

the **c**onsensus **b**uilding **i**nstitute inc.

National Energy Policy Initiative

National Energy Issues Assessment

Prepared by:

Consensus Building Institute
131 Mt. Auburn Street
Cambridge, MA 02138

January 25, 2002

Executive Summary

This National Energy Issues Assessment reflects the views of seventy-five energy leaders across a wide range of constituencies on the following questions:

- what overarching goals should guide national energy policy;
- what specific policies would best support those national goals and meet the interviewee's constituency's interests;
- what "packages" of policies within or across policy areas might meet national goals and gain the support of a broad array of energy policy constituencies.

The Assessment has been prepared to serve as a briefing document for the National Energy Policy Initiative (NEPI). NEPI is a non-governmental, non-partisan project organized by Rocky Mountain Institute and the Consensus Building Institute to support the development of national energy policy. NEPI seeks to engage an experienced and diverse group of energy sector leaders and experts in developing a set of energy principles, objectives, and policy proposals. The points of consensus that they reach could form the basis for an informed bipartisan consensus on national energy policy. Senior members of Congress have indicated strong interest in the NEPI process and plan to review its results and their relevance for pending national energy legislation (see Section I, pp. 1-4).

The Assessment highlights the following areas of broad agreement on energy policy goals:

- Improving Domestic Supply from Diverse Sources
- Increasing Efficiency of Production and Use
- Promoting Stable, Efficient Markets and Pricing
- Enhancing Distribution Infrastructure and Systems
- Minimizing Health/ Environmental Impacts
- Developing New Technology

Following a discussion of these goals (Section II, pp. 5-10), the DRAFT Assessment summarizes specific policies that interviewees suggested to help advance these goals, noting points of agreement and disagreement among the interviewees (Section III, pp. 11-25).

The Assessment concludes with two sets of findings that are central to NEPI's purpose (Section IV, pp. 26-29). One of these findings is that **there are several specific policies that seem to have broad support among those we interviewed.** The second is that **there are several potential "packages" of policies that could overcome political obstacles to agreement on contentious issues.**

Policies that appear to have broad support across a wide range of energy leaders include:

- increase incentives for energy efficiency;
- increase certainty in environmental regulation;

- improve vehicle efficiency;
- invest in hydrogen technologies;
- increase incentives for use of renewable energy;
- continue funding and tax credits for energy RD&D.

The assessment team compiled “policy packages” suggested by energy leaders to address the following issues:

- automobile energy use;
- power plant environmental regulation and siting;
- domestic fuel supply;
- electricity markets.

Each of these potential packages appears to have support among key constituencies; clearly advance one or more of the key energy policy goals named above; and show some potential for resolving contentious issues that could otherwise derail progress on widely shared goals.

Those interviewed have had an opportunity to comment on the Assessment. This final version of the Assessment, reflecting comments received, will be used as the briefing document for an Expert Workshop. The Workshop’s goal is to seek points of consensus on national energy policy that meet public policy goals and constituency interests. The results of the Workshop will be distributed to the Workshop participants, the energy leaders interviewed, Congressional leaders, and the public (Section V, p.30).

I INTRODUCTION

A. Overview of the National Energy Policy Initiative

The National Energy Policy Initiative (NEPI) is a non-governmental, non-partisan project organized by Rocky Mountain Institute and the Consensus Building Institute to support the development of national energy policy.¹ NEPI seeks to engage energy sector leaders and experts with a wide range of views and interests in developing a set of principles, objectives, and policy proposals. The points of consensus that they reach could form the basis for an informed bipartisan consensus on national energy policy. Senior members of Congress have indicated strong interest in the NEPI process and plan to review its results and their relevance for pending national energy legislation.

NEPI's focus on building a broad consensus is a response to the past three decades of experience in national energy policy. For most of the last thirty years, U.S. energy policies have been crafted at moments of crisis (primarily in the form of energy price shocks). At these moments, policies have been shaped by the specific framing of the crisis (e.g. "reduce dependence on Middle East oil"); the political influence of key energy sector actors; and the political balance in Congress and the Administration. The policies created in moments of crisis have not been inappropriate—on the contrary, they have usually been appropriate responses to the top priority issues of the moment--but they have been partial and limited, and they have not taken full advantage of opportunities to achieve joint gains that satisfy all key actors.

The current moment has many of the hallmarks of crisis-driven policy making over the past thirty years. The Administration and the Congress began efforts to develop a comprehensive national energy strategy in the spring of 2001. Since September 11th, those efforts have been overshadowed by the immediate need to respond to the terrorist attacks. The Congress is planning to renew the effort to pass comprehensive energy legislation in the spring of 2002. Yet there is no obvious way to avoid political deadlock on specific issues such as drilling in the Arctic National Wildlife Refuge; multi-pollutant regulation, the future of coal and nuclear power in the U.S. ; integrating and regulating regional electricity markets; or developing new energy efficiency standards and technologies for vehicles, appliances and buildings.

NEPI's organizers believe that this moment holds great opportunities as well as risks for those who seek a balanced, comprehensive and consensus-based national energy policy. NEPI's premise is that it is possible and desirable for energy leaders to use the shared sense of urgency as a starting point for a focused exploration of key policy issues. In the process, participants have an opportunity to build a foundation of shared goals, narrow the range of disagreements, create new points of consensus by making wise trade-offs and creative packages, and incorporate those shared goals and points of consensus into a balanced and comprehensive policy.

¹ See Appendix A for descriptions of RMI and CBI. NEPI is being funded by the Hewlett, Moore, Belfer and Kirsch Foundations. These foundations share an interest in promoting a well-informed, consensus-based national energy policy. They have no operational role in or influence on the NEPI process.

