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The Goals of **ENERGY POLICY**

Professional Perspectives on
Energy Security, Economics,
and the Environment

The Goals of
**ENERGY
POLICY**

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The Goals of Energy Policy: Professional Perspectives on Energy Security, Economics, and the Environment

EXECUTIVE SUMMARY

Energy-related incidents and issues – the BP-Macondo oil spill, the disaster at Japan’s Fukushima Daiichi nuclear facility, the Solyndra bankruptcy, high gasoline prices, America’s growing capacity to develop oil and natural gas resources, etc. – have grabbed headlines in recent years, and have driven renewed focus on energy policy and the public discourse surrounding it. This is highlighted by the fact that, in April 2012, 81% of the advertisements that aired in opposition to President Obama’s reelection focused on energy, according to Kantar Media research.

Recent polls suggest that this heightened focus may be impacting the public’s perception of energy policy and what its priorities should be. For example, a 2010 Gallup poll noted that the public, when asked to choose between the two, expressed a preference for energy production over environmental protection for the first time in the poll’s history. Subsequent Gallup polls indicate this preference remains, though the degree of preference is shifting.

However, are energy production and environmental protection necessarily at odds? Can policymakers pursue multiple goals simultaneously?

While polls like this capture the public mood well, they do little to inform policymaking as they suggest unavoidable competition between energy policy goals (i.e. the U.S. can either produce energy or protect the environment, but not both). However, competition between goals is not always the case.

In late 2011, Sandia National Laboratories and *OurEnergyPolicy.org* surveyed 884 energy professionals on their energy policy preferences. Rather than asking respondents to identify their favorite policy goal, this survey asked respondents to allocate 100 points across three separate, commonly accepted energy policy goals: the **Environment**, **Economics**, and **Energy Supply Security**. The survey’s results suggest areas for improvement in the national energy policy discourse, and a framework for thinking about energy policy that may help policymakers and advocates to devise new approaches and to better communicate their views.

The vast majority of respondents expressed a clear preference for policymaking that pursues Energy Supply Security, Economics, and the Environment simultaneously.



INSIGHTS

Balancing the Portfolio

Among the 884 respondents, the mean allocation toward the goal of Energy Supply Security was 36.9, the mean allocation toward the goal of the Environment was 30.7, and the mean allocation toward the goal of Economics was 32.3.

While Security was, on average, valued more highly among survey respondents, the distribution of results suggests that **the vast majority of respondents expressed a clear preference for policymaking that pursues all three goals simultaneously.**

“Single Issue Advocates” are Very Rare

Just 3.1% of respondents expressed a preference for an allocation of 100 toward any one goal: 1.6% did so for the Environment, 0.8% did so for Security, and 0.7% did so for Economics.

“Single Issue Adversaries” are Also Rare

Less than 15% of respondents completely devalued a given policy goal, or gave it a value of 0.

Differences (and Similarities) Across Demographics

The survey results suggest significant differences across age, gender, and geographical region. However, even with these differences, the preference for mixed portfolios remains.

For most respondents, Energy Supply Security, Economics, and the Environment are the goals of energy policy.

The Goals of Energy Policy

When asked if Energy Supply Security, the Environment, and Economics make up a sufficient list of the goals of energy policy, 58% said “Yes” they do. Forty two percent said “No” and provided another goal.

The additional goals offered by these respondents varied widely. Many suggested goals related to the initial three. “Sustainability,” for example, which was suggested several times, has clear environmental and economic implications, and may also have security implications. However, a significant number of responses offered discrete policy actions, i.e., what efforts the government should implement, as opposed to policy *goals*, i.e., what these actions should accomplish.

These results suggest that, for most respondents, Energy Supply Security, the Environment, and Economics are the goals of energy policy. The high degree of variability in those respondents who offered a fourth goal, however, may indicate significant opportunity for improvement in the national discourse around the rationale for and purpose of energy policy.



