Collective Action and Public Support for Pollution Reducing Energy Policies

James W. Stoutenborough
&
Arnold Vedlitz

Institute for Science, Technology and Public Policy
The Bush School of Government and Public Service
Texas A&M University

This paper builds on the collective interest model of political action by clarifying the influence of policy elites on individual political behavior, and expands upon recent responses to Ostrom's call for a generalizable behavioral model of collective action. We examine a collective interest model of public support for pollution reducing energy policies and behavioral changes. The influence of the policy elite on the public is predicated upon the idea of trust. We dissect trust into its two core components, and determine if they provide a better understanding of when and how trust in policy elites influences individual political behavior. We find that, while absent in previous studies, perceptions of the similarities between policy elite values and an individual's values are strong predictors of collective action.

The institutional analysis and development framework outlines a collective action understanding of political behavior (e.g. Ostrom 1990; 2005). From this perspective, Ostrom argues that the costs and benefits of various actions are governed by institutional rules and the decisions of other actors. However, when an issue is complex, or surrounded by uncertainty, individuals are likely to deviate from classic rationality, and may rely upon mental models associated with psychological mechanisms to inform their behavior (Lubell, Zahran, and Vedlitz 2007). Unfortunately, the institutional analysis and development framework does not specify a behavioral theory that applies in these circumstances. Indeed, Ostrom (1998) calls for such a behavioral theory of collective action to be developed.

Lubell (2002) outlines a possible alternative that explains collective action in situations where an individual deviates from classic rationality (see also Lubell, Vedlitz, Zahran, and Alston 2006; Lubell et al. 2007). This approach adapts the collective interest model, which was developed for studies of social movements and protest participation (e.g. Finkel and Muller 1998; Finkel, Muller, and Opp 1989; Gibson 1997), to explain collective action associated with political action. The collective interest model of political action accounts for the strategic nature of collective action, and applies well to collective dilemmas that involve "massive populations, uncertainty, and relatively weak institutions" (Lubell et al. 2007, 393).

The collective interest approach relies heavily on the idea that personal influence is a strong predictor of behavior (e.g. Finkel et al. 1989; Lubell 2002; Lubell et al. 2006; Lubell et al. 2007; Mohai 1985). If individuals believe that their actions will help solve the problem, they are more likely to get involved, even if free riding is possible. This assumption is ultimately at the heart of the collective action problem (Olson 1971).

Olson (1971) also recognizes that when individuals are part of a large group, it is less likely that their actions will have an influence on the collective outcomes. Consequently, it is more rational for free riding to occur. The collective interest model, though, recognizes that individuals often overestimate their influence (e.g. Finkel et al. 1986; Muller and Opp 1986) and assumes that individuals consider the likelihood that, with their action, the group would be more likely to succeed (e.g. Finkel et al. 1986; Lubell et al. 2007).

In these collective dilemma situations, we suggest that another consideration will likely enter an individual's calculus. Previous examinations of the collective interest model of political action discuss the importance of trust in others, especially leaders and elites (Lubell 2002; Lubell et al. 2006; Lubell et al. 2007). For example, Lubell et al. (2006) and Lubell et al. (2007) make the intuitive assumption that perceptions of competence are inherently linked to feelings of trust. However, competence is not the only indicator of trust.

The psychological literature suggests that there are two components to trust (e.g. Cvetkovich and Nakayachi 2007). The first, competence, has been modeled using the collective interest model. The second component, social values similarity, has not. The greater an individual perceives competence and shared values, the more likely they are to trust that entity. Concerns arise about the precise nature of public elite influence on the public when competence is included in the model at the expense of shared values. Certainly, competence should be a strong predictor of policy success. However, policy elite competence does not necessarily increase the likelihood of altering one's behavior to achieve a goal. Conversely, if an individual believes that the policy elite share their values, they may be more likely to engage in activities because they may hope that their actions will spur the policy elite to act according to their shared values.