The NEPI process is not and cannot be a substitute for Congressional debate or political activism. Rather, it is designed to complement the political process as an informal, non-attribution forum where energy leaders can explore issues and create new options that could form the basis for a consensus. The NEPI process is meant to be as transparent as possible while maintaining a level of informality and non-attribution that maximizes the potential for creative new ideas to emerge. Its results will be released into the policy making process and subjected to broad public scrutiny and debate.

To achieve NEPI's goals, the NEPI organizers are undertaking a four-stage process. The first stage is an assessment of the views and interests of a wide range of energy leaders on energy policy goals, specific policies, and pending legislation, and on the potential for building a broad consensus on national energy policy. The Assessment report you are reading is a summary of what we have learned from that assessment.

The second stage is an "expert workshop," using this Assessment as its primary briefing document. In that workshop, an experienced and diverse group of national energy policy experts will use the Assessment as well as their collective wisdom and experience to develop a set of guiding principles and objectives and specific policy proposals. Professional facilitators will assist the group and summarize its results.

The third stage has two parts. The first is an informal Congressional briefing, co-sponsored by leading members of Congress from both parties and both Houses. At the briefing, we will present points of consensus and unresolved issues for consideration by Congressional leaders as they take up energy legislation. The second part is dissemination of the NEPI points of consensus to all of those we interviewed, with a request to provide us with comments on the results of the expert workshop, and an invitation to support to the NEPI points of consensus if they believe the consensus satisfies their interests and the nation's.

The fourth stage is wider public dissemination and discussion of the results of the NEPI process. The scope, intensity and duration of that dissemination effort will depend on how much the organizers, energy leaders and experts believe the results have to offer to the political process, and on how far the political process has gone toward delivering a broad-based and broadly-supported national energy policy.

B. The NEPI Assessment—Methods, Benefits and Limitations

As noted above, the first stage in the NEPI process has been an Assessment of the views and ideas of energy leaders across a wide range of constituencies. The primary purpose of the Assessment is to create a briefing document for the Expert Workshop participants; it will also be part of the NEPI material to be presented to Congressional leaders. The Assessment is also intended to be useful for the energy leaders we interviewed, as a synthesis of their own views and concerns.

The primary method used in the Assessment was structured telephone interviews with individuals identified by the organizers, using a standard interview protocol. To conduct the Assessment, the organizers began by identifying five broad energy constituencies:

1. energy producers and suppliers;
2. providers of energy-related products and services;
3. energy consumers;
4. national environmental and other public interest groups; and
5. governmental agencies.

Within each of these five major constituencies, we created categories to capture as much of the diversity as possible. Within each category, we sought to identify influential organizations and individuals to interview. Rocky Mountain Institute and Consensus Building Institute team members developed the constituency groups, categories and interview list jointly, using our shared experience in the energy sector and our professional judgment. The initial list included approximately 130 names of individuals and organizations. We then selected a set of initial interviewees, seeking breadth of coverage across constituencies.

Over the period November 30, 2001-January 15, 2002 CBI interviewed seventy-five individuals representing seventy-two business, government and non-profit organizations (see Appendix B). In general, we are satisfied that the interviewee group is representative of the major constituencies involved in U.S. national energy policy. We were not able to interview representatives from every important group given time and budget constraints and interviewee availability. Nevertheless, we are confident that the results of the interviews as a whole provide a good reflection of the range of key policy issues and the diversity of views across the major constituencies.

As we developed the list of interviewees, we also developed an interview protocol (see Appendix C). Most but not all interviewees received a copy of the interview questions in advance. All were informed that the interviews were not for attribution.² In each interview, we asked

- what overarching goals should guide national energy policy;
- what specific policies would best support those national goals and meet the interviewee's constituency's interests;
- how effectively those policies are being advanced in pending legislation; and
- what "packages" of policies within or across policy areas might meet national goals and gain the support of a broad array of energy policy constituencies.

We also asked the interviewees' views on the current legislation and on the Expert Workshop. The questions were open-ended. We did not begin by asking each interviewee's views on specific policies and programs. Instead, we asked them to identify their own highest priority goals, policies, and programs. CBI interviewers used their discretion to ask clarifying questions and explore issues in detail. As neutral assessors, the interviewers did not advocate for any specific goals, policies or packages.

² Not for attribution meant that no statements made would be attributed to the interviewee or his/her organization; paraphrases or summaries of comments might be attributed to a broad constituency group or category.

In some instances, however, they asked interviewees about specific issues, policies or packages that other interviewees had suggested, and were related to the interviewee's views.

In compiling the results of the interviews and writing the Assessment Report, the drafting team organized the notes from all of the interviews under the headings of "goals," "policies," and "packages." They also used a word-search data-gathering program to capture comments related to specific policy issues. The drafters reviewed the notes and used their professional judgment to organize, summarize and synthesize the interviewees' comments under thematic headings.³

Benefits and limitations of the assessment method: The primary benefits of the "key informant, semi-structured interview" method for assessing a complex policy area are ensuring that 1) both key constituencies and a broad range of views are represented; 2) interviewees had an opportunity to identify the goals and issues that were most important to them; and 3) the resulting assessment is relatively easy for those interviewed to review, interpret and judge, because it closely follows the logic of the interview. In addition, the non-attribution ground-rule may encourage more open and in-depth exploration of issues and options than "on-the-record" interview ground rules.

The primary limitations of the method are 1) the interviewee group is not a statistically valid sample of the underlying population--the selection of interviewees was a matter of professional judgment and was also constrained by available time and funding; 2) we do not know what every interviewees believes about each goal, program, and policy because of the open-ended nature of the interviews; and 3) the synthesis of interview results requires interpretation and professional judgment.

In the organizers' experience, the benefits of this method outweigh the limitations when the primary purpose is to provide a synthesis of a diverse range of views to inform a policy dialogue.

The following sections present overarching energy policy goals, specific policies, and possible starting points for the development of a comprehensive and consensus-based national energy policy. These starting points reflect trade-offs and packages identified in our interviews.

