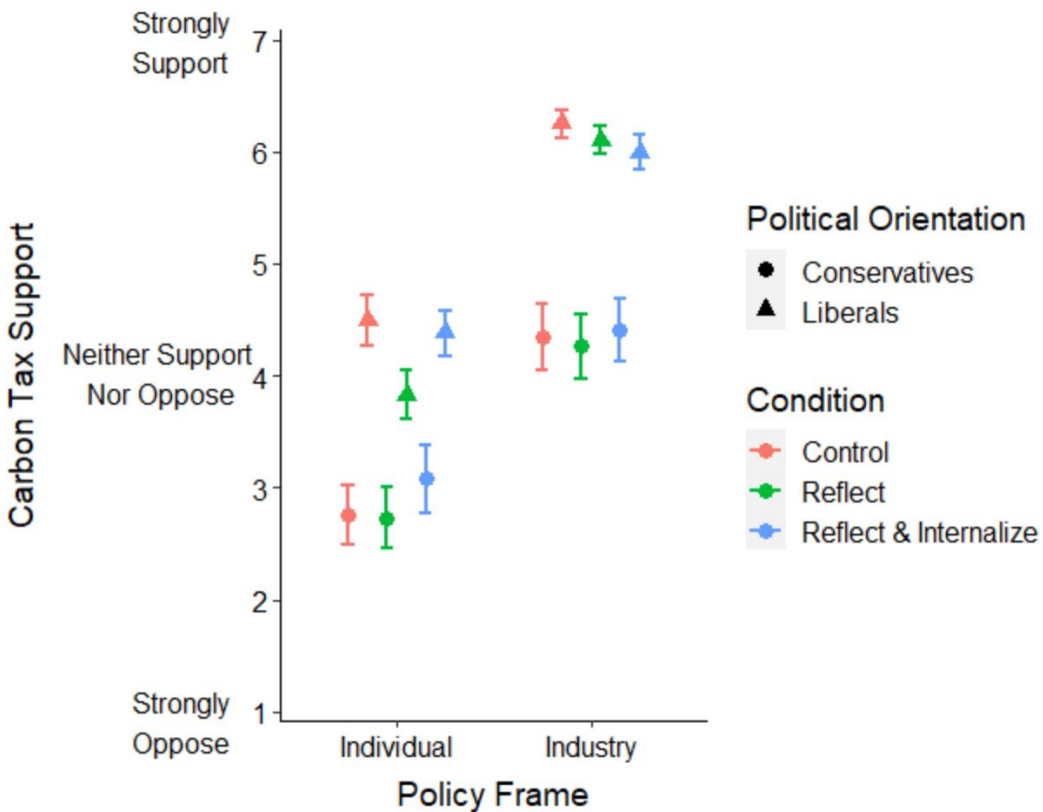# Supplemental Information

Supplemental Figure 1: Study 1 Condition Effects for Conservatives and Liberals.
Conservatives were defined as those responding to the political orientation demographic question
with 1 (very conservative) - 3 (somewhat conservative), while liberals were defined as 5
(somewhat liberal) - 7 (very liberal). Error bars represent 95% confidence intervals. Testing the
interaction between political orientation and condition in predicting policy support for the carbon
tax, we find a significant interaction, $F(5,3169) = 5.33$, $p < 0.001$. Notably, it appears that
liberals show a greater drop in policy support than conservatives do as a result of the reflection
only condition as compared to the control for the individual-framed policy. However, this pattern
is not found in Study 2 (see Supplemental Note 3).

