, 18-question rider on the university's monthly Surveys of Consumers, the same household economic survey that generates the Index of Consumer Sentiment. Conducted for each season of the year, the

Energy Survey is based on responses from nationally representative samples of adults in 500-600 U.S. households gathered in Winter (January), Spring (April), Summer (July) and Fall (October) using in-depth telephone interviews. The main topics probed by the U-M Energy Survey are U.S. consumers' attitudes about the reliability of energy, its affordability and its impact on the environment.

This report highlights notable trends regarding energy and the environment seen over the 17 quarterly samples (survey "waves") analyzed to date, from Fall 2013 through Fall 2017. Unless otherwise noted, the horizontal axes in the charts shown here have quarterly tick marks with the Winter (W) and Summer (S) samples labeled for each year.

How much do Americans think that energy affects the environment?

The first environmentally-related question we ask is:

Thinking about all sources of energy people use in everyday life, to what extent would you say they affect the environment? Would you say a lot, a fair amount, a little, or not at all?

The responses are shown in Figure 1. Over four-year period, the number of consumers who said "a lot" has trended up while the number who said "a fair amount" has trended down. When combining those who answered "a lot" or "a fair amount" in response to the question (sum of the green and blue curves in the chart), the total has been fairly steady at 75%.

However, a belief that energy use greatly affects the environment is the majority view by an increasing margin. Although the Fall 2017 wave shows a shift back, the four-year rising trend in the number of Americans who believe that energy use affects the environment "a lot" is statistically significant, climbing at an average rate of 1.2 percentage points per year. From an

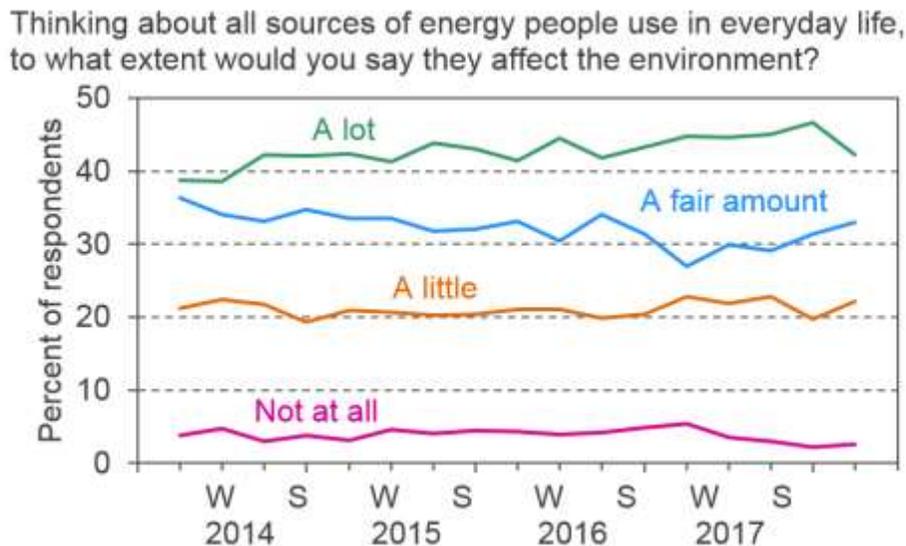


Figure 1. Americans' beliefs about how much energy use affects the environment

average of 40% during the first year of the survey, number of respondents who say that energy use affects the environment "a lot" climbed to an average of 45% over the past year. These responses do not show any clear sensitivity to either the volatility in energy prices and or the vagaries of political debates on energy and related issues.

On average from the launch of the survey in Fall 2013, about 4% of Americans say that energy use does not affect the environment at all. Although the number of Americans giving such a response has dropped over the past year, down to an average of 3% in 2017, a declining trend in the number who replied "not at all" is not statistically significant.

In what way does energy use affect the environment?

The next question we ask is:

Which one of the following is affected the most by the energy people use in everyday life: air, water, global warming, or personal health?

The resulting responses are summarized in Figure 2, where we see a clear trend of increasing belief that energy use affects global warming.