We seek to determine the comparative influence of policy elite competence, policy elite shared values, and policy elite trust to determine if separate measures provide a clearer explanation of the influence of policy elite on the public. We test these effects from two perspectives, support for policies that would reduce energy-related pollution and behavioral changes that would reduce an individual's energy use. We find that the collective interest model provides a good framework for explaining political action, and that the model needs to be expanded to include measures of policy elite shared values.

Extant Literature

Though the energy domain offers several potential collective dilemmas, we will focus our attention on the risk of pollutants associated with burning fossil fuels. Fossil fuel combustion, which accounts for approximately 87 percent of the energy consumed, is far and away the largest contributor of greenhouse gas emission in the United States (U.S. Environmental Protection Agency 2013b, 2-9). Energy-related activities produce approximately 42 percent of the nation's methane emissions, 11 percent of the nitrous oxide, 67 percent of the sulfur dioxide emissions, and 74 percent of the carbon dioxide emissions (U.S. Environmental Protection Agency 2013a; 2013b). Energy production creates a lot of air pollution, and pollution issues are classic example of the collective action problem (e.g. Lubell et al. 2006).

The collective interest model of political action expects that individuals will decide to participate in energy activism when they believe that the value of their participation is greater than that of non-participation (e.g. Lubell 2002). Firmly grounded in rationality, the model is designed to "incorporate the demand for the public good into an individual's utility calculus without violating the logic of free-riding" (Finkel et al. 1989, 886). Building from Finkel and Muller (1998), Lubell (2002) argues that political action can be explained by three basic types of

predictors– collective interest indicators, selective benefits, and selective costs. Of these, we will focus our attention on the group dynamic aspect of the collective interest group of indicators.

The collective interest model argues that individuals weigh the likelihood of success when determining whether to act. However, what happens when an individual's or group's actions do not have a direct influence on the problem? For instance, individuals may decide to try to decrease their energy use by purchasing a more energy efficient dishwasher, refrigerator, water heater, or fluorescent light bulbs because they want to decrease the amount of energy that is produced, thus, decreasing the amount of pollution caused by that production. While these individuals may see their electric bill decrease, it is unlikely the power plant will decrease production until a substantial number of individuals decrease their energy use, and even then the decrease may be so small as to not have a significant impact on pollution.

In response to this dilemma, the collective interest model would suggest that individuals' perceptions of the possibility of success at the group level could overcome their lack of individual impact, and the rationality of their free riding. At the group level, there are two elements to consider – the level of social capital and reciprocity within the community, and the perceived competence of policy elites (e.g. Lubell et al. 2006; Lubell et al. 2007). In these studies, perceptions of competence are used as a proxy for perceptions of trust. Additionally, Lubell's (2002, 449) original study directly modeled trust. Essentially, trust is at the heart of the two elements weighed by the public.

Trust is an important component of the collective interest model because the public rarely has a sufficient understanding of many issues to navigate the many facets of the problems governments face on a daily basis (e.g. Siegrist and Cvetkovich 2000). Trust is believed to be a psychological state where positive expectations associated with someone else's intentions

increases the likelihood that one will rely upon or cooperate with that individual (Rousseau, Sitkin, Burt, and Camerer 1998). However, there are different aspects of trust.

Cvetkovich and Nakayachi (2007) argue that trust can be boiled down to two primary components – competence and social values similarities (see also Nakayachi and Cvetkovich 2010). When an individual believes that an entity or individual is both competent and shares their values, they are much more likely to express feelings of trust.

However, trust is situationally dependent. We may not care if someone shares our values as long as they are competent in what they do (e.g. chefs, cosmetologists, or fire fighters). Similarly, at some point in our lives, we have surely had at least one friend who was largely incompetent in everything that they did, but that friend shared your values and you still trusted her without hesitation.

Perceptions of competence are often assumed to be fixed (Nakayachi and Cvetkovich 2010). In other words, an individual or group is competent or they are not, and we rarely differentiate that they are competent in this role, but not in others. Consequently, perceptions of policy elite competence may not be issue dependent, and may have the potential to miss important aspects of trust that could differ based on the situation.

