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Probing public perceptions on energy: Support for a comparative, deep-probing survey design for complex issue domains

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ABSTRACT

Surveys of public attitudes have increasingly been criticized for being superficial and too fragmented to sufficiently represent views comprehensively within a complex issue domain. Attitudes are often assessed without context, and the scope of these surveys tends to be relatively narrow. With these concerns in mind, we developed a survey of adults in the United States that incorporated an approach that looks comparatively and in-depth at sub-issues within a larger policy domain, thereby probing deeper into individuals' attitudes than typically found. Our emphasis is on energy issues. As debates over energy issues like hydraulic fracturing, oil exploration, gas prices, and renewable energy rage, it is increasingly important to accurately and fully evaluate public attitudes. We present the results of this survey and evaluate the benefits of utilizing a sub-issue comparative, deep-probing survey instrument.

1. Introduction

As critical as energy is for society, we actually know surprisingly little about public perceptions toward energy. With few exceptions, public opinion research of energy-related issues tends to focus on narrow aspects of the energy debate. As has been the case for decades, the majority of this research tends to focus on environmental concerns and potential dangers [1–3], supply and availability in peak stress/demand times [1,4], and power generation siting and NIMBY (not in my backyard) concerns [5–9]. All of these concerns intersect with the support or opposition for different energy sources and methods of capture [6–10].

It is undeniable that we will need to transition from non-renewable energy generation to more sustainable technologies. By their very definition, there is a limited supply of non-renewable resources, and the sooner we begin to modify our energy sources the less of a shock to geo-political and economic systems the world will experience. However, for this to occur, public sentiment must change in regards to these alternative technologies. Interestingly, the public tends to look favorably toward technologies like wind and solar, but it appears NIMBY fears could impede the development of these technologies [11,12].

While a NIMBY argument may be a bit simplistic [13], there is clearly something operating at an individual level that scholarship has yet to sufficiently explain. Indeed, many examinations of public attitudes toward energy issues conclude that existing research is too fragmented to adequately explain these processes [14] and that we need to have a better understanding of public attitudes before we will be able to overcome whatever obstacles stand in the way of the development of various technologies [13]. Some have even gone as far as to suggest that many previous attempts to understand public opinion on energy issues have been superficial [15].

There is much more to the energy debate that has not received proper attention, and this limits our understanding of this complex policy domain. Not surprisingly, this has been a shortcoming of public opinion polling on energy and environmental issues for decades [16]. For example, we know little about public understanding of energy issues. Assessments of concern tend to be general, with very little information collected to provide context to exactly why the public may have concern for specific technologies. Few studies evaluate support for specific policy proposals, instead relying again upon general assessments. We also know little about the public's perceptions and evaluations of energy on a variety of important topics or about where the public turns to obtain energy-related information.

Most of our lack of understanding regarding energy issues stems from the non-comparative nature of previous undertakings.

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Though there are a few exceptions [5], studies tend to focus on the public's views toward one technology only [9,11,15,17]. Polls that are limited to a single type of energy generation technology provide information without a grounding context. Without a base-line comparison to attitudes, beliefs, and knowledge about alternative technologies, it is difficult to truly understand the public's perspectives on energy issues.

Another explanation for this insufficient understanding stems from our reliance upon general assessments that only tap top-of-the-head views [15]. Klick and Smith [15] illustrated that the public is not as supportive of wind power as general assessments indicate, which may help to explain the resistance found during the siting debates. Similarly, Stoutenborough et al. [18] found that more specific assessments of risk provide a more nuanced understanding of policy preferences. It is often said that "the Devil is in the details." This is particularly true when assessing public attitudes.

Can a more detailed, comparative approach provide the context to properly evaluate energy opinions? We designed a public opinion survey of adults in the United States that focuses on a variety of energy-related issues. We implemented a comparative survey design in which respondents were asked to consider six alternative electricity generating technologies – coal, nuclear, natural gas, hydroelectric, solar, and wind – for a variety of question stems. This allows us to determine the extent to which energy attitudes are universal or case dependent. Additionally, we probe deeper into public attitudes than traditionally found in surveys to obtain a more comprehensive understanding of what the public really believes about energy issues. In the end, we must agree with the growing body of critical assessments of the indicators of public opinion on energy issues, and we find that there is much to learn from a sub-issue comparative, deep-probing survey of public attitudes toward energy.