INTRODUCTION

A March 2009 workshop, held by the University of California, San Diego's Sustainability Solutions Institute and Sandia National Laboratories, convened twenty-seven "leaders from academia, government, and the private sector to discuss key energy policy issues and proposed values- and outcomes-based approaches to energy policy." The workshop's report, titled "Perspectives on Energy Policy: Security, Economics, and the Environment," emphasized that:

“Decisions about energy and energy policy are inextricably linked to economic, environmental, and national security considerations, and have significant consequences in all three areas.”

The relative importance of these three considerations was not addressed at the workshop. This question, however, has clear implications for energy policymaking and the public discourse surrounding it. Prioritization of these goals, and understandings of how they impact and offset one another, inform stakeholder and voter response to energy policies and policy mechanisms.

Background

Energy policy has been a significant aspect of the public discourse on government and policymaking in recent years. Debates around climate change policy, America's growing capacity to develop oil and natural gas resources, government support for energy technologies and industries, the safety and cost-effectiveness of nuclear power, the future of the Keystone XL pipeline, and more, have garnered significant media attention. Events such as the BP-Macondo rig blowout and oil

spill, the crisis at the Fukushima Daiichi nuclear facility, suspected human health and environmental impacts of shale gas development, high gasoline prices, and energy's role as a possible solution to the sluggish economic recovery have grabbed the public's attention and driven significant political dialogue. According to research by Kantar Media's Campaign Media Analysis Group, in April 2012, 81% of the advertisements that aired in opposition to President Obama's reelection focused on energy.

Recent polls suggest that this ongoing dialogue may be affecting public perception of energy policy, and what should motivate it. Several recent surveys have captured public opinion about energy policy, asking voting age respondents to identify their preferred policy goal from two choices, typically "environmental protection" and either "energy production" or something more specifically related to the economy.

An April 6th, 2010 Gallup poll titled "Americans Prioritize Energy Over Environment for First Time" noted a shift in public opinion toward a preference for energy production over environmental protection. Fifty percent of those surveyed indicated a preference for energy production, whereas 43% preferred environmental protection. This was down from 2007, "when Americans' preferences for environmental protection were the greatest (58% to 34%)."

Questions in the same poll that allowed respondents to choose among policy actions rather than choose a preference for policy goals revealed that perceived tensions between "protect the environment" and "keep energy prices low" are perhaps overstated or misunderstood. Respondents seemed to express a nuanced set of policy actions preferences: 87% supported requiring "utilities to produce more energy from renewable sources," 78% supported "tougher efficiency standards," 68% supported expanded "exploration for coal, gas, and oil," 66% supported "limits on CO₂ and other greenhouse gas emissions," and 50% supported "incentives for more nuclear power." These numbers suggest significant overlap



between those who, for example, favor “protect the environment” (56%) while favoring “exploration for coal, gas, and oil” (68%) and those who favor “keep energy prices low” (37%) while favoring “produce more energy from renewable sources” (87%).

Two more recent Gallup polls – a March 23rd, 2012 poll titled “Americans Split on Energy vs. Environmental Trade-Off,” and an April 9th, 2012 poll titled “Americans Endorse Various Energy, Environmental Proposals” – similarly reveal tensions between American preferences among binary sets of policy goals and the actions intended to accomplish those goals. The March 23rd poll saw that 47% of respondents preferred “Energy Production” while 44% preferred “Environmental Protection.” The April 9th poll showed, among other specific policy proposals, 70% support for “Setting higher emissions and pollutions standards for business and industry,” 69% support for “Spending more government money on developing solar and wind power,” and 65% support for “Opening up land owned by the federal government for oil exploration.” Again, these numbers suggest significant overlap.

These polls reveal that Americans can simultaneously have a preferred policy goal and support policies that may undermine that goal. This suggests that the answer to the question “What’s your preferred energy policy goal?” does not reveal American preferences in a way that is useful to policymakers. Further, polls of this nature may reveal “what” is viewed as good energy policy, but do little to clarify “why” that view is held.