³ The Assessment was drafted by CBI Vice President David Fairman and CBI Senior Consultant Jonathan Raab (President, Raab Associates), with many constructive comments from all members of the CBI team.

II. ENERGY POLICY GOALS

When asked to name two or three key goals for national energy policy, the energy policy leaders we interviewed responded with goal statements that ranged from energy-sector specific (e.g. “create additional transmission capacity”) to broad national goals (e.g. “develop an energy policy that enhances security and foreign policy”). Some interviewees articulated goals that linked specific strategies to broader objectives (e.g. “expand R&D on new technologies, especially renewables, to create jobs and new industries”).

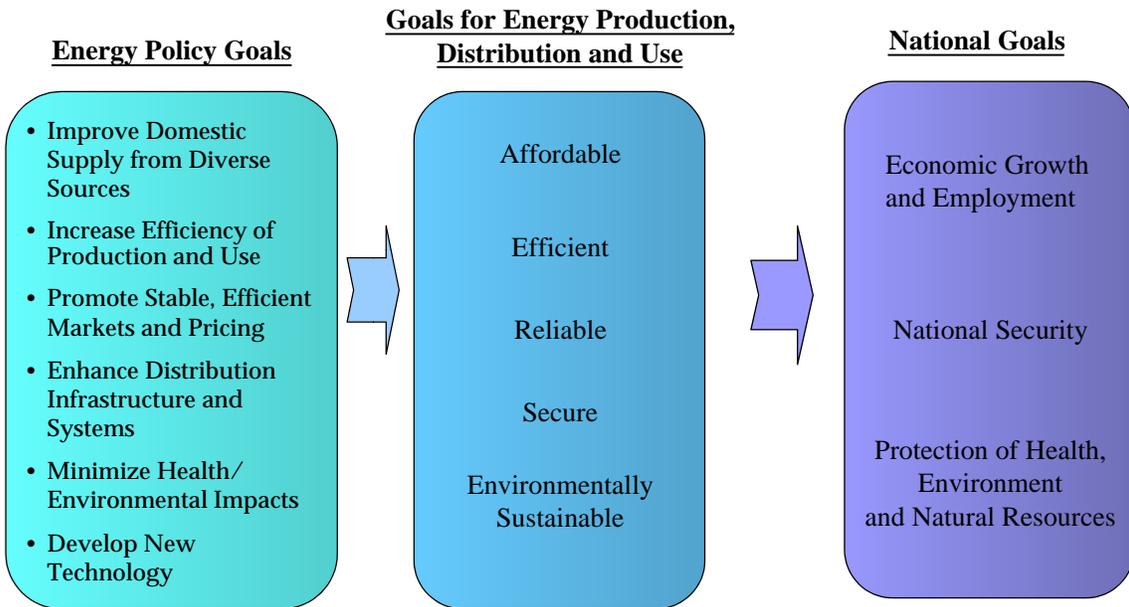
The chart on the next page seeks to synthesize and summarize responses to the “energy policy goals” question. In reviewing the responses, we saw a clear logic—explicit in many cases, implicit in others—linking changes in energy policy to improvements in energy production, distribution and use. Those improvements in turn could contribute to the achievement of broader national goals: economic growth and job creation, national security and environmental protection.

Energy and the Economy: For many of those we interviewed, energy policy’s key role is to support economic growth and employment. To do so, policies need to encourage the provision of affordable, efficient and reliable energy services to energy users. From an economic point of view, top priority should be given to policies that increase domestic supply from a variety of sources to meet anticipated growth in energy demand; policies that support energy efficiency; and policies that promote stable, efficient markets and pricing. Policies also need to provide enough certainty about the direction of energy markets and technologies to promote major new investment in energy infrastructure. New energy technologies should be developed in response to market demand, not in response to politically-driven preferences for particular fuels, industries or technologies. Environmental regulations should be structured to achieve environmental goals at least economic cost, preferably by ensuring that full environmental costs are internalized in market prices. Though there is broad support for economic innovation in the energy sector, job security for workers in energy industries is also an important concern. Policies that displace significant numbers of workers should also provide retraining and compensation assistance.

Energy and National Security: Though few of those we interviewed named national security as the main goal to which national energy policy should contribute, many interviewees named energy security among their top three goals. From this perspective, top priority policies include those that reduce the need for oil imports (by increasing domestic supply from a variety of sources and reducing demand for oil), and policies that reduce the vulnerability of the energy production and distribution system to disruption (e.g. by increasing reserve capacity, promoting distributed generation).

Energy and the Environment: For most of those we interviewed, it is essential to develop a sustainable balance between economically beneficial use of energy and protection of public health and the environment. In broad terms, energy policies should reduce the threat of climate change by reducing fossil fuel emissions, increase the use of renewable energy sources and hydrogen technologies, increase energy efficiency, and ensure that any environmental costs that cannot be eliminated are internalized through market mechanisms and regulations.

**A Broadly Shared View:
Key Energy Policy Goals
and Their Contribution to National Goals**



Environmental regulations and incentives should be designed to minimize compliance costs, encourage efficiency and spur the development of cleaner technologies.

Following is a synthesis of the energy policy goals that our interviewees advocated, with comments on the links between the achievement of policy goals, energy sector goals, and national goals. The next section details the specific policies that interviewees advocated as ways to achieve energy policy goals.

A. Improving Domestic Energy Supply From Diverse Sources

Many of our interviewees emphasized the need to reduce U.S. dependence on foreign sources of supply and diversify America's sources of supply. A number specifically commented that in aftermath of September 11th, the U.S. should reduce its reliance on oil from the Middle East. More generally, many argued for diversification as a way to increase the security of supply, help maintain price stability and affordability, and contribute to the achievement of environmental goals. There were, however, important differences of opinion on which sources of supply should have priority over the next several years, and on the best long-term mix of fuel sources.