When we first ran the survey, Americans said they thought that energy use most affected the air (e.g., smog) by a wide margin. In Fall 2013, that response was given by 43% of consumers while 25% said that global warming was most affected by energy use. Now, global warming is running neck-to-neck with air; over the four Energy Survey waves of 2017, these two answers were tied at 37% each in terms of the average number of consumers choosing them.

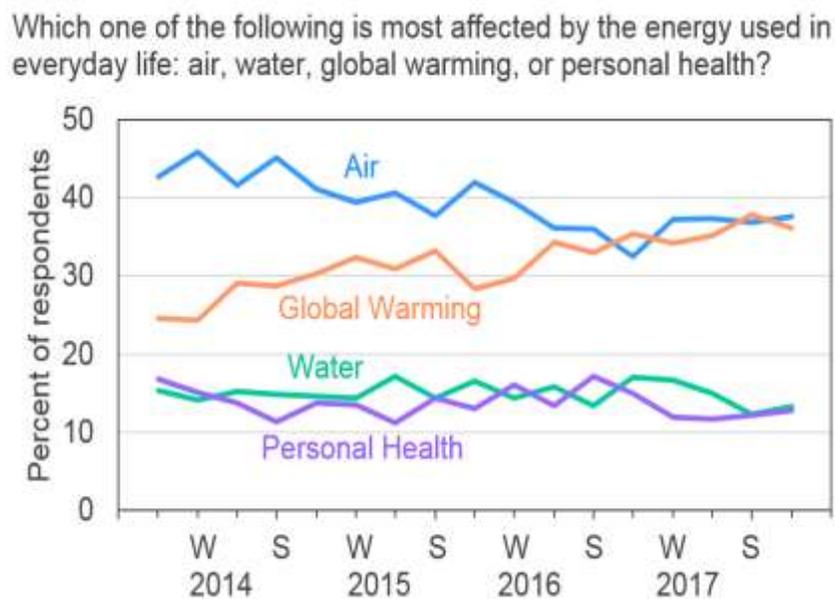


Figure 2. Aspect of the environment that American say is most affected by energy use

Fewer Americans point to water and personal health as being affected by energy use. We see little difference in how frequently respondents mention these two issues and a slight downward trend for both over the period. About 16% of consumers choose either water or personal health in response to the question in Fall 2013, a level declining to 13% by Fall 2017 (this modest decline was not statistically significant).

To explore whether any particular segments of the population might account for the overall trend of a rising belief that energy use has an effect on global warming, we broke down the responses by census region, household income and gender.

From the beginning of the survey, Northeasterners expressed the highest level of belief that global warming is the aspect of the environment most affected by energy use. As can be seen in Figure 3, the responses from the Northeast jumped up and down quite a bit from quarter-to-quarter. But there was no statistically significant change over time; on average over the 17 waves of the Energy Survey to date, 39% ($\pm 3\%$) of consumers in the Northeast picked global warming. In contrast, a significant rising trend in such a response is apparent in the Midwest, West and South. Therefore, the national trend that an increasing number of Americans believe that global warming is the environmental concern most affected by energy use is explained by the rising prevalence of such a response in these three census regions.

For example, even though the South still lags the Northeast in holding such a view, the region has had a clear trend of increasing belief that energy use affects global warming. Over the first two samples of the Energy Survey (Fall 2013 and Winter 2014), only about 20% of respondents from the South selected global warming when answering the question. Such a response saw a