How should the U.S. prioritize between Energy Supply Security, Economics, and the Environment as it designs and implements its energy policies?

Data & Methods

Sandia National Laboratories and OurEnergyPolicy.org conducted an online survey in late 2011, titled “U.S. Energy Policy Goals & Priorities,” that asked energy professionals to express their preferences for U.S. energy policy goals. The survey asked, “How should the U.S. prioritize between Energy Supply Security, Economics, and the Environment as it designs and implements its energy policies?” The three policy goals, as defined by the initial question in the survey, were:

ENERGY SUPPLY SECURITY



“Assure a supply of energy for the U.S. that protects our national security interests.”

ENVIRONMENT AND CLIMATE



“Minimize the environmental impacts of energy supply, distribution and use.”

ECONOMICS AND JOB CREATION



“Assure a cost for energy that sustains U.S. economic stability and growth.”

Rather than selecting their favorite goal, respondents were asked to identify their preferred allocation of policymaking effort, summing up to 100, across these three areas. Respondents were invited to provide comments clarifying or expanding upon their allocations.

Respondents were then asked to confirm whether or not they agree that these three goals account for a sufficient list of the goals of energy policy. Those who opted to include another policy goal were invited to provide that goal, and to reallocate their preferred policymaking effort across the initial three goals and their fourth, self-selected goal.

Finally, respondents were asked to provide basic demographic information, including gender, age, and zip code.

BALANCING THE PORTFOLIO

Among the 884 respondents, the mean allocation toward the goal of Security was 36.9 (standard deviation: 18.8), the mean allocation toward the goal of Economics was 32.3 (standard deviation: 17.5), and the mean allocation toward the goal of the Environment was 30.7 (standard deviation: 19.8).

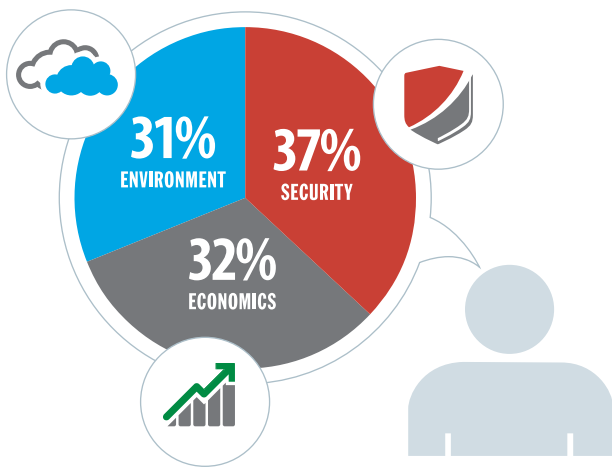


FIGURE 1: AVERAGE RESPONDENT'S PRIORITY ALLOCATION

The higher mean allocation for Security over either Environment or Economics is statistically significant. While Economics and Environment ranked second and third, the difference between these was not statistically significant.

While Security was, on average, valued more highly among survey respondents, the distribution of results suggests that most respondents' allocations expressed a clear preference for policymaking that pursues all three goals. By far, the most common response suggested a "portfolio approach" to energy policy.

At the extremes, just 3.1% of respondents expressed a preference for an allocation of 100 toward any one goal: 1.6% did so for the Environment, 0.8% did so for Security, and 0.7% did so for Economics. Moreover, less than 15% of respondents completely devalued a specific policy goal. Five percent assigned a value of 0 to Economics; 5% assigned 0 to the Environment; and 4% assigned 0 to Security. Significantly, many of these respondents included comments which indicate beliefs that given sufficient attention to one or two goals the others will also be achieved.

By far, the most common response suggested a "portfolio approach" to energy policy.

