

# Social norms and efficacy beliefs drive the Alarmed segment's public-sphere climate actions

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32  
33  
34  
35  
36  
37  
38  
39  
40  
41  
42  
43  
44  
45  
46

## Supplementary Information Table of Contents

### 1. Theoretical Justification of our Model

This section of the Supplementary Information (SI) contains theoretical justification for the structure of and variables included in our model of public-sphere climate action.

### 2. Sampling (Supplementary Figure A)

The second section of the SI describes how we targeted Alarmed respondents. Supplementary Figure A depicts the number of respondents in each of the Global Warming's Six Americas segments.

### 3. Demographics of Vermont Alarmed Sample Compared to Nationally Representative Sample of Alarmed (Supplementary Table A)

Here we present and explain Supplementary Table A which compares demographics of the Vermont Alarmed sample to a nationally representative sample of Alarmed.

### 4. Measurement Models (Supplementary Figures B and C)

Supplementary Figures B and C depict the two measurement models. Figure B is the original, totally disaggregated measurement model. Figure C is the revised measurement model with parcels.

### 5. Latent Construct Correlations in Revised Measurement Model (Supplementary Table B)

Supplementary Table B depicts the correlations of the latent constructs in the revised measurement model.

### 6. Standardized Path Coefficients for our Model of Public-Sphere Climate Action (Supplementary Table C)

Supplementary Table C shows the standardized path coefficients in table format for each relationship between variables in our structural model of public-sphere climate action.

### 7. Standardized Path Coefficients in our Model of Public-Sphere Climate Action (Supplementary Figure D)

Supplementary Figure D depicts the standardized path coefficients in figure format of our public-sphere climate action model.

47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60  
61  
62

**8. Grouping of Public-Sphere Climate Actions (Supplementary Table D)**

SI 8 explains why we separated activism (i.e., attending demonstrations/protests) from environmental citizenship behaviors (i.e., “citizenship” actions - contacting government officials, donating time and money to organizations, voting) in our model. We include results of the confirmatory factor analysis of the public actions.

**9. Survey Instrument**

This section contains a copy of our survey instrument.

**10. Explanation of Reliability and Validity Tests (Supplementary Table E)**

Supplementary Table E lists and describes the reliability and validity tests conducted in our study.

# **Social Norms and Efficacy Beliefs Drive the Alarmed Segment's Public-Sphere Climate Actions**

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## **Supplementary Information**

### **Contents**

1. Theoretical Justification of our Model
2. Sampling (Supplementary Figure A)
3. Demographics of Vermont Alarmed Sample Compared to Nationally Representative Sample of Alarmed (Supplementary Table A)
4. Measurement Models (Supplementary Figures B and C)
5. Latent Construct Correlations in Revised Measurement Model (Supplementary Table B)
6. Standardized Path Coefficients for our Model of Public-Sphere Climate Action (Supplementary Table C)
7. Standardized Path Coefficients in our Model of Public-Sphere Climate Action (Supplementary Figure D)
8. Grouping of Public-Sphere Climate Actions (Supplementary Table D)
9. Survey Instrument
10. Explanation of Reliability and Validity Tests (Supplementary Table E)

## 1. Theoretical Justification of our Model

The theoretical structure of our model is derived from the value belief norm theory (VBN)<sup>1,2</sup>, social cognitive theory<sup>3</sup> and social norms research<sup>4,5</sup>. Readers can refer to those references for justification of those theories and models. Below we provide further theoretical justification for our specific model.

**Values influence ecological worldviews.** Rokeach, the first researcher to empirically examine values, referred to them as enduring beliefs that one type of conduct is more personally or socially preferable than an opposite style of conduct<sup>6</sup>. Later, Schwartz<sup>7,8</sup> examined values from a social-psychological perspective, and referred to them as broad guiding principles in a person's life – principles that transcend specific situations. Building on Schwartz's interpretation of values, researchers identified three general value orientations that are related to environmentally responsible behavior<sup>1,2,9-12</sup>. The three value orientations are called: 1) egoistic value orientation, reflecting individuals' concern for themselves, 2) altruistic value orientation, reflecting concern for the welfare of other humans, and 3) biospheric value orientation which reflects concern for non-human species or the biosphere.

Values influence decisions about behavior that can affect the environment<sup>6</sup>. Although values typically explain a small amount of the variance of pro-environmental behavior<sup>13-15</sup>, patterns exist between the values people hold and their engagement with environmental issues. For example, studies suggest that people with altruistic, or biospheric value orientations may be more likely to engage in environmentally responsible behavior such as household energy conservation<sup>1,13,16</sup>, environmental citizenship (e.g., contacting elected officials)<sup>1,16</sup>; and consumer behavior<sup>1,13,16,17</sup>. Studies suggest that egoistic value orientations (e.g., Schwartz's "self-enhancement" values) are often negatively associated with ERB<sup>2</sup>.

One reason that values often have a minor relationship with pro-environmental behavior is because values generally affect behavior indirectly<sup>14,18</sup>. Specifically, values typically influence behavior through a path of other variables such as worldviews, risk perception, beliefs about responsibility to act, and personal norms<sup>1,2,10,14,15,17-20</sup>. For example, Dietz *et al.*<sup>19</sup>, found that altruistic values predicted support for climate policy but only indirectly through environmental beliefs and worldviews. Based on these studies and in line with VBN, we expect value orientation to influence ecological worldviews in our model.

**Ecological worldviews influence awareness of consequences.** Values and worldviews differ in that values are broad life-guiding principles that transcend specific situations, whereas ecological worldviews are general beliefs about a specific domain – the relationship between humans and the rest of nature<sup>21</sup>. The "New Environmental/Ecological Paradigm" (NEP) is a frequently studied worldview that measures peoples' views about the human-environment relationship<sup>22,23</sup>.

As with the relationship between values and behavior, the relationship between NEP and behavior has not been particularly strong<sup>21</sup>. Similar to the case with values, this is likely because

the relationship is mediated by behavior-specific beliefs<sup>1,10,17,24</sup>. Ecological worldview often influences a person's awareness of consequences (AC) of environmental problems. For example, in a variety of studies, NEP significantly influenced AC beliefs and explained 21-28% of the variance in AC beliefs<sup>10,17,25</sup>. Based on these studies and in line with VBN, we expect ecological worldview to influence beliefs about the awareness of consequences of climate change.

**Awareness of consequences influences ascription of responsibility for the problem.**

Awareness of consequences has been equated to risk perception and is defined in our study as a person's awareness of the adverse consequences that climate change poses<sup>26,27</sup>. People who believe that an environmental condition has adverse consequences for things they value will be predisposed to take action, particularly if they feel responsible for causing the problem (ascription of responsibility)<sup>28</sup>. For example, awareness of consequences and concern about climate change can prompt concerned individuals to gather accurate information about the causes of climate change; this, in turn can lead to ascription of responsibility for climate change<sup>20</sup>. Based on these studies and other research confirming the VBN's "causal" chain of influence<sup>14</sup>, we expect beliefs about the awareness of consequences of climate change to influence ascription of responsibility for causing the problem.