Short-term priorities: There was broad agreement on the need to reduce oil imports over the next 5-10 years. Increasing energy efficiency (particularly in the automotive sector), expanding domestic fossil fuel exploration and development, and accelerating the development and use of renewable resource fuels and hydrogen were all mentioned as ways to achieve this goal.

There was disagreement on which of these options should have top priority in the near term. Questions were raised about the environmental impacts and the economic viability of domestic fossil fuel development; the near-term feasibility of achieving substantial gains in efficiency; and the near-term feasibility of significantly expanding the supply shares of domestic renewable energy and hydrogen.

Longer-term priorities: There was broad agreement that over the next 10-30 years, the U.S. should significantly increase the proportion of supply that comes from domestic sources. There was also broad agreement that increasing efficiency and expanding use of renewable resources are important means to achieve environmental, reliability and national security goals.

There was disagreement, however, on whether a long-term supply strategy should seek to expand, maintain or phase out the use of coal and nuclear power. There was also disagreement on the idea of seeking a substantial long-term reduction or phase-out in the use of all fossil fuels, and in the long-term feasibility of replacing fossil fuels with renewable sources and/or hydrogen.

B. Increasing Efficiency of Production, Distribution and Use

There was very broad agreement among interviewees on the need to continue improving efficiency in power production, distribution and use. Production efficiency gains could come from improving power plant conversion efficiency and increasing the

use of co-generation. Transmission efficiency gains could come from investment in new transmission lines and RD&D on superconductive materials, and from distributed generation.

End use gains could come from several sectors, including automobiles, buildings, appliances, other energy-using equipment, and industrial processes. However, there was not full agreement on which end use sectors should be the focus of policy, or on what mix of regulations, financial incentives/taxes, information programs and voluntary programs would be most appropriate. A more detailed discussion of the policy options and concerns follows in the next section.

As noted above, there was also not full agreement on the extent to which efficiency gains could substitute for new power generation over the next 10-20 years. However, there was a widely shared sense that increasingly competitive electric utility markets are likely to increase supply responsiveness to price signals over the next decade, and potentially demand responsiveness as well. Increased price-responsiveness in turn is likely to drive continuing efficiency improvements in the energy sector.

C. Promoting Stable, Efficient Markets and Pricing

There were two major areas in which interviewees saw the need to continue improving energy markets: electricity restructuring, and government regulatory and fiscal interventions overall. Some interviewees also raised concern about natural gas market regulation and price volatility. Others saw oil price volatility as a critical factor in destabilizing the economy.

Electricity markets: A number of interviewees stressed the need to resolve outstanding issues in electricity markets. There was broad agreement on the need to continue promoting the development of truly competitive electricity markets, with appropriate regulatory oversight to minimize the potential for abuse of market power. There was less agreement on how to define the roles and responsibilities of specific actors (e.g. FERC, NERC, state utility regulators, RTOs, ISOs, independent power producers, individual utilities and consumers).

Most interviewees who commented on the issue of electricity markets thought that increasing their competitiveness would lead over time to lower prices for end users. Some thought that maintaining affordability for low-income households should be an explicit goal of electricity market policy. Some also thought that regulatory safeguards should be put in place to limit price volatility.

Government fiscal and regulatory interventions: Several interviewees felt strongly that current Federal government policies are distorting energy purchase and investment decisions in ways that contribute to inefficiency. They mentioned Federal land use and environmental regulations that make it excessively difficult to develop new domestic supplies and discourage the diffusion of new technologies (though there was disagreement on whether these regulations are more disadvantageous to fossil fuels or to renewables); Federal insurance for the nuclear industry; and subsidies for RD&D that

favor certain energy sources (though there was disagreement on which energy sources are most favored).

There was no agreement among the interviewees as a whole on the need to maintain or change policies for energy development on Federal lands, Federal insurance for the nuclear industry, or Federal RD&D support for energy sources and technologies.

Finally, a number of interviewees argued that the Federal government should increase the use of market-based instruments to achieve environmental goals at least economic cost. This goal is discussed in more detail below under the heading “Minimizing Health and Environmental Impacts.”

D. Enhancing Distribution Infrastructure and Systems

A number of interviewees said that improving the physical infrastructure and systems for energy transmission and distribution is an important complement to reform of electricity markets. The three specific goals most frequently mentioned were 1) improving the process for siting generating facilities, electricity transmission lines and natural gas pipelines; 2) providing adequate transmission and generation reserve capacity to ensure system reliability; and 3) promoting distributed generation.

E. Minimizing Impacts on Health and Environment

A large proportion of interviewees stated goals related to the public health and environmental impacts of energy production and use, and the regulation of those impacts. Not surprisingly, there are strongly held views and important disagreements on these issues. Perhaps more surprising and encouraging, there were also several areas of agreement in principle, both on broad directions and specific issues.

Appropriate and cost-effective regulation: First, there is broad agreement that it is appropriate for the Federal government to regulate the health and environmental impacts of energy use. Second, there is broad agreement that policy instruments should be constructed to minimize the cost of compliance with public health/environmental protection requirements. Third, there is agreement in principle that the health and environmental impacts of energy production and use can be significantly reduced over time while maintaining affordability and reliability in energy supply.

Long-term regulatory certainty: More specifically, a number of interviewees said that a key policy goal should be to make environmental regulatory requirements clear and stable over a long enough time to facilitate wise investment decisions. Interviewees from both environmental and regulated industry constituencies said that they would be willing to negotiate gradual increases to environmental standards (e.g. in power plant emissions, automobile fuel efficiency, etc.), if they could be assured that those agreements would hold over at least an 8-12 year time frame. With greater certainty, some regulated industries could commit to replace existing facilities and technologies with significantly cleaner ones by a future date certain. However, there is still significant disagreement over what pace and ultimate level of environmental improvement is achievable in any specific policy area.