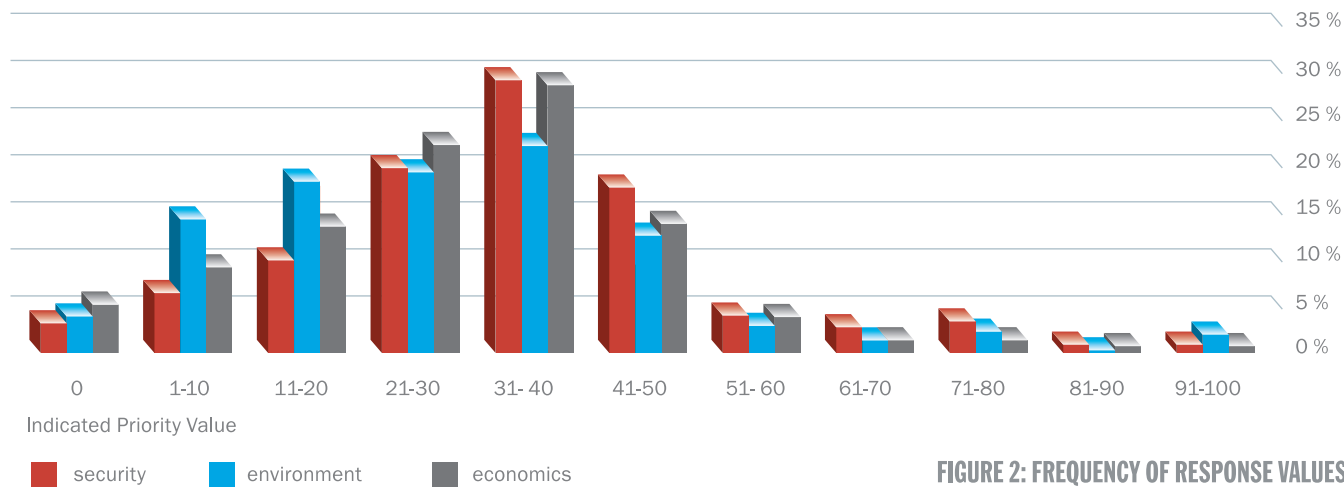


FIGURE 2: FREQUENCY OF RESPONSE VALUES

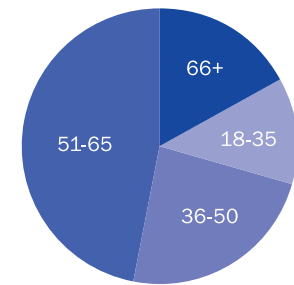
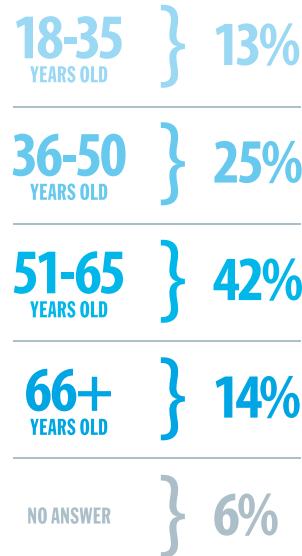


DEMOGRAPHICS

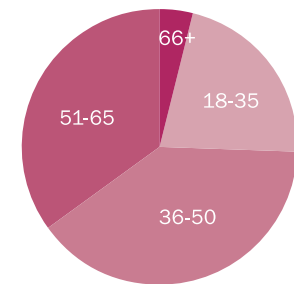
Eighty percent of the respondents were male. The results indicated significant differences between male and female respondents.

The survey originally listed six age groupings: 18-25, 26-35, 36-50, 51-65, 66-80, and 81+. Less than 5% of respondents were in the youngest and oldest categories, and statistical tests revealed no differences between the youngest and the second youngest groups and the oldest and second oldest groups. Therefore, the two youngest groups were combined into a single group for ages 18-35 and the two oldest groups were combined into a single group for 66+. We have reported our results using these combined categories. The majority (56%) of the survey's respondents are over 50 years old, but significant differences can still be found among the age groups.