**Ascription of responsibility for causing climate change influences all four types of efficacy beliefs.** Feeling responsible for causing climate change suggests an understanding of the causes of the problem (as measured in the survey). Knowledge of the causes of a problem can influence efficacy beliefs as theorized by Bandura<sup>29</sup>. For example, the belief that humans are primarily causing climate change can lead to the belief that humans have the ability to reduce it. Previous studies provide support for this relationship<sup>20</sup>.

**Each type of efficacy influences personal norms and public-sphere climate action.** A large body of research in a variety of settings suggests that efficacy beliefs are critical factors in the initiation, maintenance, and outcome of behavior<sup>3</sup>. Although there is not much research specifically examining the relationship between efficacy beliefs and public action to alleviate climate change, what does exist suggests that efficacy beliefs can influence personal norms (sense of obligation to act) and public-sphere action to mitigate climate change - hence our examination of these variables in this context.

**Self-efficacy.** Social cognitive theory suggests that individuals with high self-efficacy beliefs (i.e., those who believe they are capable of performing a behavior) are more likely to initiate that behavior, persist with it despite difficulties, and reach a successful outcome<sup>3,30</sup>. Empirical studies have tested and supported this theory in a variety of domains including athletic<sup>31</sup>, health<sup>32</sup>, and education<sup>33</sup>. In the context of climate change, self-efficacy has predicted intention to engage in private mitigation behavior<sup>20</sup>, and climate activism<sup>34</sup>. Thus, in our model, we expect self-efficacy to influence engagement in public climate actions. Additionally, believing that one is capable of performing a behavior could lead to a sense of obligation to

engage in that behavior<sup>20,35</sup>. Thus, in our model, we also expect self-efficacy to influence personal norms.

**Personal response efficacy.** According to social cognitive theory<sup>3</sup>, individuals who believe their behavior will lead to desired consequences (i.e., high personal response efficacy) are more likely to put increased effort into initiating, achieving and maintaining that behavior than individuals with low personal response efficacy. When examining personal response efficacy's effect on public actions, researchers sometimes refer to personal response efficacy as "self-efficacy of cooperation" which is defined as "the belief that one's cooperative behavior has a significant effect on the outcome of a large group"<sup>36</sup>. Studies on self-efficacy of cooperation (considered personal response efficacy in the current study) have assessed the impact of this type of efficacy on (generally public) actions including social movement protests<sup>37</sup>, animal rights activism such as attending demonstrations, meetings, and lectures<sup>38</sup>, and environmental activism such as signing petitions<sup>39,40</sup>. The pattern of findings suggests that personal response efficacy judgments are positively and significantly related to peoples' decisions to engage in public action. Specifically regarding climate change, personal response efficacy has predicted intention to engage in private mitigation behavior<sup>20</sup> and climate activism<sup>34</sup>. Based on findings from these empirical studies, we expect personal response efficacy to have a positive influence on engagement in public actions in our model. Additionally, the belief that an individual's behavior will make a difference can influence a sense of obligation to act (personal norms)<sup>20,35</sup>. Thus, in our model, we also expect personal response efficacy to influence personal norms.

**Collective efficacy and collective response efficacy.** Collective efficacy and collective response efficacy beliefs influence behavior across a variety of domains<sup>3,41</sup>. Most studies do not differentiate between collective efficacy and collective response efficacy. Research suggests that collective efficacy/collective response efficacy beliefs positively affect involvement in a variety of behaviors including: collective environmental tasks<sup>42</sup>, voting<sup>43</sup>, and climate activism<sup>34</sup>. Given that many environmental problems, such as climate change, are collective problems with collective solutions, we included both types of collective efficacy in our model and expect that they will positively influence engagement in public climate action. Additionally, based on previous studies, we expect that these beliefs about capability and outcome of group performance will influence personal norms<sup>20,34</sup>.

***A note about dependent relationships between efficacy variables.*** It is reasonable to expect positive relationships between the four types of efficacy beliefs. However, based on: 1) results from other studies, 2) our desire for theoretical parsimony, and 3) supporting evidence from the LISREL modification indices (MIs), we did not include dependent relationships between efficacy variables in our model. Although it is possible that some efficacy beliefs are dependent on other efficacy beliefs, we found little research supporting causal relationships. For instance, researchers have found that different types of efficacy beliefs are independently related to behavioral intentions<sup>44</sup>, and that some types of efficacy beliefs independently predicted "collective action tendency" but did not predict one another<sup>45</sup>. (Specifically, manipulated self-

efficacy beliefs did not affect individuals' "group" efficacy beliefs<sup>45</sup>.) Feldman *et al.*<sup>46</sup>, found that internal and external efficacy interact in their effects on participation, but their model does not include dependent relationships between efficacy variables. (Specifically, "internal political efficacy" moderated the relationship between "external political efficacy" and climate change activism<sup>46</sup>). Out of a number of studies testing models containing multiple types of efficacy beliefs, we found only one study that identified a dependent relationship between efficacy variables (self-efficacy → collective efficacy,  $\beta = .30$ )<sup>20</sup>. However, the model from that study was so complicated it had to be divided into two separate models in order to interpret the relationships. We wanted our model to be as accurate and complete as possible while also being parsimonious. Lastly, when we ran the LISREL analyses, the MIs did not indicate that the efficacy constructs be dependent on one another. In other words, the data did not show dependent relationships between efficacy constructs. Therefore, based on previous study results, our desire to keep our complex model as parsimonious as possible, and our data not indicating causal relationships between efficacy constructs, we did not include dependent paths between efficacy variables in our model.

***A note about four distinct efficacy variables.*** Although collapsing the four efficacy variables into one would simplify the model, there are empirical and theoretical reasons for not doing so. Empirically, our confirmatory factor analysis revealed that there are four distinct efficacy constructs. If the four efficacy variables were collapsed into one, the unidimensionality requirement for SEM analysis would not be met. Theoretically, other models exist that contain ideas about efficacy; the other models often combine these empirically distinct efficacy constructs to produce loosely defined, often unclear, conflated variables. Overall, this conflation of efficacy beliefs can render the models less useful because it is unclear what is driving behavior.

**Personal norms influence public-sphere climate actions.** Personal norms are defined as individual feelings of obligation to act to remedy a problem<sup>1</sup>. The premise of Schwartz's<sup>7</sup> moral norm activation model (NAM) is that individuals engage in behavior when they feel morally obliged to do so. As part of the VBN, personal norms have predicted a variety of environmental intentions and behaviors including willingness to reduce car use<sup>47</sup>, acceptability of climate change policies<sup>10</sup>, and environmental citizenship<sup>1</sup>. Thus, in our model - in line with the VBN and other previous research - we expect personal norms to influence public climate actions.

**Descriptive social norms influence each type of efficacy and public-sphere climate actions.** Researchers often refer to two types of social norms: 1) injunctive norms ("perceptions of what is commonly approved or disapproved within the culture") and descriptive norms ("perceptions of what is commonly done in a given situation")<sup>48</sup>. Both injunctive and descriptive social norms appear to influence environmental action. However, injunctive norms can be a weak or inconsistent predictor variable<sup>49-52</sup>. Researchers examining the influence of both descriptive and

injunctive social norms on environmental behavior have found descriptive social norms to be a stronger, and perhaps more consistent, influence than injunctive social norms<sup>4,51,52</sup>. Thus, we chose to integrate descriptive instead of injunctive norms into our behavior model. Future research could incorporate injunctive norms into the model. This addition may help identify and explain any distinct and interaction effects of descriptive and injunctive norms.