2. Methods

The results for this examination are based on the ISTPP National Energy Policy Survey led by the Institute for Science, Technology, and Public Policy in the Bush School of Government and Public Service at Texas A&M University. Additional funding for this survey was provided by the Texas A&M Energy Institute and the Crisman Institute for Petroleum Research. This national survey of adults 18 years and older was conducted by GfK Custom Research, LLC. The survey was conducted between May 11 and May 26, 2012 and resulted in 1525 respondents. The sample was from KnowledgePanel®, 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 min. The completion rate was 62 percent. Descriptive statistics can be found in Appendix A.

3. Public perceptions of energy issues

An accurate understanding of public perceptions and attitudes is necessary for any democratically elected official to fulfill her representative duties. Yet, despite the considerable scholarly attention examining energy-related issues, we only have a limited understanding of what these studies really mean due to data being collected with little to no comparison between alternative forms of energy. Essentially, these studies take place within a vacuum. Sections 3.1–3.4 present pertinent comparisons of substantively important information for policymakers across types of energy.

3.1. Concern for energy in the United States

To understand the public's views toward energy issues, it is important to understand the public's perceptions of concern. An individual's perception of risk influences one's willingness to act [19]. In terms of specific policy, "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 this risk" [20].

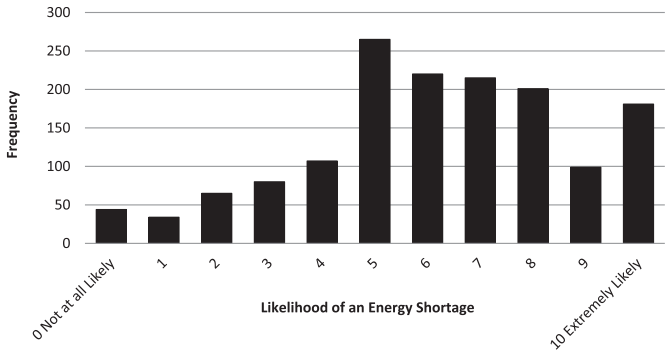

Fig. 1. Likelihood of U.S. facing a critical energy shortage in the next ten years.

From a general perspective, one's concern about the country's energy supply is likely to influence support for the development of renewable energy sources and/or the increased use and exploration of non-renewable alternatives that do not necessitate reliance upon other countries to meet our energy demands. We suspect that those who believe there will be an energy shortage will be more likely to support, at least in principle, alternative energy sources. However, without understanding this basic viewpoint, it is difficult to place public attitudes toward energy sources into proper perspective. Respondents were asked to evaluate the likelihood that the United States would face a critical energy shortage in the next ten years, which is presented in Fig. 1.[1] Generally, the results suggest that the public believed that within ten years, the United States is much more likely than not to face an energy shortage. This suggests that the public should be amenable to pursuing non-renewable energy sources, while also being more willing to support greater exploration of non-renewable resources.

We also know there are negative externalities associated with every form of energy production. Many of these concerns are well known, such as the threat of a nuclear meltdown or the pollutants created during the burning of coal, but others are far less familiar. Understanding public concern for these various externalities will allow a clearer picture for explaining public attitudes toward these technologies [18,20]. If the public is worried about a technology, it may be less likely to favor the use of that energy source. However, questions about specific concerns are rarely included in survey instruments.

Table 1 presents the results of a battery of questions designed to ascertain individuals' concern for several specific energy-related risks that are commonly discussed in the literature and by the media. Respondents were asked to use an eleven-point scale, where higher values represent greater concern. The results reveal that there was a great deal of variability in risk perceptions. Interestingly, a year after the Fukushima disaster, concern about a nuclear meltdown was substantially lower, on average, than concern about both the storage and the transportation of nuclear waste. This suggests that public attitudes toward nuclear energy may not be as driven by fear of a meltdown as some may have thought. Additionally, the public thought that five other energy-related risks were of more concern, on average, than nuclear meltdown. Perhaps a reflection of media coverage, the public was much more worried

[1] Specific wording of questions can be found in Appendix B.