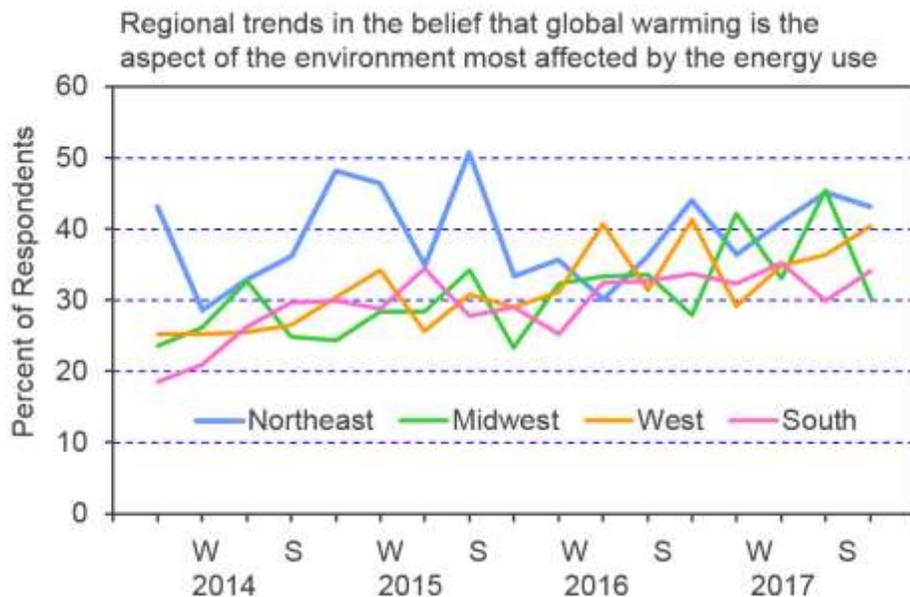


Figure 3. Respondents who say that global warming is the aspect of the environment most affected by energy use, by region

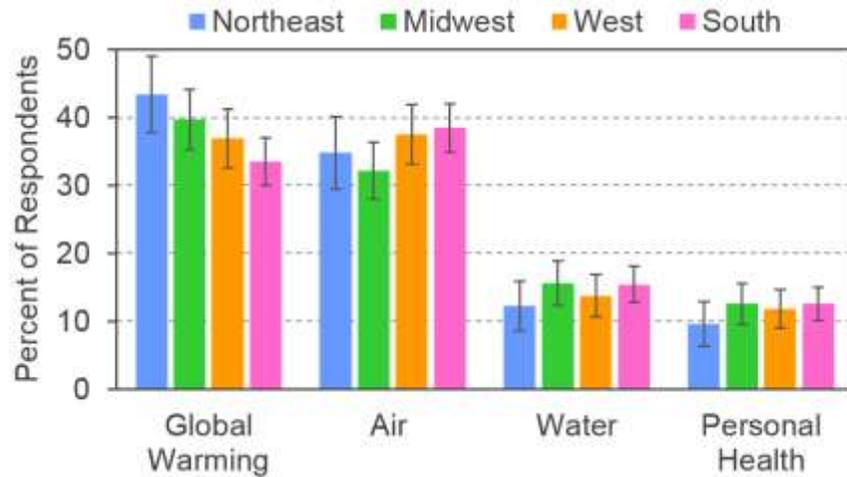


Figure 4. Views on which environmental concern is most affected by energy use, average responses by region as of 2017

large jump in frequency, reaching an average of 34% of Southerners over the four quarterly samples during 2017. The increasing trend was also significant in the West and Midwest, where as of the past year, 35% and 38% of respondents, respectively, said that energy use affected global warming the most among environmental impacts.

Figure 4 summarizes the regional responses to the question of which environmental impact is most affected by energy use, averaged over our most recent four quarterly samples. Although there appears to be a gradient in views across regions, the error bars (representing 95% confidence intervals) show that, other than between the South and Northeast, the differences among regions are not statistically significant in terms of how many respondents select global warming when answering the question. Neither do the regions differ significantly in their answers regarding other environmental impacts (air, water, health).

We did see a difference in responses on the question according to gender, as shown in Figure 5. Although both men and women identified global warming to an increasing degree over the four-year period, the increase was more pronounced among women. When we started the survey, a similar fraction (roughly 25%) of both men and women said that global warming was the aspect of the environment most affected by energy use. However, the number of women has increased twice as quickly as the number of men with that view. By Fall 2017, 45% of women and 34% of men said that energy use had the most effect on global warming compared to the other environmental concerns around air, water and personal health.