Descriptive social norms influence environmental behaviors such as: use of public transportation<sup>53</sup>, littering<sup>54</sup>, energy conservation<sup>51</sup>, reuse of hotel towels<sup>55</sup>, and recycling<sup>56</sup>. Descriptive social norms have also influenced intention to engage in climate change mitigation behavior<sup>20,57</sup>. These studies generally support the notion that when people believe others are taking similar action, they will engage as well. Additionally, some studies suggest that when people perceive that others are not cooperating to resolve a collective issue, they are less likely to cooperate<sup>4,48,57,58</sup>. These results and social cognitive theory also propose that descriptive social norms can influence efficacy beliefs, which, in turn, affect behavior. Therefore descriptive social norms should be considered both a direct and indirect influence on behavior, as depicted in our model. For instance, when one is deciding how to act in uncertain circumstances (e.g., choosing actions to limit climate change), descriptive social norms motivate and guide by providing evidence of what will likely be effective, thus resolving uncertainty, increasing efficacy beliefs, and offering a “decisional shortcut”<sup>5</sup>. Descriptive social norms can also reduce feelings of efficacy and deter someone from acting since individual efforts can feel useless if individuals believe other members of society are not taking action<sup>57-60</sup>. Based on these findings, we expect descriptive social norms to positively influence all four forms of efficacy and public climate actions in our model. We further expect that each type of efficacy will mediate the relationship between descriptive social norms and public climate action.



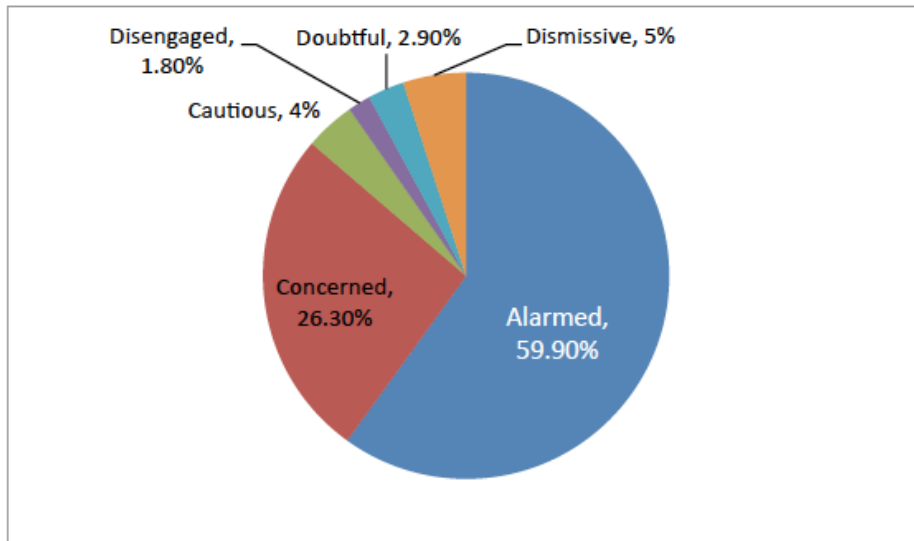
## 2. Sampling

### Groups Targeted for Alarmed Respondents

Facebook advertisements targeted Vermont residents, 18 or older, who “like” at least one of the following: 1Sky, 350 Burlington, 350 VT, 350.org, Al Gore, Alliance for Climate Education, Alternative energy, American Council for an Energy-Efficient Economy, American Wind Energy Association, Appalachian Mountain Club, Appalachian Trail, Ben & Jerry's, Bennington College, Bernie Sanders, Bill McKibben, Bioneers, Camp for Climate Action, Champlain College, Chelsea Green Publishing, Clean Air Act, Climate, Climate Action Network, Climate change, Climate Counts, Climate justice, Climate Reality, Conservation Law Foundation, Conservation movement, ECHO Lake Aquarium and Science Center, Environmental education, Environmental law, Environmental policy, Environmental activism, Environmental protection, Environmental Working Group, Environmentalism, Environmentalist, Fairbanks Museum and Planetarium, Flood, Food cooperative, Global Alliance for Climate Justice, Global Campaign for Climate Action, Global Conversations Climate, Global warming, Goddard College, Green Mountain Club, Green Mountain College, Green Mountains, Greenpeace, Greenpeace Student Network, Johnson State College, League of Conservation Voters, League of Women Voters, Lyndon State College, Middlebury College, Montshire Museum of Science, MoveOn.org, National Audubon Society, National Wildlife Federation, Natural environment, Natural Resources Defense Council, Norwich, Vermont, Outdoor recreation, Outdoors, Patrick Leahy, Peter Shumlin, Peter Welch, Politics, Post Carbon Institute, Public Interest Research Group, Renewable energy, Renewable Energy VT, Repower America, School for International Training, Seventh Generation Inc., Shelburne Farms, Shelburne Museum, Sierra Club, Slow Food, Solar energy, Solar power, Southern Vermont College, St. Michaels College, Sterling College, Stowe, Vermont, Sustainability, Sustainable energy, The Climate Project, The Nature Conservancy, Transition Towns, Unfriend Coal, University of Vermont, Vermont College of Fine Arts, Vermont Farms, Vermont Fresh Network, Vermont Institute of Natural Science, Vermont Law School, Vermont Public Radio, Wilderness, or Wind power.

### We directly contacted:

- Vermont residents who attended one of the following: the New England Environmental Education Alliance (NEEEA) conference, the Promise of Place (POP) conference, or the Association for Environmental Studies and Science (AESS) conference;
- Professors at Vermont-based universities and colleges;
- Local town listservs;
- Directors of organizations such as Vermont Interfaith Power and Light, The Nature Conservancy, The Trust for Public Land, Cedar Circle Organic Farm and Education Center, National Wildlife Federation, VT350.org.



**Supplementary Fig. A.** Percentage of 1756 survey respondents in each audience segment.  
*Note.* Respondents were volunteers and completed the extensive electronic survey without compensation.

### 3. Demographics of Vermont Alarmed Sample Compared to Nationally Representative Sample of Alarmed

Sample size was 702 after listwise deletion. Demographics for the 702 Alarmed Vermont respondents are in Supplementary Table A below. This table also includes demographics from a nationally representative sample of Alarmed that was collected during approximately the same time period as the Vermont sample<sup>61</sup>.