Supplemental Note 1:
There is no significant interaction of number of actions and condition on predicting policy
support for the carbon tax, $F(3,2096) = 1.21$, $p = 0.304$. However, examining the simple slopes
for the conditions that reported number of actions (reflect only and reflect and internalize for
both individual and industry-framed policies) we find that the reflect only individual-framed
question is the only slope that is marginal, $p = .056$, while the others are significant, all ps

<0.001. Thus, the reflect only condition with an individual-framed policy may be the only one that threatens the link between the actions and greater support for the individual-framed policy.
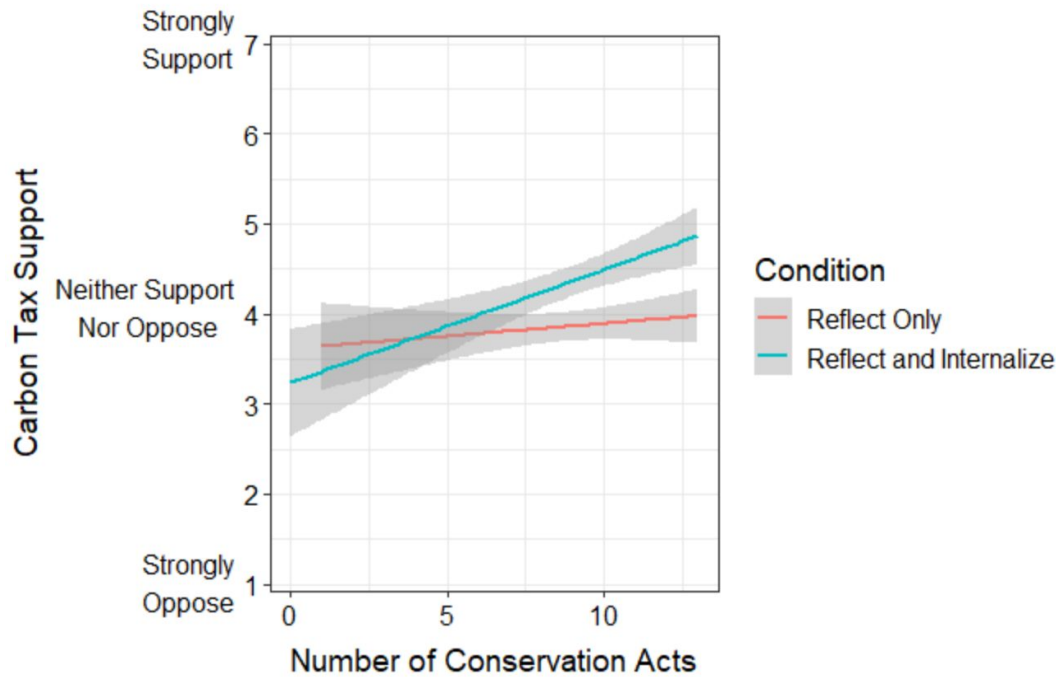
Supplemental Note 2:
In a mediational analysis of the pairwise condition comparison of the control and reflection only condition for the individual-framed policy in Study 1, we find significant mediation by how much participants felt that the policy was unfair because they already did many actions, $z=4.31$, $p<.001$, indirect effect $= 0.254$, bootstrapped 95% CI (1000 trails) $= [-0.376, -0.140]$.