Thus, although men still choose air more frequently than global warming, the reverse is true for women. The result is that overall, global warming and air pollution are now statistically tied across the population at large as the aspect of the environment most affected by energy use (as seen earlier in Figure 2).

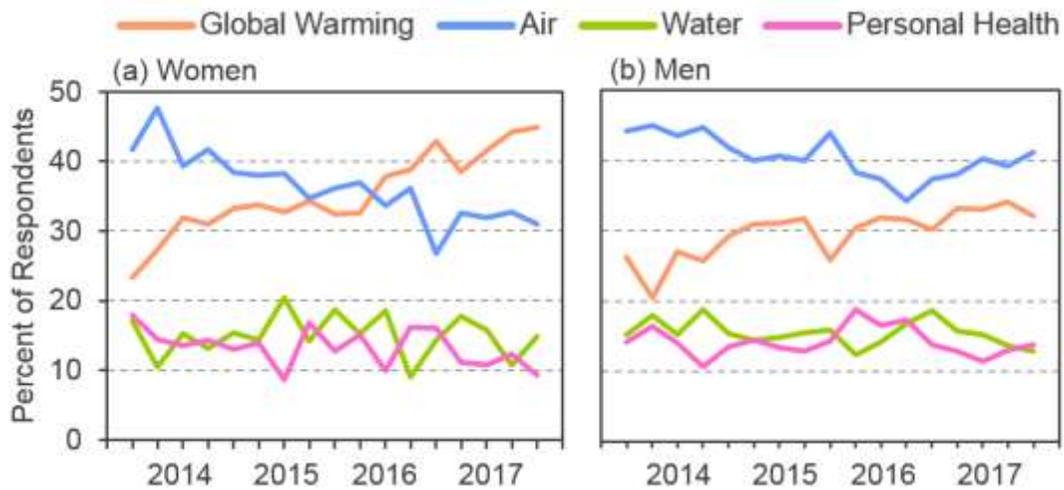


Figure 5. Views on which environmental issue is most affected by energy use, trends by gender of respondent

In contrast to the patterns observed by gender and across regions, we observed no significant differences in perspectives on this issue by household income. Consumers in all income terciles had a rising belief that energy use most affected global warming compared to the other environmental effects on air, water or personal health. As we have noted in previous reports,¹ income in general does not appear to have a significant effect on beliefs about the impact of energy use on the environment.

Overall concern about energy and the environment

A related question we ask is:

How much do you personally worry about the environmental impact of energy? Would you say a great deal, a fair amount, a little or not at all?

This question is part of a sequence late in the survey during which we also ask consumers how much they personally worry about the affordability and reliability of energy.

The results are shown in Figure 6, which plots the relative degree of concern about each issue based on average consumer responses. The four levels of response were mapped to a 0-10 scale, so that the average would be zero if everyone answered "not at all" and 10 if everyone answered "a great deal" in response to a question. A relative concern value of 5 therefore

¹ Environment Pulls Ahead of Affordability as Americans' Top Energy-Related Concern. Report by the University of Michigan Energy Survey, March 2015.

