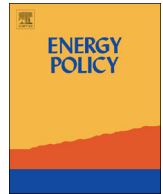




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# Public perceptions of energy policies: Predicting support, opposition, and nonsubstantive responses

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## ABSTRACT

Public policy preferences can impact policymaking, from influencing what policies are or are not implemented to legitimizing policy decisions. Researchers have examined public support/opposition to a wide variety of energy issues, as well as predictors of these preferences. However, researchers have typically excluded the views of those who say they “don't know” or do not respond to questions about a particular policy, even when they make up a sizable portion of the population. As a result, we know little about those who provide nonsubstantive responses to energy policy questions, as compared to those who provide support/opposition responses. In this article, I examine the roles of issue awareness, risk perception, and socio-demographic characteristics in predicting support, opposition, and not sure responses to three different energy development issues: nuclear power, the Keystone XL pipeline, and hydraulic fracturing. One of the key findings is that the risk perception predictors of nonsubstantive responses more closely resemble the risk perception predictors of opposition rather than the predictors of support. By excluding the policy preferences of those who “don't know” or do not answer, researchers are likely providing policymakers with estimates that underrepresent the views of those who are more concerned about environmental risk.

## 1. Introduction

Previous research has found that, to at least some extent, public policy preferences play a role in energy policy decisions in the United States (Bolsen and Cook, 2008; Stoutenborough et al., 2015b). Though the preferences of all members of the population are not equally represented by policymakers (Gilens, 2009), public opinion polls are frequently conducted and their findings disseminated to provide policymakers with an enhanced understanding of the broader population's preferences. Using public opinion survey data, researchers have examined perceptions of a variety of energy policies, as well as the predictors of these preferences.

However, few studies in the energy policy realm have examined policy preferences and their predictors outside of a support/oppose approach, typically measured either dichotomously as support or oppose, or on a four-point scale from “strongly support” to “strongly oppose.” This persists despite several authors identifying a sizable portion of nonsubstantive responses (e.g., “don't know,” “not sure,” or “no answer”) in their data (e.g., Boudet et al., 2014; Clarke et al., 2016). In contrast, the survey research literature has extensively discussed nonsubstantive response, particularly related to measures of political knowledge (Miller and Orr, 2008) and scientific knowledge (Bauer et al., 2000), and has demonstrated that “don't know” and “no opinion”

responses are often attributed to the characteristics of the respondents and the characteristics of the questions (Francis and Busch, 1975), and are a part of fluidly constructed attitudes (Berinsky, 2002). I argue that the exclusion of nonsubstantive responses in public perceptions of energy policy models skews our understanding of the American population's views on these energy issues.

In addition, as critiqued by Stoutenborough et al. (2015a), few studies have taken a comparative look at energy policy preferences. Instead, published articles tend to focus on preferences related to a single energy issue, such as hydraulic fracturing (e.g., Boudet et al., 2014; Christenson et al., 2017), climate change (e.g., Leiserowitz, 2006; McCright and Dunlap, 2011), nuclear energy (e.g., Stoutenborough et al., 2013), or wind energy turbines (e.g., Baxter et al., 2013). By looking across different energy development issues, we can potentially develop a broader understanding of how variables might predict policy preferences differently or similarly across a range of issues.

In this study, I bring together three nationally representative general public household surveys of American residents from 2011, 2014, and 2015, to investigate the predictive effects of issue awareness, risk perception, and socio-demographic characteristics on support, opposition, and nonsubstantive responses to three different energy development issues: nuclear power, the Keystone XL pipeline, and hydraulic fracturing. While each of these surveys only measures one issue, I

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provide results from all three surveys to demonstrate the robustness of these findings across time periods and policy issues.

## 2. Background

### 2.1. Predicting support/opposition to energy policies

A number of key variables have been identified as predictive of Americans' energy policy preferences across a range of energy policies, including: knowledge and awareness indicators; risk perception indicators; attitudinal indicators (such as trust, political ideology, and environmental beliefs); and other demographic characteristics (Stoutenborough et al., 2015b).

Much research has examined how issue-specific awareness or familiarity and/or more general knowledge indicators can predict policy support (Lubell et al., 2006; Stoutenborough et al., 2013). While having “informed” policy preferences may be perceived by scholars as optimal, there are not consistent findings regarding how general or issue-specific information impacts public perceptions of different energy policies. Self-reported measures of knowledge or issue-specific familiarity can also differ from more objective measures of knowledge and issue awareness, with potentially different impacts on policy preferences. Stoutenborough et al. (2016, 57) argue that it would be “easy to measure the wrong construction of knowledge in a survey instrument and that this may explain the inability to find support for the influence of knowledge on risk perceptions”. A similar argument could easily be made for differences in findings regarding the impact of knowledge and/or issue familiarity on support or opposition for different energy policies.

For example, support for hydraulic fracturing was found to be negatively related to a self-reported measure of familiarity with the issue, though just over half of respondents either did not know how much they had heard about hydraulic fracturing or had heard nothing at all about the issue (Boudet et al., 2014). Using a variable measuring objective basic knowledge about hydraulic fracturing, Choma et al. (2016) also found higher levels of “fracking” knowledge was related to higher risk perceptions and a greater desire to decrease reliance on shale gas. In contrast, a study of public perceptions of climate change policies found that possessing self-reported information about climate change did not predict policy support among Michigan and Virginia residents (Dietz et al., 2007).