SURVEY RESPONDERS, BY AGE GROUP



Male Response, by Age Group



Female Response, by Age Group

FIGURE 3: SURVEY RESPONSE BY AGE AND GENDER



ENERGY SUPPLY SECURITY

is the top priority for male respondents in all but the youngest age group.



ECONOMICS

The importance of economics increases with age for male respondents, but fluctuates with age for female respondents.

ENVIRONMENT

For male respondents, the environment diminishes in importance with each step up in age group. For female respondents, the Environment is of highest importance regardless of age.

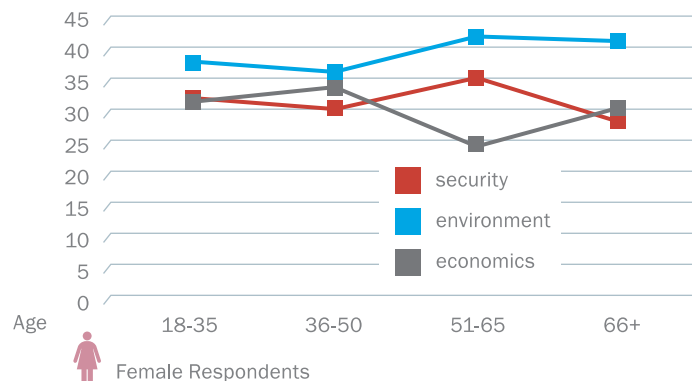
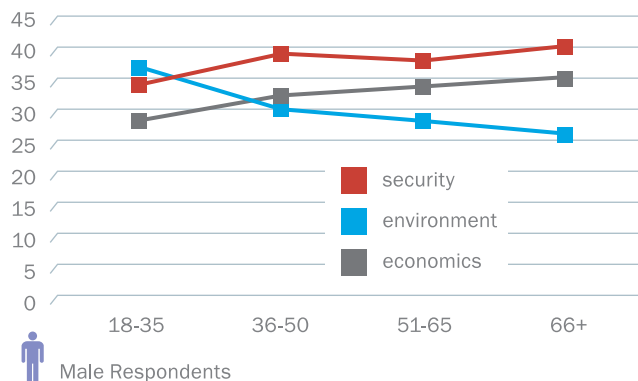
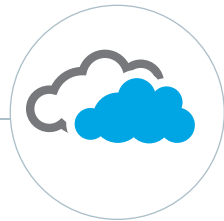


FIGURE 4: ALLOCATIONS ACROSS AGE GROUPS

GEOGRAPHY

Energy Supply Security was given the highest priority by respondents from the West South Central region, who give it a mean value of 43.3. Next highest was the Middle Atlantic, with a mean value of 40.0.

New Englanders valued Energy Supply Security least, with a mean value of 29.4. Respondents from the Pacific expressed a mean value of 32.8, the next lowest valuation after New Englanders.

Environment was given the highest priority by respondents from the Pacific, with a mean priority value of 39.0. Next highest were New Englanders, with 35.4, and those from the Mountain region, with 34.0.

The West South Central region prioritizes Environment the least, with a mean value of 22.3. There is statistical evidence that this region prioritizes Environment less than any other region.

Economics was given the highest priority by respondents from the East North Central, who gave it a mean value of 36.0. New Englanders were next highest, with a mean priority value of 35.1.

Economics was valued least by respondents from the Middle Atlantic (27.7) and Pacific (28.2).