Supplemental Note 3:
Prior to conducting Study 2, we ran a pilot experiment to assess improvements to the internalization task against a neutral control that had no reflection or internalization task. Participants (N=206) recruited from Amazon Mechanical Turk were randomized to condition and screened using the same methods as Studies 1 and 2. We found that the improved reflect and internalize condition had significantly greater support for the individual-framed carbon tax policy (M=4.58, SD=1.93), than the control (M=3.80, SD=2.02), $t(204) = 2.83$, $p = 0.005$.
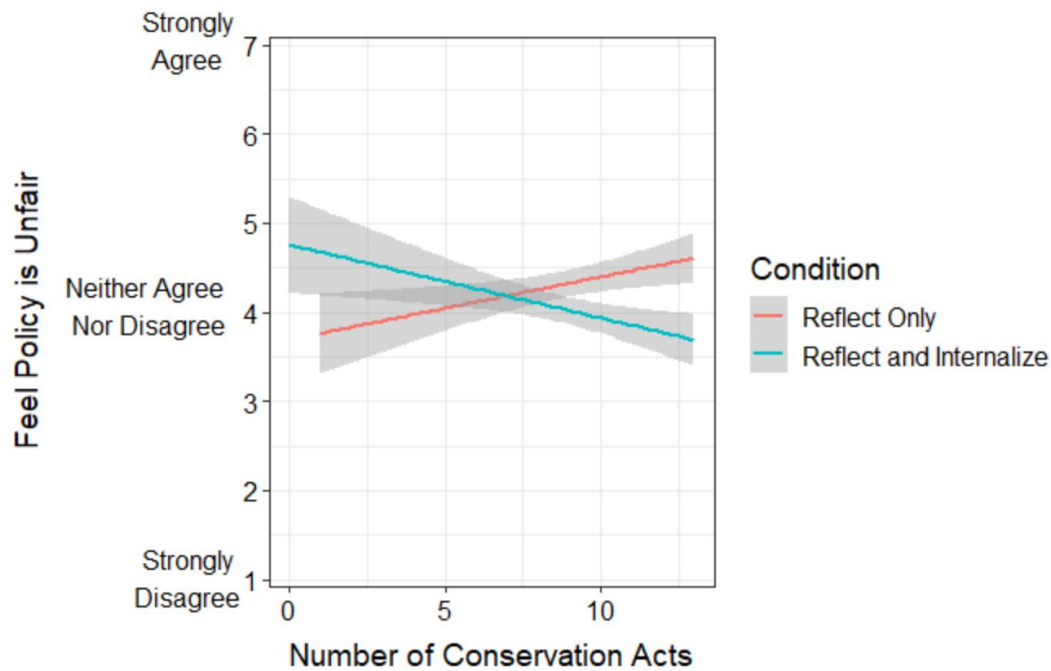
Supplemental Note 4:
Testing the interaction between political orientation and condition in predicting policy support for the carbon tax in Study 2, we find no significant interaction, $F(2,1592) = 0.001$, $p = 0.999$.

Supplemental Figure 2: Study 2 Interaction of Condition and Number of Conservation Actions Reported. Shaded regions represent 95% confidence intervals. Testing the interaction between number of actions reported and condition (reflect only and reflect and internalize) in predicting policy support for the carbon tax, we find a significant interaction, $t(1033) = 2.18$, $p = 0.029$. Analyzing simple slopes for each condition, we find that while the reflect and internalize condition has a positive slope, $b = 0.13$, $t(505) = 3.80$, $p = 0.002$, the reflect only condition does not, $p = 0.350$.

Supplemental Note 5:

In a test of multiple mediation for the effects of the reflect and internalize condition compared to the control, including all three hypothesized process measures as mediators (consistency with one's values, consistency with one's identity, and consistency with one's views on how others should conserve resources), we find that there is a significant total indirect effect through all the mediators combined, $z=2.561$, $p=0.010$, indirect effect $= 0.179$, bootstrapped 95% CI (1000 trails) $= [0.01, 0.36]$. However, this may be considered a partial mediation as the condition effect is still marginally significant ($p=0.062$). All 3 mediators account for just over half of the original condition effect size (b=.32). Examining the individual indirect effects of each mediator within the multiple mediation model, we find that there is a marginal mediation for the values measure ($p=0.066$), the identity measure ($p=0.063$), and rules for society measure ($p=0.063$).

Supplemental Figure 3: Study 2 Interaction of Condition and Number of Conservation Actions Reported in Predicting Feeling the Policy Is Unfair. Shaded regions represent 95% confidence intervals. Testing the interaction between number of actions reported and condition (reflect only and reflect and internalize) in predicting policy support for the carbon tax, we find a significant interaction, $t(1033) = -3.71$, $p < 0.001$. Analyzing simple slopes for each condition, we find that while the reflect and internalize condition has a negative slope, $b = -0.082$, $t(505) = 2.72$, $p = 0.007$, the reflect only condition has a positive slope, $b = 0.070$, $t(528) = 2.52$, $p = 0.012$.

Supplemental Note 6:

<u>Full Study 1 Survey Text</u>

We are currently doing research on people's attitudes and actions towards conserving energy and environmental policies.