Supplementary Table A

*Alarmed Respondent Profiles from VT and from a Nationally Representative Sample of Alarmed*

		VT Alarmed Frequency	VT Alarmed Percent	Nationally Representative Alarmed Percent
Gender	Male	225	32%	47%
	Female	477	68%	53%
	Total	702	100%	100%
Age	18-24	80	11%	10%
	25-34	85	12%	11%
	35-44	125	18%	25%
	45-54	160	23%	15%
	55-64	163	23%	20%
	65-74	74	11%	16%
	75+	15	2%	3%
	Total	702	100%	100%
Political Party	Republican	4	1%	9%
	Democrat	338	48%	44%
	Independent	253	36%	28%
	No party/Not interested in politics	34	5%	14%
	Other	73	10%	6%
	Total	702	100%	100%
Education	Less than high school	1	0%	8%
	High school	23	3%	21%
	Some college	144	21%	26%
	Bachelor's degree*	163	23%	46%

	Some graduate school	78	11%	N/A
	Graduate degree	293	42%	N/A
	Total	702	100%	100%
Income	Up to \$25,000	125	18%	12%
	\$25,000 to less than \$40,000	130	19%	24%
	\$40,000 to less than \$60,000	129	18%	13%
	\$60,000 to less than \$85,000	129	18%	15%
	Over \$85,000	189	27%	35%
	Total	702	100%	100%
	Other	73	10%	6%
	Total	702	100%	100%

\*Item wording for national survey was “Bachelor’s degree or higher.”<sup>61</sup>

*Note.* Nationally representative sample statistics are from Leiserowitz, *et al.*<sup>61</sup>

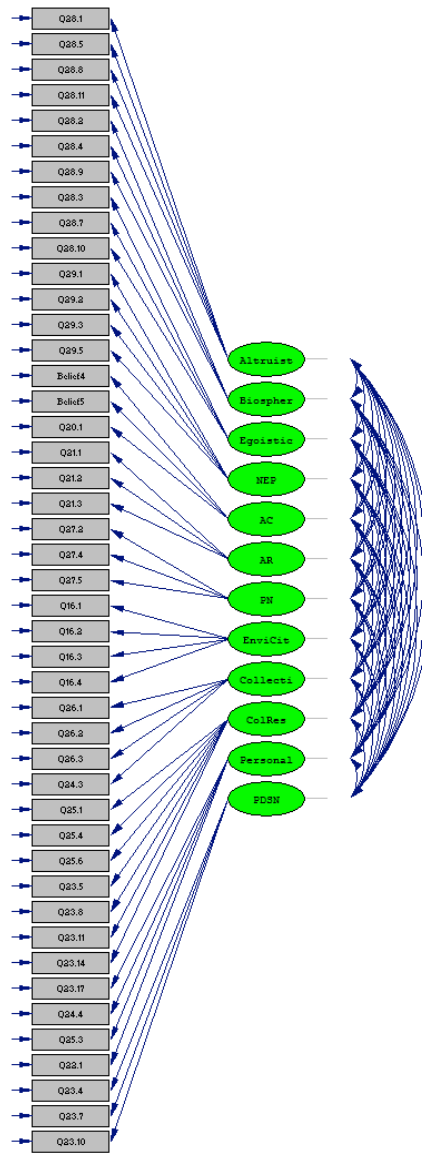
Due to the length of the survey for the present study, we did not include all the demographic questions used in the national survey<sup>61</sup>. For example, we did not inquire about ethnicity. It is likely that the ethnicity demographics between the nationally representative sample of the Alarmed and the Vermont sample of Alarmed would differ. Leiserowitz *et al.*’s<sup>61</sup> Alarmed sample was 69% White/non-Hispanic. The highest percentage of White/non-Hispanic ethnicity occurred in the Dismissive at 81%<sup>61</sup>. In 2012, 94% of Vermont’s residents were White/non-Hispanic<sup>62</sup>.

Overall however, Vermont Alarmed respondent profiles from this study generally mirrored the demographics in the table above from the nationally representative sample. The only notable difference between samples was that the percentage of people in the Vermont Alarmed sample who had earned a Bachelor’s degree or higher was 76%, whereas the nationally representative Alarmed sample was 38% for a difference of 38%. Although not large, two other differences between Alarmed samples were in number of Republicans (i.e., 1% in Vermont sample, 9% in nationally representative sample), and the number of males and females (i.e., 32% male in Vermont, 47% male in national survey; 68% female in Vermont, 53% female in national survey). However, the gender split in Maibach *et al.*’s<sup>63</sup> nationally representative sample (39% males and 61% females) was closer to the Vermont sample than Leiserowitz *et al.*’s<sup>61</sup> nationally representative sample.

Even though demographics from the Vermont Alarmed segment were generally similar to the demographics from the nationally representative sample of Alarmed, audience segment is a better indicator of what people think and do about climate change than demographics<sup>64</sup>. For example, when examining factors that explained variance in policy support, Maibach *et al.*<sup>64</sup> found that socio-demographics explained only 1% of the variance in policy support; political ideology explained 12%; and audience segment explained 41% of variance in policy support.

Additionally, the audience segments comprising Global Warming's Six Americas do not vary much by gender, race, age or income<sup>65</sup>. Indeed, the national demographics between all six segments (Alarmed, Concerned, Cautious, Disengaged, Doubtful, and Dismissive) are quite similar; but the groups are divided into segments due to their similarities in beliefs, engagement, action, and desired action regarding climate change<sup>63</sup>. Thus, Alarmed individuals in Vermont may differ in some ways from Alarmed people in other parts of the country, but these differences likely pale in comparison to the similarities among the Alarmed, regardless of state of residence.

#### 4. Measurement Models



**Supplementary Fig. B.** Original Measurement Model – Totally Disaggregated

NEP = New Ecological Paradigm/Ecological worldview

AC = Awareness of consequences

AR = Ascription of responsibility

PN = Personal norms

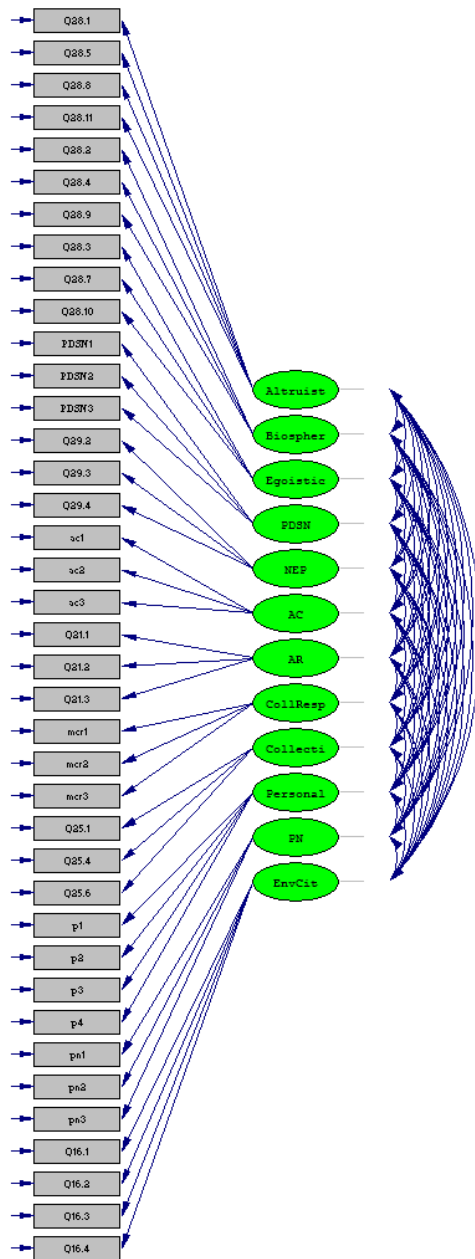
EnviCit = Environmental citizenship actions: contacting elected officials, donating and volunteering with organizations, voting.

Collecti = Collective efficacy

ColRes = Collective response efficacy

Personal = Personal response efficacy

PDSN = Personal descriptive social norms



**Supplementary Fig. C.** Revised Measurement Model – with Parcels

NEP = New Ecological Paradigm/Ecological worldview

AC = Awareness of consequences

AR = Ascription of responsibility

PN = Personal norms

EnviCit = Environmental citizenship actions: contacting elected officials, donating and volunteering with organizations, voting.