Energy efficiency as an area for joint environmental and economic gains: Many interviewees noted that gains in energy efficiency can provide both economic and environmental benefits. A number advocated public policies that would promote the diffusion of energy efficient technologies for generation (e.g. co-generation, efficient turbines), distribution (e.g. investments in higher-conductivity lines, distributed generation to reduce transmission losses and promote the use of combined heat and power (CHP)), and end-use (industrial processes including use of CHP, high mileage automobiles, greater use of mass transit, better-insulating building materials and designs, smart appliances, etc.).

Disagreement on policies to address climate change and promote clean fuels: The most important area of disagreement among interviewees is whether and how the Federal government should seek to shift the portfolio of supply sources in favor of non-fossil, non-nuclear fuels. Views on this question depend primarily on the constituency's view of the seriousness of the threat of climate change, the economic feasibility of a shift using renewables/hydrogen/efficiency gains, and the economic impacts of the shift on their constituency.

As noted above, some interviewees also commented that they did not want Federal policy to favor one fuel source over another. Rather, they would prefer to see the Federal government set environmental performance standards and let the regulated entities decide how best to meet those standards, using whatever mix of fuel sources and efficient technologies they find most cost-effective.

F. Developing Technology to Achieve Policy Goals

Many interviewees cited development of new technology as a key element of any strategy to achieve national energy policy goals. They noted that new technologies can increase efficiency and affordability, reduce environmental impacts and promote competitive markets in energy production, distribution and use.

There was strong but not universal support among interviewees for government investment in energy technology research, development and demonstration (RD&D). Many who mentioned government RD&D support believe that it can be useful and appropriate to accelerate the commercialization of promising technologies. However, several interviewees commented that the distribution of government RD&D funding seems to be driven more by political influence than by technological promise. They doubted that the Federal energy RD&D allocation system can be "fixed" and argued that it would be preferable to remove all government subsidies for all energy technologies.

III. POLICY/PROGRAM ISSUES AND OPTIONS

The interviewees provided a wealth of information and commentary on specific policies that they thought could best advance the policy goals they advocated. Following is a summary of the policies suggested, grouped under the goal headings that they most directly address. In many instances, policies named under one goal heading could also contribute to other goals. Rather than repeating policies in detail under each goal heading where they could contribute, we describe each policy in detail under one goal heading, and refer to it under other goal headings.

A. Improve Domestic Supply From Diverse Sources

1) Increasing Access to Public Lands for Oil, Gas and Coal Development (ANWR, Lower 48 States, Off-Shore)

Opening up the Arctic National Wildlife Reserve (ANWR) to oil and gas exploration and development was one of the policies most often mentioned during our interviews. There was a wide spectrum of views on the costs and benefits of this policy option. Some see opening ANWR as essential to enhancing our energy security, while others see it as unacceptable on environmental grounds. One suggestion was to find middle ground by allowing limited exploration only in areas previously authorized by legislation, with strict environmental safeguards (e.g. allow no permanent structures-- vehicles would be driven and stationary equipment constructed only on winter ice and removed before the thaw).

The predominant view cutting across all constituencies is that a) ANWR by itself cannot produce enough energy to guarantee energy independence; b) there may be other environmental goals of greater long-term significance than keeping ANWR off-limits to any exploration and development; and c) a fight over ANWR could derail comprehensive national energy policy legislation, at the expense of energy supply and environmental protection policies and programs of greater importance to most of those who mentioned this issue.

More specifically, some fossil fuel suppliers and producers felt that opening ANWR was not as important as getting clearer rules for oil, gas and coal development in other, more accessible locations off-shore and in the Rockies, or building a pipeline to bring natural gas from Alaska to the lower 48 states. Some environmental protection, energy efficiency and renewable energy proponents are willing to consider limited exploration and development in ANWR in return for stronger energy efficiency standards (e.g. CAFE) and renewable energy programs. However, others in these constituencies were not.

Some who favored expanded access to public lands for fossil fuel exploration also advocated an increase in depreciation and other investment credits to stimulate new exploration and development.

2) Preserving Coal

The future role of coal in electricity generation engendered more comments during our interviews than any other issue. Some interviewees argued that aggressively using coal should remain a cornerstone of U.S. energy policy. One interviewee commented that we are the “Saudi Arabia” of coal with a 200+ year supply of an indigenous, secure, and cheap resource. Others argued that coal is our “dirtiest” resource contributing to acid rain, global warming, and mercury deposition problems; they feel coal use should be phased out as quickly as possible, starting with the oldest facilities that were “grandfathered” under the Clean Air Act. Those who advocated coal phase-out generally supported some combination of retraining, compensation and job-creating investment for coal producing areas. Still others thought that coal should continue to play a significant role in the country’s supply mix as a plentiful and inexpensive resource, but think that more serious efforts should be made to reduce emissions from new plants by using best available technology and existing facilities through upgrades.

Even among coal’s strongest supporters there appears to be a willingness to accept stringent environmental regulations, particularly on new coal facilities, in exchange for long-term certainty that coal will remain a viable option and for accelerated siting and permitting of coal-fired generating plants. Among those who advocate shutting down the oldest, most polluting facilities (or fuel switching to natural gas) many suggested compensating owners for financial losses through subsidies, tax incentives, and/or rate-basing.

There was widespread, but not unanimous, support for government and industry to aggressively pursue “Clean Coal” technologies through RD&D, and a smaller group mentioned providing other types of incentives for Clean Coal. Several pointed out that Clean Coal technologies could also be exported to foreign countries bringing both additional economic benefits to the U.S. and reductions in global pollutants. Some energy producer interviewees said that coal-burning generators could offset their CO₂ emissions using carbon sequestration programs. One interviewee suggested that coal could become a hydrogen source, and that the remnant carbon could be buried. Finally, several interviewees argued that coal is inherently highly polluting and therefore should not receive any Federal support.