ENERGY SUPPLY SECURITY

REGION	Mean Allocation
East North Central	37.6
East South Central	35.8
Middle Atlantic	40.0
Mountain	34.5
New England	29.4
Pacific	32.8
South Atlantic	34.9
West North Central	37.0
West South Central	43.3



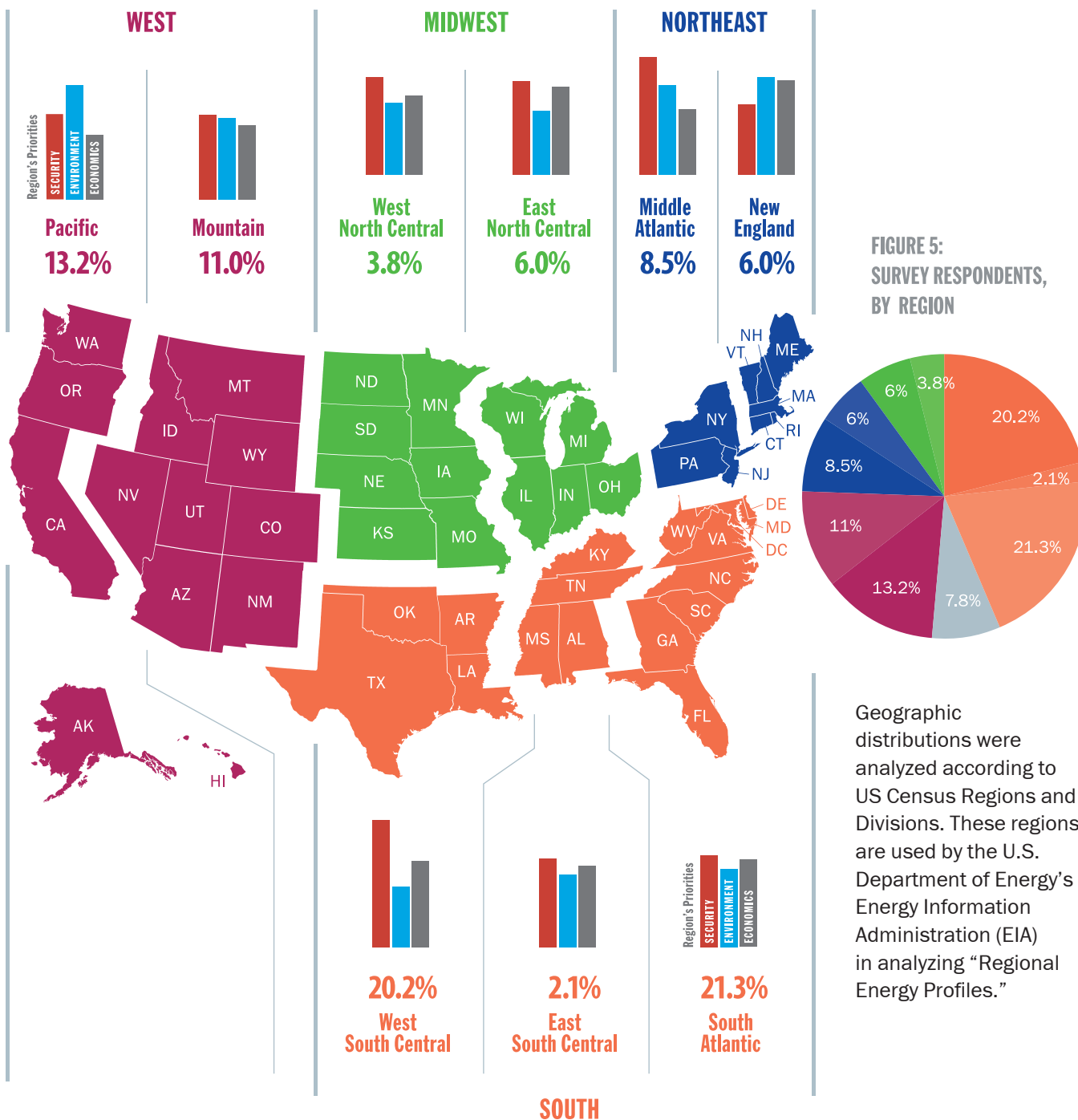
ENVIRONMENT

REGION	Mean Allocation
East North Central	26.4
East South Central	30.6
Middle Atlantic	32.2
Mountain	34.0
New England	35.4
Pacific	39.0
South Atlantic	31.1
West North Central	29.9
West South Central	22.3