Collecti = Collective efficacy

ColRes = Collective response efficacy

Personal = Personal response efficacy

PDSN = Personal descriptive social norms

The revised measurement model was a significantly better fit to the data than the original measurement model ( $p < 0.001$ ). Specifically, the comparison between measurement models showed that the chi-square difference test statistic for the revised model [2033.67 (636)], was significantly lower ( $p < .001$ ) than that of the original measurement model [(3120.83 (879))]. There were no significant differences in the Root Mean Square Error of Approximation (RMSEA) and Standardized Root Mean Square Residual (SRMR), but the Comparative Fit Index (CFI) increased from 0.89 in the original measurement model to 0.93 in the revised measurement model. For the revised measurement model, the adjusted chi-square was 3.2, RMSEA = 0.06, CFI = 0.93, and SMSR = 0.06.



## 5. Latent Construct Correlations in Revised Measurement Model

Supplementary Table B

*Latent Construct Correlations in Revised Measurement Model*

	Alt.	Bio.	Ego.	DSN	EW	AC	AR	Coll. Resp.	Coll.	Pers. Resp.	PN	Env. Cit.
Altruistic	1.00											
Biospheric	0.56	1.00										
Egoistic	-0.10	0.01	1.00									
DSN	0.10	0.18	0.06	1.00								
EW	0.10	0.16	-0.07	0.08	1.00							
AC	0.00	0.06	0.00	0.07	0.16	1.00						
AR	0.12	0.11	-0.14	0.10	0.17	0.03	1.00					
Collective Response	0.25	0.24	0.15	0.33	0.02	0.11	0.04	1.00				
Collective	0.23	0.31	0.05	0.18	0.05	0.09	0.14	0.37	1.00			
Personal	0.25	0.26	0.19	0.30	0.05	0.08	0.07	0.67	0.36	1.00		
PN	0.31	0.35	0.08	0.53	0.19	0.11	0.17	0.49	0.23	0.48	1.00	
Env. Cit.	0.10	0.21	0.07	0.53	0.10	0.09	0.18	0.23	0.16	0.31	0.66	1.00

Notes. Alt. = Altruistic

Bio. = Biospheric

Ego. = Egoistic

DSN = Descriptive social norms

EW = Ecological worldview/New Ecological Paradigm

AC = Awareness of consequences

AR = Ascription of responsibility

Coll. Resp. = Collective response efficacy

Coll. = Collective efficacy

Pers. Resp. = Personal response efficacy

PN = Personal norms

Env. Cit. = Environmental citizenship actions: contacting elected officials, donating to and volunteering with organizations, voting.

Since self-efficacy was an observed variable, it was not included in the measurement model for the complete model. The correlations between self-efficacy and other efficacy variables are as follows:

Self-efficacy <--> Collective response = .237

Self-efficacy <--> Personal response efficacy = .141

Self-efficacy <--> Collective efficacy = .853 No multicollinearity issues were detected.

We allowed the residuals to covary between personal response efficacy parcel 3 and collective response efficacy parcel 2 = 0.03.

## 6. Standardized Path Coefficients for our Model of Public-Sphere Climate Action

Supplementary Table C

*Standardized Path Coefficients for our Model of Public-Sphere Climate Action*

	Path to this variable									
Path from this variable	EW	AC	AR	Self Eff.	Pers. Resp.	Coll.	Coll. Resp	Pers. norms	Attend rallies	Env. Cit.
Altruistic	0.02									
Biospheric	0.18*									
Egoistic	-0.12*									
EW		0.23*								
AC			0.04							
AR				0.16*	0.11*	0.12*	0.05			
Self efficacy								0.58***	0.15**	0.16**
Personal response efficacy								0.51***	0.14**	0.19***
Collective efficacy								0.03	0.01	0.03
Collective response efficacy								0.02	0.13*	0.17*
Personal norms									0.08***	0.18***
DSN				0.46***	0.44***	0.15**	0.30***		0.20***	0.26***

Notes. \*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$

EW = Ecological worldview/New Ecological Paradigm

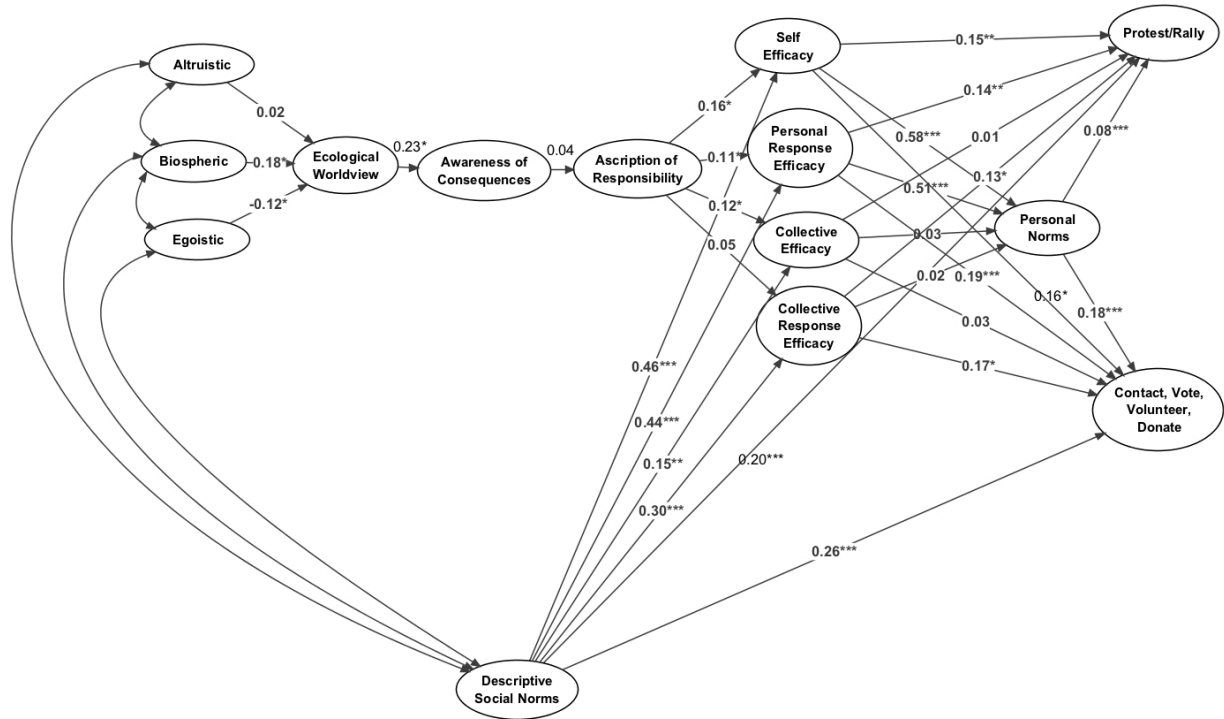
AC = Awareness of consequences

AR = Ascription of responsibility

DSN = Descriptive social norms

Env. Cit. = Environmental citizenship actions: contacting elected officials, donating to and volunteering with organizations, voting.