Conversely, values are not assumed to be fixed (Nakayachi and Cvetkovich 2010). One does not share every view with all of her friends or family. When deciding whose view to trust on an issue and two friends are both generally competent, we will likely trust the view of the person who shares our values on the issue. Sometimes, we may even choose to trust someone who is not competent, but holds strong convictions toward an issue we believe strongly about.

When an issue is personally important, an individual is more likely to protect her values (Cvetkovich and Nakayachi 2007). Consequently, we would expect individuals to be more likely

to overcome the collective action problem when they believe the political elite share their values. Individuals working to achieve a goal that is shared by the policy elite could provide the support necessary for these elite to spend political capital. While commonplace in most cities and states today, smoking bans in restaurants were initially started by individual restaurant owners, and this provided the political cover necessary for similar thinking political elites to push policies through city councils and eventually states. Indeed, as Shipan and Volden (2006) argue, states began to adopt antismoking policies because cities within their states had already done so, which made it easier for state lawmakers to replicate.

On the issue of energy, it is arguable whether the policy elite have demonstrated competence. The national government has been largely unwilling to regulate energy with regards to pollution issues since the Clean Air Act. State governments have had to act to fill in the void left by federal inaction (Matisoff 2008). This has created an inconsistent regulatory patchwork across the country. Some states barely enforce the standards set by the Environmental Protection Agency, while others have gone above and beyond federal regulations. Even these proactive states have been unable, or unwilling, to adopt policies that are too forceful out of concern for losing businesses to neighboring states with less restrictive policies.

These conditions create a difficult test for the perceptions of group success aspect of the collective interest model. Particularly in this regulatory environment, if individuals believe that the policy elite are competent, they should be more likely to support policies that will reduce energy-related pollution.

Since different jurisdictions have behaved differently in regards to energy regulations, there is reason to believe that institutional values likely play an important role in shaping the actions of the policy elite. Jurisdictions that contain more environmental friendly policy elite

should be more likely to adopt environmentally friendly policies, regardless of their competence in general. If individuals believe that the policy elite share their values, they should be more likely to act in a manner that would encourage the policy elite to act accordingly. In other words, if individuals believe the policy elite share their strong environmental values, they should be more likely to support policies that reduce energy-related pollution. Similarly, individuals may believe that their action in reducing pollution could provide the policy elite with similar values the encouragement needed to regulate accordingly.

From this perspective, the two components of trust should capture both the reciprocity and likelihood of group success aspects of the collective interest influences within the collective interest model. The remainder of this project seeks to test the value of the collective interest model in explaining citizen attitudes and policy preferences in the energy policy issue area.

Analytical Approach

We utilize a national public opinion survey of adults over the age of 18 that was designed to measure many aspects of public attitudes toward energy. Administered by GfK (formerly Knowledge Networks), the survey was in the field from May 11, 2012 through May 26, 2012. A total of 1,525 respondents participated in the survey, which results in a 62 percent completion rate.[1]

We will examine the collective interest model from two perspectives. First, we focus on the role of collective action variables on public support for policies that encourage the reduction of pollution during energy production. Second, we examine the influence of collective interest indicators on an individual's personal behaviors to reduce energy related pollution.

[1] The sample was from KnowlegePanel, a probability-based web panel designed to be representative of the United States, for adults age 18 and over. The survey was offered in English and targeted to adults over the age of 18. The survey median time was about 29 minutes.

The policy preferences dependent variable is built from a battery of seven questions. Respondents were presented with the following stem, "A number of policy options have been proposed to deal with issues associated with America's energy supply. For each policy option, please indicate whether you: strongly support, support, oppose, or strongly oppose that policy." Additionally, respondents were given the option of "unsure" if they did not know if they supported or opposed a policy. The seven policy options that are used in this analysis were 1) "Require better fuel efficiency for cars and trucks;" 2) "Require electric generating companies to reduce dependence on coal power plants;" 3) "Require electric generating companies to build more natural gas powered plants;" 4) "Increase federal funding for research on renewable energy technologies;" 5) "Promote the increased use of nuclear power;" 6) "Increase the price of gasoline to encourage people to save energy;" and 7) "Provide tax cuts to energy companies to develop renewable energy technologies." Each of these policy options were coded from 0 to 4, with 0 representing strongly oppose, and 4 representing strongly support. Finally, we created a policy support scale (Cronbach's $\alpha = .709$) that averages the responses to these seven questions.