ECONOMICS

REGION	Mean Allocation
East North Central	36.0
East South Central	33.6
Middle Atlantic	27.7
Mountain	31.5
New England	35.1
Pacific	28.2
South Atlantic	33.9
West North Central	33.1
West South Central	34.4



THE GOALS OF ENERGY POLICY

When asked if Energy Supply Security, the Environment, and Economics make up a sufficient list of the goals of energy policy, 847 respondents provided a complete response. Of these, 491 respondents (57.9%) said “Yes” and did not offer a new goal. 356 respondents (42.1%) replied “No,” supplied a fourth priority, and provided a new allocation among the four goals.

The respondents who offered a new goal significantly value this new goal over all the others, giving it a mean value of 30.9. Within the original three priorities, Security is still valued most highly, at 24.4. The mean values for Economics and Environment are 21.6 and 23.1, respectively. We still see a very strong “portfolio” approach to their values, with 80% of these respondents giving the self-selected goal a value of less than 50.

As stated, 42% of respondents felt that it was important to include another energy policy goal in the mix. There was significant diversity among these 356 responses, however, making statistical analysis difficult. Many of the responses clearly suggested new goals while others provided actions that, if implemented, would either contribute to or enable the achievement of one or more of the original three goals. There were dozens of distinct answers, but the five most popular responses were “reduced energy consumption” (34), “technological innovation and U.S. technological leadership” (33),

“energy efficiency” (29), “sustainability” (21), and “domestic sourcing” (16).

The diversity of the new goals suggested by these respondents, the weight given these new goals, and the distribution across policy goals and policy actions suggest avenues for expansion and improvement in the national conversation on energy and energy policy.

58%

of respondents indicated that Energy Supply Security, Economics, and the Environment are a sufficient list of the goals of energy policy.

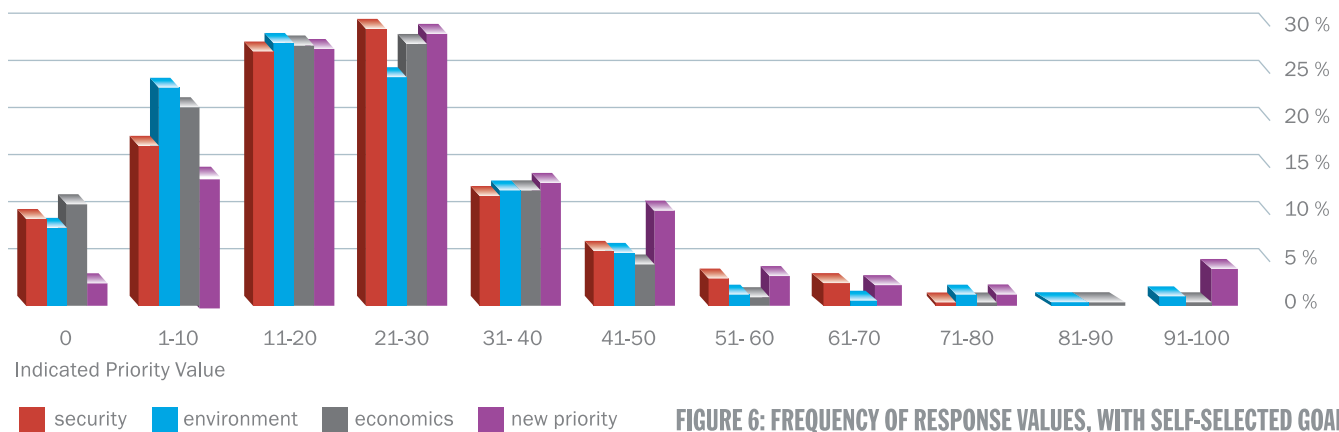


FIGURE 6: FREQUENCY OF RESPONSE VALUES, WITH SELF-SELECTED GOAL



OBSERVATIONS

Balancing the Portfolio

The energy professionals surveyed tend to take a balanced, and nuanced, view of what energy policy should accomplish, rather than emphasizing a single goal.