### 7. Standardized Path Coefficients in our Model of Public-Sphere Climate Action



**Supplementary Fig. D.** Our model of public-sphere climate action with standardized path coefficients.

## 8. Grouping of Public-Sphere Climate Actions

The value belief norm theory<sup>1</sup> posits that activism (i.e., demonstrating/protesting) is theoretically and empirically distinct from other types of public-sphere behaviors (i.e., “environmental citizenship” behaviors - contacting government officials, donating time and money to organizations, voting). Therefore, we separated activism and environmental citizenship behaviors in our model.

In our measurement model, the environmental citizenship construct demonstrated convergent validity, discriminant validity, and unidimensionality, which suggests that the behaviors in that construct are solid measures of environmental citizenship and not activism (see results below). As per Stern<sup>1</sup> the variable “activism” in our model was measured with one observed variable and therefore, was not a latent construct that could be assessed for convergent validity. The internal consistency reliability for environmental citizenship was  $\alpha = .65$ .

**Confirmatory factor analysis (CFA)** indicates whether the observed variables (e.g., survey questions inquiring about individual behaviors) accurately and reliably measure the latent variables (e.g., “environmental citizenship”) that make up the structural part of the model. Results of environmental citizenship CFA: The fit of the five items used to measure the environmental citizenship construct was examined by computing the chi-square statistic, which was significant ( $\chi^2 = 47.6$ , 5 df,  $p < 0.000$ ). The modification indices identified highly correlated error terms between Q17 and Q16.1 and 16.4. This suggests that Q17 should be removed from the model. The scale items are shown below in Supplementary Table D. Elimination of the fifth item resulted in a chi-square statistic that was not significant ( $\chi^2 = 2.37$ , 2 df,  $p = 0.31$ ), indicating a good fit. The first four items were retained in this scale. Unidimensionality tests are part of CFA. They examine whether the latent construct has one underlying aspect or more than one. The environmental citizenship construct was unidimensional.

**Convergent validity** assesses the extent to which measured variables within the same latent construct are correlated. It was measured by reviewing the *t*-tests for the factor loadings between indicators and constructs. All of the *t*-tests for environmental citizenship were significant, thus the parameter estimates demonstrate convergent validity.

**Discriminant validity** measures whether observed variables across different latent constructs are weakly correlated. The goal is that measured variables will be more highly correlated with their associated latent constructs than with measured variables across other latent constructs. The environmental citizenship construct met that goal.

## Supplementary Table D

### *Items in the Environmental Citizenship Construct*

* Q16.1	How many times in the past 12 months have you taken these actions: WRITTEN LETTERS, EMAILED or PHONED government officials to urge them to take action to reduce global warming?
* Q16.2	How many times...have you VOTED for a candidate who supports measures to reduce global warming?
* Q16.3	How many times...have you VOLUNTEERED with an organization working to reduce global warming?
* Q16.4	How many times...have you DONATED MONEY to an organization working to reduce global warming?
Q17	Whenever you had opportunities to sign PETITIONS to reduce global warming in the past 12 months, how often did you sign them?

*Note.* Starred (\*) items were retained as indicators.

## 9. Survey Instrument

### SURVEY: OPINIONS ABOUT GLOBAL WARMING

#### **First we'd like to know about your beliefs regarding global warming.**

Recently you may have noticed that global warming has been getting some attention in the news. Global warming refers to the idea that the world's average temperature has been increasing over the past 150 years, may be increasing more in the future, and that the world's climate may change as a result.

#### **1) What do you think? Do you think that global warming is happening?**

- YES, and I'm extremely sure
- YES, and I'm very sure
- YES, and I'm somewhat sure
- YES, but I'm not at all sure
- NO, and I'm extremely sure
- NO, and I'm very sure
- NO, and I'm somewhat sure
- NO, but I'm not at all sure
- I don't know

#### **2) Assuming global warming is happening, do you think it is...**

- Caused mostly by human activities
- Caused mostly by natural changes in the environment
- Other
- None of the above because global warming isn't happening

#### **3) How worried are you about global warming?**

- Very worried
- Somewhat worried
- Not very worried
- Not at all worried

**4) How much do you think global warming will harm you personally?**

- Not at all
- Only a little
- A moderate amount
- A great deal
- Don't know

**5) When do you think global warming will start to harm people in the United States?**

- They are being harmed now
- In 10 years
- In 25 years
- In 50 years
- In 100 years
- Never

**6) How much do you think global warming will harm future generations of people?**

- Not at all
- Only a little
- A moderate amount
- A great deal
- Don't know

**7) How much had you thought about global warming before today?**

- A lot
- Some
- A little
- Not at all

**8) How important is the issue of global warming to you personally?**

- Not at all important
- Not too important

- Somewhat important
- Very important
- Extremely important

**9) How much do you agree or disagree with the following statement: "I could easily change my mind about global warming."**

- Strongly agree
- Somewhat agree
- Somewhat disagree
- Strongly disagree

**10) How many of your friends share your views on global warming?**

- None
- A few
- Some
- Most
- All

**11) Which of the following statements comes closest to your view?**

- Global warming isn't happening
- Humans can't reduce global warming, even if it is happening
- Humans could reduce global warming, but people aren't willing to change their behavior so we're not going to
- Humans could reduce global warming, but it's unclear at this point whether we will do what's needed
- Humans can reduce global warming, and we are going to do so successfully

**12) Do you think citizens themselves should be doing more or less to address global warming?**

- Much less
- Less
- Currently doing the right amount



- More
- Much more

**13) Over the past 12 months, how many times have you punished companies that are opposing steps to reduce global warming by NOT buying their products?**

- Never
- Once
- A few times (2-3)
- Several times (4-5)
- Many times (6+)
- Don't know

**14) Do you think global warming should be a low, medium, high, or very high priority for the President and Congress?**

- Low
- Medium
- High
- Very high

**15) People disagree whether the United States should reduce greenhouse gas emissions on its own, or make reductions only if other countries do too. Which of the following statements comes closest to your own point of view?**

The United States should reduce its greenhouse gas emissions...

- Regardless of what other countries do
- Only if other industrialized countries (such as England, Germany and Japan) reduce their emissions
- Only if other industrialized countries and developing countries (such as China, India and Brazil) reduce their emissions
- The US should not reduce its emissions
- Don't know

**16) How many times in the past 12 months have you taken the following actions:**

	None	Once	A few (2-3)	Several (4-5)	Many (6+)
WRITTEN LETTERS, EMAILED or PHONED government officials to urge them to take action to reduce global warming?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
VOTED for a candidate who supports measures to reduce global warming?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
VOLUNTEERED with an organization working to reduce global warming?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
DONATED MONEY to an organization working to reduce global warming?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**17) Whenever you had opportunities to sign PETITIONS to reduce global warming in the past 12 months, how often did you sign them?**

- 0% of the time
- 25% of the time
- 50% of the time
- 75% of the time
- 100% of the time
- I did not have the opportunity to sign a petition

**18) Whenever you had the opportunity to attend rallies or protests to limit global warming in the past 12 months, how many times did you do so?**

- 0% of the time
- 25% of the time
- 50% of the time
- 75% of the time
- 100% of the time
- I did not have the opportunity to protest or attend a rally

**19) How important are the following reasons in shaping your decisions to CONTACT officials, VOTE, DONATE time or money, sign PETITIONS, and attend RALLIES to reduce global warming?**

	Not at all important	Not too important	Somewhat important	Very important	Extremely important
Amount of difference my behavior will make	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
People important to me are taking these actions	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other people are doing these things and together our actions can make a difference	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Others are not doing these things so I need to take action.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**If the reasons above do not explain why you do or do not engage in these actions, please explain what influences these actions.**

**20) How much do you think global warming will harm:**

	Not at all	Only a little	A moderate amount	A great deal	Don't know
Your family	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
People in the United States	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
People in other modern industrialized countries	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
People in developing countries	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Plant and animal species	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**21) Please indicate your level of agreement with the statements below.**

	Strongly disagree	Moderately disagree	Slightly disagree	Slightly agree	Moderately agree	Strongly agree
Many of my behaviors produce greenhouse gas emissions.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

I feel partly responsible for global warming.                                   