In this survey, we will share some information with you, and then ask your thoughts about some policies. We are interested in your views.

[page break]

This survey is designed only for those currently living in the following states: Delaware, Illinois, Indiana, Kentucky, Maryland, Michigan, New Jersey, North Carolina, Ohio, Pennsylvania, Tennessee, Virginia, West Virginia, or the District of Columbia.

In which state do you currently reside? [50 states + DC]

[page break]

In this part of the survey, we'd like to ask you about things you do at home or when you're out that can help conserve energy and natural resources.

Which of the following actions do you take to conserve energy? (**Select all that apply**.)

Use natural light (rather than electric lights) during the daytime by opening blinds and curtains

Use low energy light bulbs (such as CFLs, LEDs) in your home

Turn off appliances when not in use (such as a TV, computer)

After a hot day, open your windows or use a window fan to let heat out and cool night air in

Using your heating and cooling less when you are not at home

Keep the thermostat turned down during cold months and turned up during hot months

Use a microwave to heat food as opposed to cooking it on the stovetop

Avoid using the coldest setting on the fridge

Turn off fans when leaving the room

Use blankets or comforters to stay warm at night instead of heating your house more

Bundling driving trips so you do not have to drive as much and save gas (such as using one trip to run two errands in the same part of town)

Try to reduce food waste (shopping carefully to avoid food going bad)

Wait until products break or stop working before buying newer ones

[page break]

Thank you for indicating the behaviors you do to conserve energy and natural resources. We want to better understand how conserving natural resources reflects your values. Below, we ask you about some of the behaviors you said you do.

You indicated you do the following behaviors to conserve energy: {show selections}

Considering all the behaviors you do to reduce your use of energy, why do you think it is important to do these behaviors to conserve natural resources?

In 1-2 sentences, please justify why these energy conserving actions are worth taking based on your values and who you are:

_____

_____

_____

_____

_____

[page break]

Next, we would like you to read about a possible state law being considered that aims to conserve natural resources and reduce carbon emissions.

[page break]

The {insert state} Carbon Tax is a policy that aims to avoid the negative outcomes of climate change by reducing our use of fossil fuels.

If individuals do not reduce their use of energy that comes from fossil fuels like coal, oil and natural gas, they will have to pay for the carbon dioxide emitted. This will cost individuals $50 per metric ton of carbon dioxide emitted. While the amount each person pays would depend on how much they conserve, this policy is expected to increase the cost for the average consumer by around $60 each month. This policy is expected to reduce emissions by roughly 40%.

To what extent would you oppose or support such a policy?

Strongly oppose

Oppose

Somewhat oppose

Neither oppose nor support

Somewhat support

Support

Strongly support

[page break]

The {insert state} Carbon Tax is a policy that aims to avoid the negative outcomes of climate change by reducing industry's use of fossil fuels. Specifically, it focuses on industries that are responsible for a majority of the carbon dioxide emissions, like concrete and cement production, manufacturing, transportation, or extraction of fossil fuels.

If large industries responsible for greenhouse gas emissions do not reduce their use of energy that comes from fossil fuels like coal, oil and natural gas, they will have to pay for the carbon

dioxide they emit. This will cost the industries $50 per metric ton of carbon dioxide emitted. This policy is expected to reduce emissions by roughly 40%.

To what extent would you oppose or support such a policy?

Strongly oppose

Oppose

Somewhat oppose

Neither oppose nor support

Somewhat support

Support

Strongly support

[page break]

Please indicate how much you agree or disagree with the following statement:

"Raising costs on carbon emissions feels unfair to me because I already do many things to conserve natural resources."

Strongly disagree

Disagree

Somewhat disagree

Neither agree nor disagree

Somewhat agree

Agree

Strongly agree

Please indicate how much you agree or disagree with the following statement regarding the proposed law you read about:

"This law reflects my values that it is important to conserve natural resources."

Strongly disagree

Disagree

Somewhat disagree

Neither agree nor disagree

Somewhat agree

Agree

Strongly agree

Please indicate how much you agree or disagree with the following statement:

"People do a lot to conserve energy, and I believe industry should do its part too."