3) Putting Nuclear Power Back on the Table as an Option

Interviewees mentioning nuclear power consistently commented that the U.S. is at a crossroads with nuclear power and needs to decide its fate. Several interviewees, predominantly energy producers and suppliers, expressed interest in fostering the development of new nuclear power plants. However, most of those who mentioned nuclear power felt that it was too costly, too unsafe, or both to pursue.

Some of those advocating further consideration of new nuclear power plants also suggested that standardized reactor design could help reduce costs and increase safety. Many interviewees felt strongly that nuclear power should not be subsidized through mechanisms such as the Price Anderson Act (limiting plant owner liability), and that the costs of long-term nuclear storage should be internalized in the price of nuclear

power. Even without these changes, several interviewees felt certain that nuclear power cannot compete with the low-cost of natural gas combined cycle plants.

Many interviewees, including those supporting new nuclear power plants, emphasized the need to solve the nuclear waste management and disposal siting issues, whether the waste comes from existing or new facilities. They felt that the current situation is untenable for both safety and security reasons. One interviewee expressed concern about the linkage between nuclear waste and nuclear proliferation.

4) Accelerating the Use of Renewable Resources

Renewable energy is generally defined as the direct use of sun, wind, biomass, water, or geothermal processes to provide heating, cooling, electricity or fuel. Approximately half of those we interviewed, cutting across all stakeholder groups, mentioned renewable resources. All of them posited that renewable resources can and should play an expanded role in U.S. energy supply. However, there was a range of views on how much we could realistically expect from renewable resources over the next couple of decades. There were also some concerns that going too fast could adversely impact energy costs in the near term, and a recognition that there is substantial geographic variation in access to renewable resources. In addition, some raised concerns that abrupt shifts in Federal policy to support renewable energy could have serious impacts on workers and investors in conventional fuel industries.

Several different programs and policies were suggested by interviewees to accelerate the development and use of renewable resources in the U.S. including: a) Renewable Portfolio Standard (RPS); b) System Benefit Funds (SBF); c) Tax Credits and Incentives; d) Government Purchases; e) RD&D; and f) Address Worker Dislocations.

- a) **RPS** –The most commonly mentioned option by the interviewees, an RPS would require that utilities and retailers derive an increasing percentage of their electricity supply from renewable resources. Almost all felt that a moderate RPS target (perhaps lower than the “20% by 2020” proposed in one pending Senate bill) could garner wide support among diverse stakeholders (including the coal and automobile industries). One commenter felt strongly that there shouldn’t be a national RPS but it should remain a state option. Another argued that the RPS should be designed in a way that still allowed for a green market on top of the RPS. Yet a third suggested that there should also be an RPS for motor fuels.
- b) **SBF**—This option would create a national surcharge on electricity bills to provide funding for renewable resources (and could also support other initiatives, e.g. rate protection for low-income consumers, energy efficiency, etc.). Numerous interviewees see an SBF as a companion program to an RPS. A national SBF, possibly linked to state SBFs, could support emerging renewable technologies (e.g. solar, and small wind) while an RPS would support more commercially ready renewable technologies (e.g., large wind and biomass). No interviewee offered opposition to this option, although few commented on it, and at least one interviewee noted that numerous states

- (approximately 20) already have system benefit funds supporting renewable resources and other activities.
- c) **Tax Credits and Incentives** – Numerous interviewees mentioned that their preference was to remove subsidies for all resources, but if conventional resources continued to receive subsidies then it was essential for renewable resources to receive comparable assistance. Very few interviewees opposed tax credits and other incentives for renewable resources. It was pointed out that public utilities can only benefit from tax incentives when they are in the form of tradable tax credits. The interviewees who spoke specifically on incentives generally favored production tax credits for more mature technologies like large wind, and investment tax credits for emerging technologies. The same interviewees commented that repeated changes in tax incentive policy are hindering new investment in renewables, and stressed that tax credits need to be “predictable.” They also thought credits should be “substantial” initially, but should diminish and phase out as technologies are commercialized.
 - d) **RD&D and Government Purchases** – Of those who commented there was universal support for increasing RD&D for renewable resources, and some argued that governments should use more renewable resources directly, and purchase green power.
 - e) **Compensate Displaced Workers** – Some interviewees said that a shift to renewables should be carried out in a way that minimizes worker dislocation. They suggested policies for worker compensation and/or retraining and employment in the renewables industry.

While most of the renewable resources, technologies, and programs described above focus primarily on electricity, a transportation-related renewable fuel mentioned by several interviewees was ethanol. Some interviewees said ethanol should continue to get attention as an alternative source for vehicle fuel while others were less hopeful about its costs and benefits. Among those who favored ethanol, some stated that we should focus on using grasses and cellulose rather than corn to make ethanol.

5) Reaching for Hydrogen

Only about 20% of those we interviewed mentioned hydrogen. However, this group cut across all stakeholder groups and those who addressed hydrogen were universally positive about the need to develop hydrogen as an energy resource. Hydrogen can be used to run fuel cells both for distributed electricity generation and for powering motor vehicles. It can also be burned in turbines and internal combustion engines.

All the interviewees in this group agreed that a combination of RD&D and tax and other incentives should be used to help develop hydrogen-based technologies. Many also pointed out that we should begin now to work through the many state and local infrastructure issues that need to be resolved in order to support hydrogen use (e.g., local building codes and standards for on-site hydrogen use, and hydrogen fueling stations). Despite broad interest in pursuing hydrogen, there was a range of opinion about how quickly a viable hydrogen industry could be established and the ultimate size of its impact with one interviewee positing that it cover 10-25% of our energy use

within 50 years but others more skeptical. There was agreement that natural gas would likely be used to generate hydrogen in the short to medium term; however, many felt that the long term goal should be to use renewable energy resources such as wind and solar to produce hydrogen from water. An alternative strategy mentioned was to extract hydrogen from coal and bury the carbon. Many also mentioned the need for a clear 10-15 year plan, consistent and persistent government support, and near-term demonstration projects.