Not only the government and industry are responsible for global warming, but me too.                                   

**22) Consider what you HAVE DONE IN THE PAST 12 MONTHS to reduce global warming. How effective do you think your actions have been?**

	Did not do this in past 12 months	Not effective	Somewhat effective	Not sure	Very effective	Extremely effective
WRITING LETTERS, EMAILING or PHONING government officials to urge them to take action to reduce global warming	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
VOTING for candidates who support measures to reduce global warming	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Signing PETITIONS to curb global warming	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
VOLUNTEERING with organizations working to curb global warming	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
DONATING money to organizations working to reduce global warming	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Engaging in PROTESTS or RALLIES to reduce global warming	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**23) Please indicate how effective you think each of the following actions would be at reducing global warming if the people below devoted a significant amount of effort to the action.**

	<u>I DO IT</u>	<u>MOST VERMONTERS DO IT</u>	<u>MOST AMERICANS DO IT</u>
WRITING LETTERS, EMAILING or PHONING government officials to urge them to take action to reduce global warming	<input type="radio"/> Not effective <input type="radio"/> Slightly effective <input type="radio"/> Somewhat effective <input type="radio"/> Very effective <input type="radio"/> Extremely effective	<input type="radio"/> Not effective <input type="radio"/> Slightly effective <input type="radio"/> Somewhat effective <input type="radio"/> Very effective <input type="radio"/> Extremely effective	<input type="radio"/> Not effective <input type="radio"/> Slightly effective <input type="radio"/> Somewhat effective <input type="radio"/> Very effective <input type="radio"/> Extremely effective
VOTING for candidates who support measures to reduce global warming	<input type="radio"/> Not effective <input type="radio"/> Slightly effective <input type="radio"/> Somewhat effective <input type="radio"/> Very effective <input type="radio"/> Extremely effective	<input type="radio"/> Not effective <input type="radio"/> Slightly effective <input type="radio"/> Somewhat effective <input type="radio"/> Very effective <input type="radio"/> Extremely effective	<input type="radio"/> Not effective <input type="radio"/> Slightly effective <input type="radio"/> Somewhat effective <input type="radio"/> Very effective <input type="radio"/> Extremely effective
Signing PETITIONS to curb global warming	<input type="radio"/> Not effective <input type="radio"/> Slightly effective <input type="radio"/> Somewhat effective <input type="radio"/> Very effective <input type="radio"/> Extremely effective	<input type="radio"/> Not effective <input type="radio"/> Slightly effective <input type="radio"/> Somewhat effective <input type="radio"/> Very effective <input type="radio"/> Extremely effective	<input type="radio"/> Not effective <input type="radio"/> Slightly effective <input type="radio"/> Somewhat effective <input type="radio"/> Very effective <input type="radio"/> Extremely effective
VOLUNTEERING with organizations working to curb global warming	<input type="radio"/> Not effective <input type="radio"/> Slightly effective <input type="radio"/> Somewhat effective <input type="radio"/> Very effective <input type="radio"/> Extremely effective	<input type="radio"/> Not effective <input type="radio"/> Slightly effective <input type="radio"/> Somewhat effective <input type="radio"/> Very effective <input type="radio"/> Extremely effective	<input type="radio"/> Not effective <input type="radio"/> Slightly effective <input type="radio"/> Somewhat effective <input type="radio"/> Very effective <input type="radio"/> Extremely effective

DONATING money to organizations working to reduce global warming	<input type="radio"/> Not effective <input type="radio"/> Slightly effective <input type="radio"/> Somewhat effective <input type="radio"/> Very effective <input type="radio"/> Extremely effective	<input type="radio"/> Not effective <input type="radio"/> Slightly effective <input type="radio"/> Somewhat effective <input type="radio"/> Very effective <input type="radio"/> Extremely effective	<input type="radio"/> Not effective <input type="radio"/> Slightly effective <input type="radio"/> Somewhat effective <input type="radio"/> Very effective <input type="radio"/> Extremely effective
Engaging in PROTESTS or RALLIES to reduce global warming	<input type="radio"/> Not effective <input type="radio"/> Slightly effective <input type="radio"/> Somewhat effective <input type="radio"/> Very effective <input type="radio"/> Extremely effective	<input type="radio"/> Not effective <input type="radio"/> Slightly effective <input type="radio"/> Somewhat effective <input type="radio"/> Very effective <input type="radio"/> Extremely effective	<input type="radio"/> Not effective <input type="radio"/> Slightly effective <input type="radio"/> Somewhat effective <input type="radio"/> Very effective <input type="radio"/> Extremely effective

**24) Please rate the CAPABILITY and WILLINGNESS of each entity below to engage in these actions to reduce global warming: CONTACTING government officials, VOTING, signing PETITIONS, DONATING time or money, and attending RALLIES.**

	<u>CAPABILITY</u>	<u>WILLINGNESS</u>
	1 - Not at all capable 2 - Slightly capable 3 - Moderately capable 4 - Very capable 5 - Extremely capable	1 - Not at all willing 2 - Slightly willing 3 - Moderately willing 4 - Very willing 5 - Extremely willing
Me	<input type="radio"/> 1 <input type="radio"/> 2 <input type="radio"/> 3 <input type="radio"/> 4 <input type="radio"/> 5	<input type="radio"/> 1 <input type="radio"/> 2 <input type="radio"/> 3 <input type="radio"/> 4 <input type="radio"/> 5
My family and friends	<input type="radio"/> 1 <input type="radio"/> 2 <input type="radio"/> 3 <input type="radio"/> 4 <input type="radio"/> 5	<input type="radio"/> 1 <input type="radio"/> 2 <input type="radio"/> 3 <input type="radio"/> 4 <input type="radio"/> 5

**25) Please indicate your level of agreement with the statements below.**

	Strongly disagree	Moderately disagree	Slightly disagree	Not sure	Slightly agree	Moderately agree	Strongly agree
Humans have the ability to reduce global warming.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Humans are willing to reduce global warming.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Humans will be successful in reducing global warming.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Vermont state government has the ability to reduce global warming.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Vermont state government is willing to reduce global warming.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The federal government has the ability to reduce global warming.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The federal government is willing to reduce global warming.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**26) Here, we're interested in what you think people similar to you are doing to reduce global warming. HOW MANY PEOPLE SIMILAR TO YOU do you think have taken the following actions in the past 12 months:**