Strongly disagree

Disagree

Somewhat disagree

Neither agree nor disagree

Somewhat agree

Agree

Strongly agree

[page break]

Earlier in this survey, you were given details about a policy and asked whether you supported or opposed it.

What was that policy about?

    A carbon tax

An immigration policy

An income tax

A campaign finance policy

A policy on refugees

A policy on income inequality

A clean water policy

[page break]

In this part of the survey, we would like to ask your beliefs about personal behaviors and legislative policies that impact carbon emissions.

[page break]

Which best describes your beliefs about the role of personal behaviors as compared to state and federal policies that aim to reduce carbon emissions to address climate change?

We **only need state and federal policies** to change to address climate change.

We **only need personal behaviors** to change to address climate change.

We **need both personal behaviors as well as state and federal policies** to change to address climate change.

We **do not need personal behaviors nor do we need state and federal policies** to change to address climate change.

In 1-2 sentences, please explain why you chose your answer to the above question:

_____

_____

_____

_____

_____

To what extent do you believe that personal lifestyle choices (like reducing home energy use) as well as state and federal policies (like a carbon tax) are **both** necessary to address climate change?

Not at all

A little

Somewhat

Quite a bit

Very much

To what extent do you believe that state and federal policies (like a carbon tax) make personal lifestyle changes **unnecessary** to address climate change?

Not at all

A little

Somewhat

Quite a bit

Very much

To what extent do you believe that lifestyle changes (like reducing home energy use) make state and federal policies **unnecessary** to address climate change?

Not at all

A little

Somewhat

Quite a bit

Very much

To what extent do you believe that **neither** personal lifestyle choices nor state and federal policies are necessary to address climate change?

Not at all

A little

Somewhat

Quite a bit

Very much

[page break]

There are many important social issues in the United States, such as the economy and jobs, race relations, corruption, immigration, terrorism, access to quality health care, crime and violence, income inequality, drug use, and more.

Relative to these important social issues, how central is climate change to you in determining who you will vote for in local, state, and federal elections?

Much less important

Less important

Somewhat less important

The same importance

Somewhat more important

More important

Much more important

How important is the issue of climate change to you personally?

Not at all important

A little important

Somewhat important

Quite important

Very important

[page break]

Next, we would like to give you some information about electricity lost through transmission in power lines, and ask your opinion about efficient transmission lines.

Much of the electricity that we generate is lost through transmission of electricity across power lines. In some states as much as 10% of the electricity generated is lost due to very long transmission distances and not using larger high voltage transmission lines.

A lot of the electricity lost could be saved if we built larger high voltage transmission lines where they are needed. This would help conserve natural resources and save energy. However, this would require building more large transmission lines near where people live.

How unwilling or willing would you be to have very large transmission lines visible from your house if it meant saving energy that is currently lost in transmission?

Very unwilling

Unwilling

Somewhat unwilling

Unsure

Somewhat willing

Willing

Very willing

[page break]

How much did you spend on your last home energy bill (electricity and heating combined)?

I did not pay my last energy bill.

$0 - $29

$30 - $59

$60 - $89

$90 - $119

$120 - $149

$150 - $179

$180 - $209

$210 - $239

$240 - $269

$270 - $299

$300 or more

What is your age?

_____

During 2019, what was your yearly household income before tax? Your best estimate Is fine.

None

less than $20,000

$20,000 - $40,000

$40,000 - $80,000

$80,000 - $120,000

$120,000 - $200,000

more than $200,000

[page break]

What is the highest level of education you have attained?

Some schooling, but no diploma or degree

High school diploma or GED

Some college

College degree

Some graduate school

Graduate degree

What is your gender?

Man

Woman

Non-Binary

Which best describes your political orientation?

Very conservative

Conservative

Somewhat conservative

Moderate

Somewhat liberal

Liberal

Very liberal

What is your race / ethnicity? (check all that apply)

American Indian

East Asian

Pacific Islander

Black or African American

White or Caucasian

Hispanic or Latinx

South Asian

Middle Eastern

Other

[page break]

Do you have any additional thoughts or comments about the survey that you would like to share with us?