The behavioral dependent variable is built from a battery of three questions that relate to energy efficiency on the user end. In an individual's daily life, their largest pollution-related energy inefficient activity is related to driving their automobile. As noted, if an individual reduces their energy use in their home, they will save money, but it is unlikely that their actions will cause the utility company to decrease the amount of electricity that is on the grid at any given time. Therefore, the actions of any one individual will have minimal to no impact on the pollution generated by a power plant. However, an individual can have an instant impact on energy-related pollution by choosing to drive a more fuel-efficient automobile or an all-electric automobile that produces no greenhouse gas emissions. Respondents were prompted with the

stem, “How willing are you to use any of the following technologies to save energy?” They were given an option scale of “very unwilling,” “somewhat unwilling,” “neither willing nor unwilling,” “somewhat willing,” and “very willing,” which were coded from 1 to 5, where 5 represents very willing. Respondents were presented with the following fuel efficient options, 1) “Fully electric vehicle;” 2) “Hybrid electric vehicle;” and 3) “Natural gas fueled vehicle.” Finally, we created a behavioral scale ($\alpha = .730$) that averages the responses to these questions.

Due to the coding scheme used for the dependent variables, the most appropriate analytical tool to examine these measures is an OLS (see Lubell et al. 2007 for a full explanation and discussion of alternative models). This is best positioned to handle the non-discrete nature of the scales. Additionally, the models suffered from heteroskedasticity. Therefore, estimates were calculated using robust standard errors.

Under the collective interest model of political action, the determinants of policy support and individual behavior can be classified into three categories – collective interest indicators, selective benefits, and selective costs (Lubell 2002).[2] These relationships can be summarized into the following equation:

$$\text{EV (Energy Activism)} = [(p_g * p_i) * V] - C + B$$

In the above equation, EV (Energy Activism) represents the expected value of participation in energy-related activism. The collective interest indicators can be divided into three sub-categories. Here, p_g is the probability that the group will be successful, p_i represents the probability of personal influence, and V is the value of the collective good. C represents the selective cost associated with participation, while B is the selective benefit obtained by participating.

[2] A description of the variables used in this project can be found in Appendix A.

We control for three basic types of collective interest indicators. Perception of risk (*V*) can be a strong motivation to overcome the collective action problem. We control for the perceptions of the risk that the United States facing an energy shortage in the near future. Those that worry about a shortage should be more likely to support policies that promote more efficient energy sources, which also happen to pollute less, and they should be more likely to alter their behavior to try to postpone this threat. Additionally, we control for the belief that the energy industry is already sufficiently regulated (*V*). We expect that those who believe energy is well regulated will be less likely to support policies that place greater regulations on the industry. However, we do not offer any expectations between this belief and the likelihood of altering one's behavior.

As noted, Lubell et al. (2006) and Lubell et al. (2007) emphasize the role of policy elite competence as a motivational factor (p_g). We argue that competence is a component of the larger attitudinal concept of trust, and that it is not particularly clear why competence would be a motivational factor for altering one's behavior. To test this proposition, we develop a policy elite competence scale (p_g) (α = .888), a policy elite shared values scale (p_i) (α = .864), and a measure of overall policy elite trust that incorporates both (p_g*p_i) (α = .890). Both the competence and shared values scales rely upon the same six institutions – U.S. Environmental Protection Agency, U.S. Department of Energy, utility companies, oil and gas companies, state agencies, environmental groups.

Because we utilize three different elite-related measures, we will estimate three versions of each model. The first will be a direct replication of the approach used by Lubell et al. (2006) and Lubell et al. (2007), and will only include the policy elite competence measure. The second model will add our policy elite shared values measure. This will test to determine if the influence

identified by the competence measure was actually capturing the social values aspect of trust, and not competence. Finally, the third model will only model the overall trust measure, which is the average score of the competence and shared values measures.