	None	A few	Some	About half	Over half	Most
WRITTEN LETTERS, EMAILED or PHONED government officials to urge them to take action to reduce global warming	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
VOTED for candidates who support measures to reduce global warming	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Signed PETITIONS to curb global warming	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
VOLUNTEERED with organizations working to reduce global warming	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
DONATED money to organizations working to reduce global warming	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Engaged in PROTESTS or RALLIES to reduce global warming	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**27) Here we'd like to know about your sense of obligation to limit global warming. How OBLIGED do you feel to:**

	Not obliged	Slightly obliged	Somewhat obliged	Very obliged	Extremely obliged
REDUCE your contribution to global warming?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
WRITE LETTERS, EMAIL or PHONE government officials to urge them to take action to reduce global warming?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
VOTE for candidate who supports measures to reduce global warming?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
VOLUNTEER with groups trying to reduce global warming?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
DONATE MONEY to groups trying to reduce global warming?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Engage in PROTESTS or RALLIES about global warming?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**28) Thirteen values are described below. In the parentheses following each value is an explanation to help you understand its meaning. Please indicate how important each value is for you AS A GUIDING PRINCIPLE IN YOUR LIFE.**

	Opposed to my values	Not important	Important	Very important	Of supreme importance
EQUALITY (equal opportunity for all)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/> <input type="radio"/> <input type="radio"/>	<input type="radio"/> <input type="radio"/> <input type="radio"/>	<input type="radio"/>
RESPECTING THE EARTH (harmony with other species)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/> <input type="radio"/> <input type="radio"/>	<input type="radio"/> <input type="radio"/> <input type="radio"/>	<input type="radio"/>



SOCIAL POWER (control over others, dominance)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/> <input type="radio"/> <input type="radio"/>	<input type="radio"/> <input type="radio"/> <input type="radio"/>	<input type="radio"/>
UNITY WITH NATURE (fitting into nature)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/> <input type="radio"/> <input type="radio"/>	<input type="radio"/> <input type="radio"/> <input type="radio"/>	<input type="radio"/>
A WORLD AT PEACE (free of war and conflict)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/> <input type="radio"/> <input type="radio"/>	<input type="radio"/> <input type="radio"/> <input type="radio"/>	<input type="radio"/>
WEALTH (material possessions, money)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/> <input type="radio"/> <input type="radio"/>	<input type="radio"/> <input type="radio"/> <input type="radio"/>	<input type="radio"/>
AUTHORITY (the right to lead or command)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/> <input type="radio"/> <input type="radio"/>	<input type="radio"/> <input type="radio"/> <input type="radio"/>	<input type="radio"/>
SOCIAL JUSTICE (correcting injustice, care for the weak)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/> <input type="radio"/> <input type="radio"/>	<input type="radio"/> <input type="radio"/> <input type="radio"/>	<input type="radio"/>
PROTECTING THE ENVIRONMENT (preserving nature)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/> <input type="radio"/> <input type="radio"/>	<input type="radio"/> <input type="radio"/> <input type="radio"/>	<input type="radio"/>
INFLUENTIAL (having an impact on people and events)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/> <input type="radio"/> <input type="radio"/>	<input type="radio"/> <input type="radio"/> <input type="radio"/>	<input type="radio"/>
HELPFUL (working for the welfare of others)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/> <input type="radio"/> <input type="radio"/>	<input type="radio"/> <input type="radio"/> <input type="radio"/>	<input type="radio"/>
PREVENTING POLLUTION (protection of natural resources)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/> <input type="radio"/> <input type="radio"/>	<input type="radio"/> <input type="radio"/> <input type="radio"/>	<input type="radio"/>
AMBITIOUS (hard- working, aspiring)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/> <input type="radio"/> <input type="radio"/>	<input type="radio"/> <input type="radio"/> <input type="radio"/>	<input type="radio"/>

**29) Please indicate your level of agreement with each of the following statements:**

	Strongly disagree	Somewhat disagree	Somewhat agree	Strongly agree
The so-called "ecological crisis" facing humankind has been greatly exaggerated.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The earth is like a spaceship with limited room and resources.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
If things continue on their present course, we will soon experience a major ecological catastrophe.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The balance of nature is strong enough to cope with the impacts of modern industrial nations.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Humans are severely abusing the environment.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**30) Are you:**

- Female
- Male

**31) How old are you?**

- 18-24
- 25-34
- 35-44
- 45-54
- 55-64
- 65-74
- 75+

**32) Generally speaking, do you think of yourself as a:**

- Republican
- Democrat
- Independent
- No party/Not interested in politics
- Other, please specify: \_\_\_\_\_

**33) What is your highest level of education?**

- Less than high school
- High school
- Some college
- Bachelor's degree
- Some graduate school
- Graduate degree

**34) What is your annual household income?**

- Less than \$25,000
- \$25,00 to less than 40,000
- \$40,000 to less than 60,000
- \$60,000 to less than 85,000
- Over \$85,000

**35) Talking with you to gain further information and clarification will help make these survey results more meaningful. If you are willing to participate in a VERY SHORT interview please click YES below and provide your email address. Your address will not be shared with anyone and cannot be connected with your responses above.**

- Yes \_\_\_\_\_
- No thanks.

**36) If you'd like to enter the drawing to win Vermont prizes click YES below and provide your email address. Your address will not be shared with anyone and cannot be connected with your responses above.**

- Yes \_\_\_\_\_
- No thanks.

**Lastly, this survey only asked about public actions to reduce global warming. If you would like to share other things you are doing in an effort to curb global warming, please do so in the space below.**

**Thank you very much for completing this survey. Please click "Submit."**

## 10. Explanation of Reliability and Validity Tests

Supplementary Table E

*Explanation of Reliability and Validity Tests Conducted in this Study*

<b>Reliability Tests*</b>	<b>Explanation</b>
Indicator reliability	Tested the degree to which indicators (observed variables) are free from measurement error. Target value > 0.50 (on a standardized scale 0-1).
Scale reliability	Examined using coefficient alpha (Cronbach's alpha) which reflects internal consistency (i.e., whether all the indicators measure the same construct). Acceptable values are generally > 0.70 <sup>66</sup> . Values > 0.90 may indicate redundancy of items <sup>67</sup> .
Composite reliability	Computed for each latent factor in the model. This index is similar to coefficient alpha. A minimum composite reliability of > 0.60 is recommended <sup>68</sup> .
Average Variance Extracted (AVE) estimates	Assessed the amount of variance that is explained by an underlying factor in relation to the amount of variance due to measurement error.
<b>Validity Tests</b>	
Convergent validity	The extent to which measured variables within a construct are correlated. The goal is that measured variables will be more highly correlated within a construct than with measured variables across constructs. Assessed by reviewing the <i>t</i> -tests for the factor loadings between indicators and constructs. If the <i>t</i> -tests are significant, the parameter estimates demonstrate convergent validity.
Discriminant validity	Correlations between measures of different constructs should be weak <sup>69</sup> . Discriminant validity is demonstrated if the variance extracted estimates between two factors are greater than the squared correlation of those factors.
Unidimensionality test	Constructs were examined for unidimensionality (i.e. whether the construct has one underlying aspect). Confirmatory factor analysis was used to assess the measurement properties of each of the constructs in the model.

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