_____

_____

_____

_____

_____

Supplemental Note 7:

Full Study 2 Survey Text

We are currently doing research on people's attitudes and actions towards conserving energy and environmental policies.

In this survey, we will share some information with you, and then ask your thoughts about some policies.

[page break]

This survey is designed only for those currently living in the following states: Delaware, Illinois, Indiana, Kentucky, Maryland, Michigan, New Jersey, North Carolina, Ohio, Pennsylvania, Tennessee, Virginia, West Virginia, or the District of Columbia.

In which state do you currently reside? [50 states, DC]

[page break]

In this part of the survey, we'd like to ask you about things you do at home or when you're out that can help conserve energy and natural resources.

Which of the following actions do you take to conserve energy? (**Select all that apply**.)

Use natural light (rather than electric lights) during the daytime by opening blinds and curtains

Use low energy light bulbs (such as CFLs, LEDs) in your home

Turn off appliances when not in use (such as a TV, computer)

After a hot day, open your windows or use a window fan to let heat out and cool night air in

Using your heating and cooling less when you are not at home

Keep the thermostat turned down during cold months and turned up during hot months

Use a microwave to heat food as opposed to cooking it on the stovetop

Avoid using the coldest setting on the fridge

Turn off fans when leaving the room

Use blankets or comforters to stay warm at night instead of heating your house more

Bundling driving trips so you do not have to drive as much and save gas (such as using one trip to run two errands in the same part of town)

Try to reduce food waste (shopping carefully to avoid food going bad)

Wait until products break or stop working before buying newer ones

[page break]

Thank you for indicating the list of behaviors you do to conserve energy and natural resources.

While some of these behaviors may save some money, there are many other reasons why people do them. We are curious what reasons people do these behaviors, <u>besides saving money</u>.

In 1-2 sentences, please explain why you believe it is important to conserve energy and other natural resources:

_____

_____

_____

_____

_____

In 1-2 sentences, please explain how the kind of a person you are or parts of your identity are reflected in the actions you take to conserve energy and other natural resources: (such as "I am the type of person who cares about _____." or "I am a _____ person.").

_____

_____

_____

_____

In 1-2 sentences, please explain <u>why you think it is important that people in society should adopt these kinds of behaviors</u>:

_____

_____

_____

_____

_____

[page break]

Next, we would like you to read about a possible state law being considered that aims to conserve natural resources and reduce carbon emissions. Please share your honest opinion. We are interested in your views.

[page break]

The {insert state} Carbon Tax is a policy that aims to avoid the negative outcomes of climate change by reducing our use of fossil fuels.

If individuals do not reduce their use of energy that comes from fossil fuels like coal, oil and natural gas, they will have to pay for the carbon dioxide emitted. This will cost individuals $50 per metric ton of carbon dioxide emitted. While the amount each person pays would depend on how much they conserve, this policy is expected to increase the cost for the average consumer by around $60 each month. This policy is expected to reduce emissions by roughly 40%.

To what extent would you oppose or support such a policy?

Strongly oppose

Oppose

Somewhat oppose

Neither oppose nor support

Somewhat support

Support

Strongly support

[page break]

Please indicate how much you agree or disagree with the following statement:

"Raising costs on carbon emissions feels unfair to me because I already do many things to conserve natural resources."

Strongly disagree

Disagree

Somewhat disagree

Neither agree nor disagree

Somewhat agree

Agree

Strongly agree

Please indicate how much you agree or disagree with the following statement regarding the proposed law you read about:

"This law reflects my values that it is important to conserve natural resources."

Strongly disagree

Disagree

Somewhat disagree

Neither agree nor disagree

Somewhat agree

Agree

Strongly agree

Please indicate how much you agree or disagree with the following statement regarding the proposed law you read about:

"Supporting this law is consistent with the kind of person I am."