6) Clarifying National Air Emissions Regulations for New and Existing Fossil Fuel Plants

All interviewees who commented on air emissions regulations acknowledged that the specific requirements for new and existing power plants could greatly impact the relative costs and benefits of each of the supply resources mentioned above. Specific insights and recommendations are discussed below under the Health and Environmental Impact Goal.

7) Streamlining Power Plant, Transmission Line, and Pipeline Siting and Permitting

Numerous interviewees mentioned the need for streamlining the siting and permitting process for developing major infrastructure related to energy production and use – power plants, gas pipelines and electricity transmission. Some argued for over-riding state and local jurisdiction, while others simply wanted better and more formal coordination. The need to improve electrical transmission received many more comments than either gas pipelines or power plants as a major bottleneck to improving the national electric grid. These infrastructure issues are discussed in greater detail below under the Distribution Infrastructure goal.

8) Facilitating Distributed Generation

Distributed generation (DG) generally entails electricity generation that is smaller in scale than large power plants, and is often located on a customer's premises. DG energy sources include renewables, fuel cells, micro-turbines, and diesel generators. While it is generally grid-connected, DG can also be used in off-grid applications. DG can also increase efficiency through on-site combined heat and power production.

Of the interviewees who brought up DG (approximately 20%), all were very supportive, viewing it as a vehicle for increasing reliability and security, and promoting new technologies. However, these interviewees noted that several barriers need to be removed to facilitate more widespread use of DG. The most often mentioned barriers include the need to 1) standardize interconnection requirements between the distributed generators and the electricity grids, and 2) resolve net metering (allowing DG to sell electricity back to the grid) and back-up rate issues (how much customers need to pay for energy and services it takes from the grid). How these issues are resolved could greatly impact the costs and viability of DG. A primary concern, particularly for interconnection standards, is that DG providers and customers should

not have to deal with different requirements in every utility service territory. Some interviewees stressed the importance of educating the public about DG options, and having the government fund research, development and demonstration projects on DG technologies and issues.

B. Increase Efficiency of Production and Use

Almost all interviewees mentioned energy efficiency as a goal. Those who did were universally supportive of the broad goal of increasing the efficiency of energy production and use. There was, however, a range of opinion of how much we can rely on efficiency improvements to reduce the need for new energy supplies. Interviewees also differed in their opinions and priorities among various efficiency policy and program options. The efficiency policy options are presented below under the headings of transportation and non-transportation options.

Transportation Options:

1) Increase the Gasoline Tax

Almost 20% of those interviewed, volunteered that increasing the gasoline tax and hence the price of energy, would be the most effective policy to push consumers to purchase more fuel-efficient vehicles. Some suggested ramping a tax up over time; the tax could be made revenue neutral by simultaneously decreasing income tax. Another suggestion was to set a floor on gasoline prices, so that there would be a de facto tax if wholesale gasoline prices fell below the floor.

However, all those who recommended a gasoline tax also commented that increasing gas taxes was politically very unpopular in the U.S. (despite much higher gasoline taxes in Europe and Japan), and a likely non-starter. Others said that even if a gas tax were politically possible, modest gasoline tax increases would not change behavior, and substantial increases would disproportionately hurt lower-income and long-distance drivers. Another concern was that increasing gasoline taxes alone would not be enough to stimulate demand for hydrogen fuel cell cars.

2) Improve Automobile Efficiency

There was apparent consensus among the interviewees that mentioned this issue (over half of the total interviewees) that the efficiency of U.S. automobiles and light trucks needs to improve over time. There was also broad agreement that policies should support the development of hybrid vehicles using combined electric and gas engines, and fuel cell vehicles using hydrogen. But there was a range of opinion about how far and how fast this should be accomplished, and which policy mechanisms would work best to achieve these ends.

Most of the interviewees addressing this area of efficiency commented on CAFE (corporate average fuel efficiency) standards. A substantial majority felt that CAFE standards should be higher than current levels, though there was disagreement on numerical targets and timeframes for reaching them. Many interviewees also said that

sport utility vehicles should be considered passenger automobiles, not light trucks, in calculating CAFE for individual manufacturers (“close the SUV loophole”).

However, a number of interviewees felt that increasing CAFE standards is not the best way to reduce automobile emissions or reduce demand for oil. The main critiques of CAFE were 1) it is a technology standard not an environmental performance standard; 2) it substitutes government control for market forces; 3) as a practical matter, increases in fuel efficiency over the past two decades have been far outweighed by increases in vehicle miles traveled and by consumer preferences for less-efficient cars and light trucks.

A number of interviewees supported higher gasoline taxes as a superior alternative to CAFE (but see caveats above). Other options frequently mentioned were tax or other financial incentives for manufacturers to produce more efficient cars; greater use of diesel fuel vehicles (though recognizing that fuel savings must be weighed against higher NO_x and particulate emissions); and revenue-neutral “feebates” for consumers whereby “gas guzzlers” would pay a penalty (possibly in the form of higher sales tax) and “gas sippers” would be financially rewarded. Another suggestion was to create a “golden carrot” program to reward the first manufacturer to make a commercially available super efficient vehicle (either through an agreement for a bulk purchase or some other means). Many also proposed increasing RD&D, particularly on hydrogen-based fuel cell vehicles. A couple of interviewees expressed concerns that moving to more efficient vehicles should not compromise vehicle safety.

Improving the efficiency of tires, particularly replacement tires, is another area that several interviewees mentioned as a means to improve vehicle efficiency. Some felt this could be done by requiring replacement tires to be as efficient as the original tires, while others supported Energy Star labeling to inform consumers about the most efficient tire options.

Many people suggested that perhaps a combination of these programs would be best, with somewhat higher CAFE standards supplemented by some combination of incentives for more efficient vehicles, RD&D, and promoting improved tire efficiency. Also, as mentioned previously, some interviewees stated that their organizations would consider dropping their opposition to ANWR in exchange for substantial increases in CAFE standards.