The analyses will also control for three selective benefits (*B*). We control for an individual's environmental values. Specifically, respondents were asked to identify how important environmental protection was when building a new power plant in their community. Those who believe that environmental protection was more important ought to be more likely to support policy action and modify their behavior. Lubell (2002) also argues that an individual's political ideology and party identification are selective benefits. We expect that those who are more liberal and are stronger Democrats will be more likely to support policies to reduce pollution and alter their behavior.

Finally, we control for several selective costs (*C*). Perhaps the most prohibitive cost associated with these issues is information gathering. Those who are willing to expend the energy and time necessary to become informed about energy issues are more likely to have the motivation necessary to overcome the collective action problem. We measure energy knowledge as the percentage of correct responses to a nine question battery of true/false questions. Additionally, Lubell et al. (2007) categorize various demographic characteristics as selective costs. Therefore, we control for gender, income, age, race, and education.

Results

We will begin with an examination of the results of our analyses of policy support, which can be found in the first analysis column of Table 1. The competence model reveals strong support for the collective interest indicators. Those who perceive greater risk of an energy shortage, do not believe energy is sufficiently regulated, and believe that policy elite are

competent were more likely to abandon free riding to support policies that would reduce pollution created during power production. The analysis also indicates that those with stronger environmental values and greater knowledge were more likely to support the policies. The results also suggest that those who are male and those with more liberal ideology were more likely to support the policies.

The shared values model is presented in the center analytic column of Table 1. It adds the effects of policy elite shared values to those of the policy elite competence scale. The results for all of the variables except those affiliated with policy elite are substantively similar to those found in the competence model with one exception – those with greater income were more likely to support the policies. Therefore, we will not repeat the reporting of these findings.

The shared valued model indicates that both trust components are important. While policy elite competence is still the stronger influence, policy elite shared values are also statistically significant, and the coefficient estimates are only .007 apart (.037 - .030 = .007).

Finally, we estimated the role of collective interest indicators using the combined policy elite trust scale instead of its two component measures. Again, as presented in the third analytic column of Table 1, the estimates for all of the other variables were substantively similar to those identified in the shared values model. We find that those who exhibit greater trust in the policy elite were more likely to support these policies.

We turn our attention to the value of collective interest indicators in the behavioral models. The results of the competence model are presented in column one of Table 2. The results suggest that collective action indicators are again very important. Those who perceive a greater risk of an energy shortage, believe the policy elite are competent, have stronger environmental values, and greater energy knowledge were more likely to abandon free riding and

alter their behavior by driving a more fuel efficient vehicle. As suspected, the belief that the energy industry is sufficiently regulated was not a significant predictor of behavior. Finally, the model indicates that those who are older in age, more conservative, and stronger Republican were less likely to change their behavior.

The results of the shared values model are found in the center column of Table 2. The estimates for the non-policy elite measures were substantively similar to those found in the competence model. Therefore, we focus on the estimates of the influences of policy elite competence and policy elite shared values of interest to collective action. Here, we find that those with the greater belief that the policy elite share their values were more likely to indicate that they would change their behavior. Conversely, the model is unable to identify a statistically significant influence for the policy elite competence scale. This suggests that behavioral change is more closely linked to shared values than competence.

Finally, the combined trust model is found in the third column of Table 2. Here, the model indicates that those who have greater trust in the policy elite were more likely to alter their behavior. Again, we see that the combined policy elite trust measure provides a better understanding of this relationship than a single indicator.

Discussion

We began this project to investigate the relevance of collective action concepts in overcoming free riding in the area of energy policy and behavior. As a result of this project, several implications can be derived for understanding the important role of collective action.

We find strong support for the traditional collective action indicators—Risk, Regulatory Benefits, Environmental Values, Political Ideology and Knowledge. It is clear that in this policy

area, core collective action values are associated with a movement away from free riding, both policy and personal, to action.

We also demonstrate clearly that citizens' trust in elites is worthy of consideration as a core collective action indicator. Both individual measures of trust—competence and shared values—as well as the combined measure show robust effects in predicting a movement away from free riding and to collective action on both energy policy and personal behavior domains.