Strongly disagree

Disagree

Somewhat disagree

Neither agree nor disagree

Somewhat agree

Agree

Strongly agree

Please indicate how much you agree or disagree with the following statement regarding the proposed law you read about:

"This law encourages people to conserve natural resources like they should."

Strongly disagree

Disagree

Somewhat disagree

Neither agree nor disagree

Somewhat agree

Agree

Strongly agree

[page break]

Earlier in this survey, you were given details about a policy and asked whether you supported or opposed it.

What was that policy about?

A carbon tax

An immigration policy

An income tax

A campaign finance policy

A policy on refugees

A policy on income inequality

A clean water policy

[page break]

There are many important social issues in the United States, such as the economy and jobs, race relations, corruption, immigration, terrorism, access to quality health care, crime and violence, income inequality, drug use, and more.

Relative to these important social issues, how central is climate change to you in determining who you will vote for in local, state, and federal elections?

Much less important

Less important

Somewhat less important

The same importance

Somewhat more important

More important

Much more important

How important is the issue of climate change to you personally?

Not at all important

A little important

Somewhat important

Quite important

Very important

[page break]

How much did you spend on your last home energy bill (electricity and heating combined)?

I did not pay my last energy bill.

$0 - $29

$30 - $59

$60 - $89

$90 - $119

$120 - $149

$150 - $179

$180 - $209

$210 - $239

$240 - $269

$270 - $299

$300 or more

What is your age?

During 2019, what was your yearly household income before tax? Your best estimate Is fine.

None

less than $20,000

$20,000 - $40,000

$40,000 - $80,000

$80,000 - $120,000

$120,000 - $200,000

more than $200,000

[page break]

What is the highest level of education you have attained?

Some schooling, but no diploma or degree

High school diploma or GED

Some college

College degree

Some graduate school

Graduate degree

What is your gender?

Man

Woman

Non-Binary

Which best describes your political orientation?

Very conservative

Conservative

Somewhat conservative

Moderate

Somewhat liberal

Liberal

Very liberal

What is your race / ethnicity? (check all that apply)

American Indian

East Asian

Pacific Islander

Black or African American

White or Caucasian

Hispanic or Latinx

South Asian

Middle Eastern

Other

[page break]

Do you have any additional thoughts or comments about the survey that you would like to share with us?

_____

_____

_____

_____

_____

July 3, 2020

Dear Editor,

My co-authors Shahzeen Attari and Elke Weber and I write to submit our manuscript, "Focus on Personal Sustainable Behavior Rarely Hinders and Can Boost Climate Policy Support" to *Nature Climate Change* for consideration as an article. The manuscript is not under consideration for publication elsewhere.

Prior research published in *Nature Climate Change* strongly suggested that focusing on sustainable behavior is deleterious to climate policy support (Werfel, 2017). The question of whether personal climate acts and policy support are complements or substitutes is of critical importance for policy design and implementation as well as for environmental practitioners seeking to increase climate action. Given the significance of this question, the conclusion that personal sustainable behavior substitutes policy support demands further investigation, replication, and a deeper understanding of this phenomenon.

In the present work, we find that focusing on sustainable behavior rarely leads to negative spillover for climate policy when tested under a variety of conditions. We further extend prior research in showing that, in fact, focusing on sustainable behavior can *increase* policy support. As this research involves spillover from environmental behavior, the following researchers are well-qualified to review the manuscript; they have not read or commented upon the paper.

Janet Swim	Cindy Frantz	Cameron Brick
Pennsylvania State University	Oberlin College	University of Amsterdam
jks4@psu.edu	cindy.frantz@oberlin.edu	c.brick@uva.nl

Thank you for your time and consideration.

Sincerely,

Gregg Sparkman
Postdoctoral Scholar
Andlinger Center for Energy & Environment
Princeton University

Elke Weber
Professor
Andlinger Center for Energy & Environment
Psychology & Public Affairs
Princeton University

Shahzeen Attari
Associate Professor
O'Neill School of Public & Environmental
Affairs, Indiana University Bloomington