Risk perceptions have also been found to impact public preferences regarding energy policies, though the nature of the risk (e.g., specific or general) can affect preferences differently (Stoutenborough et al., 2013). Public perceptions of risk typically differ from scientific risk assessments (Slovic, 1987) and often play an even more important role in the priorities and agendas of regulatory bodies (Slovic, 2000). Stoutenborough et al. argue that “those who perceive the risk associated with something as high should be more likely to oppose policies that would increase that risk and, conversely, support policies that would decrease the risk” (2015b, 105). For example, even after controlling for knowledge and attitudinal variables, Stoutenborough et al. (2015b) found that risk perceptions strongly predicted policy preferences for nuclear energy, renewable energy, and the reduction of U.S. dependence on coal. In particular, higher risk perceptions associated with a nuclear meltdown and transporting nuclear waste both predicted policy opposition (Stoutenborough et al., 2015b). Similarly, research on attitudes on nuclear energy in Switzerland demonstrate that opponents of nuclear energy perceive greater risks than supporters (Crettaz von Roten et al., 2017).

In the United States, one of the key elements in understanding public perceptions of energy issues is political views (Boudet et al., 2014). From energy development to global climate change, conflicts over environmental issues originating between political party elites have begun diffusing through the general public (Dunlap et al., 2001). All three of the issues I consider in this study – nuclear power, the

Keystone XL pipeline, and hydraulic fracturing – are politically polarized. Based on past studies, political conservatives are more likely to be supporters of hydraulic fracturing (Boudet et al., 2014) and view hydraulic fracturing as less risky as compared to liberals (Choma et al., 2016). Those associated with the Republican party are more likely to support nuclear energy (Stoutenborough et al., 2015b). Moderates and conservatives, compared to liberals, are more likely to support the construction of the Keystone XL pipeline, though for liberals, the relationship between ideology and support is affected by proximity to the proposed pipeline (Gravelle and Lachapelle, 2015). While I have presented these categories separately in this review, they can also have interactive effects. For example, Choma et al. (2016) found that greater basic objective knowledge of hydraulic fracturing was related to greater risk perceptions, though the relation between political conservatism and risk perceptions was stronger among those who knew more (versus less) about hydraulic fracturing.

Other socio-demographic characteristics have been identified as potential predictors of energy attitudes and policy preferences, including sex (Boudet et al., 2014). Possibly due to differences in risk perceptions, women are less likely to support hydraulic fracturing (Boudet et al., 2014), less likely to support the proposed Keystone XL pipeline (Gravelle and Lachapelle, 2015), and less likely to support nuclear energy (Crettaz von Roten et al., 2017).

### 2.2. Predicting nonsubstantive responses in survey research

As described by Krosnick et al. (2002b) and Zaller and Feldman (1992), survey researchers have long been concerned with distinguishing “real” substantive responses from other types of responses. Researchers have examined how to measure and interpret responses that do not fit neatly into the traditional measurement of attitudes or knowledge. For example, researchers have disagreed quite extensively over whether to include a “don't know” category or “no opinion” filter (Krosnick, 2002a), and if provided, how it should be presented to potential respondents (e.g., encouraged, treated neutrally, discouraged) (Luskin and Bullock, 2011; Miller and Orr, 2008; Tourangeau et al., 2016). Researchers have also disagreed on how “don't know” responses differ from those who skip the question altogether. Many reasons have been proposed for why individuals might provide a nonsubstantive response, including: 1) as an error response due to poor question design, 2) as a “true” neutral or middle position on an issue, 3) as a lack of opinion on an issue, 4), as a lack of knowledge on an issue, 5) as a way of withholding of one's opinion for a variety of reasons, or 6) as a mental short cut to move more quickly through a questionnaire while still providing a satisfactory but not optimal response (known as “satisficing”) (e.g., Feick, 1989; Krosnick, 2002a).

In addition, researchers have found that when a “don't know” option is not offered, respondents may select another response category even though a “don't know” response might be more accurate. For example, Sturgis et al. (2014, 33) found that most respondents who selected the “neither/nor” alternative in a 5-point item said they chose that response category because they “don't have an opinion” on the issue, rather than reflecting an actual “neutral” or middle position. In addition, individuals may express opinions when they do not have an underlying attitude (also known as a false positive or pseudo-attitude) or not express opinions when they do have an underlying attitude (also known as a false negative or a pseudo-nonattitude) (Gilljam and Granberg, 1993).

Researchers have found that nonsubstantive responses are not random, and instead are related to the characteristics of survey questions and survey respondents (Feick, 1989). For example, nonsubstantive responses are more likely to be provided to questions with more complex instructions and that require projection into the future (Converse, 1976), and are more often provided by female respondents, nonwhite respondents, as well as those with less formal education, political efficacy, and political involvement (Francis and Busch, 1975).

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