Appendix A

[Insert Appendix Table 1 about here]

References

Cvetkovich, George, and Kazuya Nakayachi. 2007. "Trust in a High-Concern Risk Controversy: A Comparison of Three Concepts." *Journal of Risk Research* 10(2):223–37.

Finkel, Steven E., and Edward N. Muller. 1998. "Rational Choice and the Dynamics of Political Action: Evaluating Alternative Models with Panel Data." *American Political Science Review* 92(1): 7-49.

Finkel, Steven E., Edward N. Muller, and Karl-Dieter Opp. 1989. "Personal Influence, Collective Rationality, and Mass Political Action." *American Political Science Review* 83(3): 885-903.

Gibson, James L. 1997. "Mass Opposition to the Soviet Putsch of August 1991: Collective Action, Rational Choice, and Democratic Values in the Former Soviet Union." *American Political Science Review* 91(3): 671-684.

Lubell, Mark, Arnold Vedlitz, Sammy Zahran, and Letitia T. Alston. 2006. "Collective Action, Environmental Activism, and Air Quality Policy." *Political Research Quarterly* 59(1): 149-160.

Lubell, Mark, Sammy Zahran, and Arnold Vedlitz. 2007. "Collective Action and Citizen Responses to Global Warming." *Political Behavior* 29(3): 391-413.

Lubell, Mark. 2002. "Environmental Activism as Collective Action." *Environment and Behavior* 34(4): 431.

Matisoff, Daniel C. 2008. "The Adoption of State Climate Change Policies and Renewable Portfolio Standards: Regional Diffusion or Internal Determinants?" *Review of Policy Research* 25(6): 527-546.

Muller, Edward N., and Karl-Dieter Opp. 1986. "Rational Choice and Rebellious Collective Action." *American Political Science Review* 80(2): 471-487.

Nakayachi, Kazuya, and George Cvetkovich. 2010. "Public Trust in Government Concerning Tobacco Control in Japan." *Risk Analysis* 30(1): 143-152.

Olson, Mancur. 1971. *The Logic of Collective Action: Public Goods and the Theory of Groups*. Cambridge, MA: Harvard University Press.

Ostrom, Elinor. 1998. "A Behavioral Approach to the Rational Choice Theory of Collective Action." *American Political Science Review* 92(1): 1-22.

Rousseau, Denise M., Sim B. Sitkin, Ronald S. Burt, and Colin Camerer. 1998. "Not so Different After All: A Cross Discipline View of Trust." *Academy of Management Review* 23(3): 393-404.

Siegrist, Michael, and George T. Cvetkovich. 2000. "Perception of Hazards: The Role of Social Trust and Knowledge." *Risk Analysis* 20(5): 713-720.

U.S. Energy Information Administration. 2013. *Electric Power Annual 2011*. Available: http://www.eia.gov/electricity/annual/pdf/epa.pdf [accessed March 5, 2013].

U.S. Environmental Protection Agency. 2013a. “Clean Energy: Air Emissions.” Available: http://www.epa.gov/cleanenergy/energy-and-you/affect/air-emissions.html [accessed March 5, 2013].

U.S. Environmental Protection Agency. 2013b. “Inventory of U.S. Green House Gas Emissions and Sinks: 1990-2011.” Available: http://www.epa.gov/climatechange/Downloads/ghgemissions/US-GHG-Inventory-2011.pdf [accessed March 5, 2013].