While the respondent pool valued Security more highly than Economics or the Environment, the mean outcomes and distribution of responses suggest that energy professionals tend to prefer an **allocation of policymaking effort that achieves all three goals in roughly equal parts.**

Though statistically significant differences are seen across gender, age, and geographic distribution, at the median respondents expressed a preference for energy policy that works toward the three core goals.

The Rare “Single Issue Advocate”

Among the 884 respondents, only 15% zeroed out one of the three initially provided goals, while even fewer, 5%, preferred only one goal. These observations are somewhat surprising, given tendencies in the political and popular discourse to treat these goals episodically and one at a time.

Notably, among the comments from those who prioritized a single goal was the suggestion that the other goals were still valid, and even may follow once the preferred goal is met:

Comment with a **100% Security – 0% Environment – 0% Economics** response:



“The only thing that is important is Energy Supply; everything else will work itself out as long as we have a low cost, continuous, secure energy supply.”

Comment with a **0% Security – 100% Environment – 0% Economics** response:

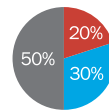


“Addressing environmental/climate concerns addresses both energy supply security AND economics/job creation.”

Timeframes and Phasing of Priorities

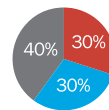
Many respondents commented on the timeframes for achieving progress on the three goals. A number of respondents noted that economic outcomes are more immediate, while security and environmental goals are mid- to long-term issues:

Comment with a **20% Security—30% Environment—50% Economics** response:



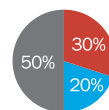
“A sustainable and economically sound energy policy should result in energy security over the medium term and provide environmental/climate benefits over the long-term.”

Comment with a **30% Security—30% Environment—40% Economics** response:



“Different time frames. Security and climate are decades; job creation is an immediate issue.”

Comment with a **30% Security—20% Environment—50% Economics** response:



“This split is true at this moment. When unemployment is below 7%, this mix should be changed to 40:30:30.”

In these cases the respondents gave a heavier weight to the goal that they viewed as both most pressing and achievable in the near term, Economics, and a lesser weight to those that may be realized over longer time frames. This may illuminate a path forward, and present challenges, to policymakers.

While it is easier to track public perception of the most pressing and current energy issues, perception can change in relatively short order. A vision identifying which goals, and associated efforts, should first be emphasized, and when to begin to ramp up elsewhere, might be an area of opportunity for energy policymakers.

What should energy policy achieve?

Demographics

The survey data indicates significant differences in what energy professionals of different geographic, gender, and age categories view as the proper role of energy policy. While the reasons for this are beyond the scope of this report, these differences have clear implications for policymaking and policy communications efforts.

Goals vs. Actions

Fifty eight percent of respondents indicated that Energy Supply Security, Economics, and the Environment are a sufficient set of goals for U.S. energy policy. However, the remarkable diversity of the goals suggested by the 42% who offered new goals, the weight given these, and the mix of policy goals and policy actions suggest avenues of expansion and room for improvement in the national conversation on energy and energy policy.





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Many thanks to the energy professional groups and associations whose membership participated in this survey: Association of State Energy Research & Technology Transfer Institutions (ASERTTI), American Society of Mechanical Engineers (ASME), Association for the Study of Peak Oil (ASPO), Biotechnology Industry Organization (BIO), the LinkedIn groups Linked:Energy and Energy & Utilities Network, National Association of State Energy Officials (NASEO), Society of Petroleum Engineers (SPE), United States Association of Energy Economists (USAEE), and Women's Council on Energy and the Environment (WCEE). These groups were identified by their membership make-up, i.e. energy professionals, and by their having no overt political or policy agendas along the three policy goals. Other groups were pursued for inclusion in the survey, but either could not be reached or declined to participate.

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