<https://www.umenergysurvey.com/environment-pulls-ahead-of-affordability/>

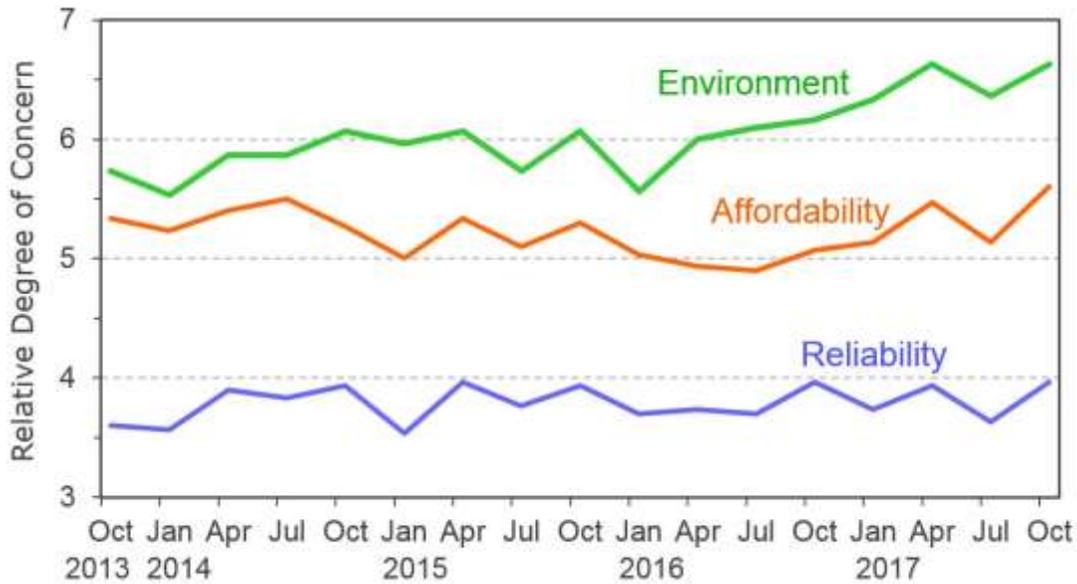


Figure 6. Concern about the impact of energy use on the environment compared to concern about energy affordability and reliability

means that the responses expressing higher levels of worry exactly balance those expressing lower levels of worry.

Even as we started the survey in Fall 2013, when gasoline prices were higher than they have been over the past year,² the environmental concern nominally edged out the affordability concern. The differences were not statistically significant, however, until late 2014. The gap then widened as concerns about energy costs moderated two years ago. Even as average levels of concern about the affordability of energy rose over the past year, so did concern about the environment. Only concern about the environmental impact of energy shows a clearly increasing trend over the four years since we launched the Energy Survey, with an average upward slope that is statistically significant.

Over our latest full year of data (the four quarterly samples taken during 2017), the average degrees of concern were 6.5 for the environmental impact of energy, 5.3 for affordability and 3.8 for reliability. Concern about the reliability has not changed significantly since we started the survey and has consistently lagged consumers' concerns about the environmental impact and affordability of energy.

Moreover, a closer look at the data shows that the degrees of concern about the environment have shifted upward within each of the broad levels shown in Figure 6. Back in Fall 2013, 37% of consumers said they worried a fair amount and 23% said they worried a lot about the impact of

² EIA. Weekly Retail Gasoline and Diesel Prices. Webpage. Washington, DC: U.S. Energy Information Administration. https://www.eia.gov/dnav/pet/pet_pri_gnd_dcus_nus_a.htm

energy on the environment. By Fall 2017, those shares had shifted to just 31% saying they worried a fair amount and 28% now saying that they worried about it a lot. In other words, even though the number of Americans who express a relatively greater degree of concern about the impact of energy on the environment is rising modestly overall, the intensity of concern appears to be strengthening. (Although not plotted here, this trend can be seen in the tabulations of the Energy Survey's topline report at www.umenergysurvey.com/topline-results.)

As noted above when we discussed the extent to which consumers believe that energy use affects the environment, how much they worry about the issue also varies regionally. We saw no significant trend in views of respondents from the Northeast, who again expressed the greatest degree of concern about the environmental impact of energy among regions. We did see significantly rising levels of concern in the other three regions, with the strongest upward trend being in the South.

In terms of household income, the degrees of concern about the impact of energy on the environment did not differ significantly among income brackets. We observed rising levels of worry about the impact of energy use on the environment by consumers in the lower and upper income terciles, but saw no significant change among middle income consumers. Where we did again see distinctions was by gender. A growing concern about the impact of energy use on the environment was seen for both men and women, but the degree of concern increased more significantly among women than it did among men. Thus, these demographic trends in the extent to which Americans are concerned about the impact of energy use on the environment are broadly consistent with trends in their beliefs about how it affects the environment.

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The University of Michigan Energy Survey is carried out four times a year as a rider on the University of Michigan Surveys of Consumers. It is conducted through in-depth telephone interviews with a nationally representative sample of 500 U.S. households. For further details and other results, see <http://www.umenergysurvey.com/>.

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