Table 1: Public Support for Policies that will Reduce Energy-Related Pollution

	Competence Model		Shared Values Model		Trust Model	
	Coefficient	Prob.	Coefficient	Prob.	Coefficient	Prob.
Collective Interest Indicators						
Risk: Energy Shortage	.025 (.007)	.000	.025 (.007)	.000	.025 (.007)	.000
Belief: Sufficient Regulation	-.101 (.037)	.008	-.100 (.039)	.011	-.101 (.039)	.010
Policy Elite Competence	.059 (.009)	.000	.037 (.013)	.008	-	-
Policy Elite Shared Values	-	-	.030 (.015)	.047	-	-
Policy Elite Trust	-	-	-	-	.067 (.010)	.000
Selective Benefits						
Environmental Values	.046 (.008)	.000	.047 (.008)	.000	.047 (.008)	.000
Political Ideology	-.107 (.015)	.000	-.101 (.016)	.000	-.101 (.016)	.000
Party ID	-.004 (.015)	.796	-.007 (.015)	.611	-.008 (.015)	.608
Selective Costs						
Energy Knowledge	.252 (.089)	.005	.232 (.091)	.011	.231 (.091)	.012
Female	-.090 (.031)	.004	-.088 (.032)	.006	-.088 (.032)	.006
Income	.006 (.004)	.102	.007 (.004)	.068	.007 (.004)	.069
Age	.00007 (.0009)	.937	-.0002 (.0009)	.825	-.0002 (.0009)	.805
White	-.012 (.039)	.753	-.003 (.040)	.930	-.003 (.040)	.928
Education	.006 (.006)	.306	.006 (.006)	.357	.006 (.006)	.358
Constant	1.945 (.168)	.000	1.911 (.173)	.000	1.913 (.172)	.000
Number of Cases	1266		1228		1228	
F	35.22	.0000	31.67	.0000	34.28	.0000
R^2	.2633		.2661		.2660	
RMSE	.536		.536		.536	

Robust standard errors in parentheses. Two-tailed test.

Table 2: Public Behavior to Reduce their Energy Use

	Competence Model		Shared Values Model		Trust Model	
	Coefficient	Prob.	Coefficient	Prob.	Coefficient	Prob.
Collective Interest Indicators						
Risk: Energy Shortage	.024 (.011)	.036	.027 (.011)	.022	.027 (.011)	.022
Belief: Sufficient Regulation	.035 (.057)	.536	.047 (.057)	.411	.050 (.057)	.387
Policy Elite Competence	.050 (.015)	.001	.007 (.022)	.723	-	-
Policy Elite Shared Values	-	-	.049 (.022)	.027	-	-
Policy Elite Trust	-	-	-	-	.056 (.016)	.001
Selective Benefits						
Environmental Values	.075 (.012)	.000	.080 (.013)	.000	.079 (.013)	.000
Political Ideology	-.075 (.023)	.002	-.072 (.023)	.002	-.072 (.023)	.002
Party ID	-.045 (.026)	.081	-.043 (.025)	.092	-.043 (.025)	.094
Selective Costs						
Energy Knowledge	.428 (.147)	.004	.409 (.147)	.006	.416 (.146)	.005
Female	-.032 (.052)	.534	-.025 (.052)	.625	-.026 (.052)	.617
Income	.009 (.006)	.167	.009 (.006)	.159	.009 (.006)	.156
Age	-.003 (.001)	.029	-.004 (.001)	.010	-.003 (.001)	.012
White	.00008 (.065)	.999	.008 (.066)	.893	.009 (.066)	.889
Education	.014 (.010)	.144	.012 (.010)	.220	.012 (.010)	.215
Constant	2.607 (.242)	.000	2.569 (.240)	.000	2.554 (.239)	.000
Number of Cases	1296		1256		1256	
F	15.63	.0000	14.73	.0000	15.69	.0000
R^2	.1340		.1395		.1388	
RMSE	.919		.915		.915	

Robust standard errors in parentheses. Two-tailed test.

Appendix Table 1: Variable Definitions

Dependent Variables: Energy Activism	
Policy Support	Measured as an index that averages support for seven policies. Respondents were asked, "A number of policy options have been proposed to deal with issues associated with America's energy supply. For each policy option, please indicate whether you: strongly support, support, oppose, or strongly oppose that policy." The policy options were, 1) "Require better fuel efficiency for cars and trucks;" 2) "Require electric generating companies to reduce dependence on coal powered plants;" 3) "Require electric generating companies to build more natural gas powered plants;" 4) "Increase federal funding for research on renewable energy technologies;" 5) "Provide tax cuts to energy companies to develop renewable energy technologies;" 6) "Promote the increased use of nuclear power;" and 7) "Increase the price of gasoline to encourage people to save energy." Answer choices were coded such that 0 = "strongly oppose" through 4 = "strongly support."
Behavior	Measured as an index that averages the willingness to adopt three technologies. Respondents were asked, "How willing are you to use any of the following technologies to save energy?" The three options were, 1) "fully electric vehicle;" 2) "hybrid electric vehicle;" and 3) "natural gas fueled vehicle." Answer choices were coded such that 0 = "very unwilling" though 4 = "very willing."
Collective Interest Indicators	
Likely Energy Shortage	Measured using an 11-point scale. Respondents were asked, "On a scale from 0 to 10, with 0 indicating not at all likely and 10 indicating extremely likely, what is the likelihood of the United States facing a critical energy shortage in the next ten years?"
Belief: Sufficient Regulation	Measured as an index that averaged perceptions of the need to regulate specific energy technologies. Respondents were asked, "This energy source is sufficiently regulated by the government." The technologies evaluated were 1) "Coal;" 2) "Natural Gas;" 3) "Nuclear;" 4) "Hydroelectric;" 5) "Solar;" and 6) "Wind." Respondents were presented with the following answer choices: "True" = 2, "Unsure" = 1, and "False" = 0.
Policy Elite Competence	Measured as an index that averaged perceptions of elite competence. Respondents were asked, "The following is a list of public and private groups that make decisions or recommendations that have an impact on energy policies. Using a scale of 0 to 10, where 0 means not at all competent, and 10 means completely competent, please rate the competence of each group to make decisions or recommendations about energy policies." The groups evaluated were 1) "U.S. EPA;" 2) "U.S. Department of Energy;" 3) "utility companies;" 4) "oil and gas companies;" 5) "state agencies;" and 6) "environmental groups."
Policy Elite Shared Values	Measured as an index that averaged perceptions of elite shared values. Respondents were asked, "The following is a list of public and private groups that make decisions or recommendations that have an impact on energy policies. Using a scale of 0 to 10, where 0 means that the group does not share your values at all, and 10 means that the organization shares your values completely, please rate how much each group shares your values related to energy policies." The groups evaluated were 1) "U.S. EPA;" 2) "U.S. Department of Energy;" 3) "utility companies;" 4) "oil and gas companies;" 5) "state agencies;" and 6) "environmental groups."
Policy Elite Trust	Measured as an index that averaged the Policy Elite Competence and Policy Elite Shared Values scales.
Selective Benefits	
Environmental Values	Measured using an 11-point scale. Respondents were asked, "On a scale from 0 to 10, with 0 indicating not at all important and 10 indicating extremely important, rate how important each of the following criteria should be when building a new power plant in your community." "Environmental Protection."
Political Ideology	Measured as a 7-point scale, with 1 = strongly liberal, and 7 = strongly conservative.
Party ID	Measured as a 5-point scale, with 1 = strong Democrat, and 5 = strong Republican
Selective Costs	
Energy Knowledge	Measured as an index that averaged the number of correct answers to a 9 question battery. Respondents were asked, "Please decide if each of these statements are true or false." 1) "The U.S. is NOT the largest per capita energy consumer in the world;" 2) "Refrigerators account for 7% of the nation's energy use;" 3) "Wind power accounts for 10% of the electricity currently generated in the United States;" 4) "An odor must be added to natural gas for safety purposes;" 5) "Coal accounts for less than 20% of the electricity currently generated in the United States;" 6) "Electricity produced by coal, natural gas, nuclear, and oil relies upon heat to turn water into steam to spin large turbines, which generate the electricity;" 7) "One fingertip sized uranium pellet

	produces roughly the same amount of energy as 150 gallons of oil;" 8) "Renewable energy sources, like wind and solar, receive government subsidies or tax incentives, but conventional energy, like coal and natural gas, do not;" and 9) "Conditions along much of the coastline of the United States are well suited for wind energy."
Female	Measured nominally as 0 = male, and 1 = female.
Income	Measured as 19 income categories, with 1 = "less than $5,000," and 19 = "$175,000 or more."
Age	Measured in years.
White	Measured nominally as 1 = white, and 0 = nonwhite.
Education	Measured in years of education