3) Other Transportation Related Policies

Two other areas were mentioned-- improving the efficiency of trucks and other heavy vehicles, and promoting mass transit. Interviewees argued that these areas needed attention in a national energy plan but did not articulate specific proposals.

Non-Transportation Options (Electricity and Other):

Interviewees made many suggestions on ways to promote efficiency in areas other than transportation. Some suggested R&D and incentives for increasing conventional power plant efficiency and transmission efficiency (e.g. through super-conducting materials).

But the bulk of the comments focused on improving end-use efficiencies. We provide an annotated list of the suggestions, based on the frequency with which interviewees mentioned them:

- a) **Appliance and Equipment Standards and Education** – Many interviewees mentioned that appliance and equipment standards need to be expanded to cover additional equipment and should also be reviewed periodically to see whether further gains are possible. There was universal support among those who mentioned the joint EPA-DOE Energy Star program for continuing to expand and update its use in educating consumers about the most efficient equipment. Some argued to keep ratcheting up Energy Star to make it more rigorous, and one interviewee recommended exempting Energy Star equipment from state sales tax. However, some of those more directly involved in this industry were concerned that the appliance industry not be required to further increase efficiency until standards have been set and gains made in other industries.
- b) **Building Codes** – A number of interviewees argued that improving efficiency codes for both residential and commercial buildings could provide major gains. Some argued that there should be national minimum requirements, and others that there should continue to be model codes with strong encouragement for state adoption. Several mentioned the need to bolster state enforcement of codes. Other said that the Federal government should begin to set standards for safe and efficient hydrogen use in buildings and facilities.
- c) **Demand Response in Electricity Markets** – Numerous interviewees underscored the need for developing a comprehensive demand response in restructuring electricity markets, so that customers can change consumption patterns in response to time of day/real-time changes in pricing. Interviewees stressed that this will require a combination of end-use and information technology improvements (e.g., smart meters, smart equipment), changes in pricing (e.g., time-of-day, real-time); and opportunities to be compensated for reductions (e.g., saving higher peak prices through reductions, actually bidding reductions against supply).
- d) **Combined Heat and Power (CHP)** – By utilizing the waste heat from on-site electricity generation and avoiding transmission losses, CHP provides substantial energy efficiency gains compared to large, centralized power plants. This option had support among a number of interviewees. However, several pointed out obstacles to CHP: clearer and simpler procedures for utility interconnection, back-up rates, and net metering as well as air permitting issues are needed to enable broader use. Interviewees argue that there should be clear national support for CHP, and potentially national standardization with respect to interconnection and back-up issues. One interviewee argued that we should be promoting biomass CHP, since most CHP uses fossil fuels; and another suggested creating an environmental bubble policy that would credit facilities for using CHP and making other efficiency improvements.

- e) **RD&D Funding**-- Increasing Federal RD&D for a wide range of more efficient technologies had universal support among those who mentioned it. Some argued for federal R&D for long range projects while others favored policies that promote R&D in the private sector.
- f) **Efficiency Tax Credits and Incentives** – Several mentioned strengthening efficiency-related investment tax credits and other incentives, while at least one interviewee was concerned that tax credits end up supporting too many “free-riders” (people who would have installed the measures even without the tax credits) or have other perverse consequences.
- g) **National System Benefit Fund (SBF) for Energy Efficiency** – Several people mentioned the need to establish national SBF requirements that would through a small consumption-related surcharge on consumers’ electricity bills, create a national fund (or state or regional funds) to run customer demand side management efficiency programs. Many states already have statewide or utility-specific SBFs for energy efficiency and renewables.
- h) **National Energy Performance Standard (EPS)** – This program, akin to the RPS described previously under renewable resources, would require load-serving entities to achieve an increasing level of energy efficiency. Only a few people mentioned this relatively new policy concept.
- i) **Government Requirement in its Own Building and Facilities** – Several interviewees mentioned the need for the Federal government to lead by example by requiring higher levels of energy efficiency both in new construction and in existing buildings and facilities. In addition to buildings and facilities that the government actually owns, some argued that higher standards should also apply to buildings and facilities that they lease. One interviewee offered that the government could link project funding with energy efficiency criteria.
- j) **Low-Income Programs** – A few interviewees mentioned the importance of maintaining and strengthening federal energy efficiency programs for low-income individuals and families.
- k) **Benchmarking Industrial Use** – A couple of interviewees recommended researching and publishing energy efficiency benchmarks (i.e., energy use per output) for a wide-range of industries as a good educational and motivational program

C. Promote Stable, Efficient Markets and Pricing

Interviewees were concerned about developing better markets and pricing for both electricity and natural gas, with the lion’s share of the comments focused on electricity restructuring. The concerns were largely focused on continuing to restructure the markets as long as reliability remains high, and prices become less volatile than we’ve seen in the past year and lower than they would have been otherwise.

Electricity markets: There was broad agreement on the need to continue promoting and developing truly competitive markets particularly in the wholesale markets, with appropriate regulatory oversight to help to deliver the promise of lower, long-term

electricity prices and continued high reliability. Interviewees identified several issue areas of great import to them under this broad heading:

- a) **Clarify FERC's role** – Many interviewees said that FERC's role in overseeing the wholesale power and transmission markets needs to be further clarified. A number of interviewees said that FERC's recent, more interventionist direction seemed positive, and that FERC should continue to play a forceful oversight role in the markets. Several thought that FERC's responsibility and authority to address concentration of market power should be made stronger and more explicit. However, a few argued that FERC should take a more "hands-off" approach to the wholesale and transmission markets. Particular concerns were raised about FERC's potential role in reviewing electricity sector mergers and acquisitions, which might be duplicative of Justice Department and Securities and Exchange Commission reviews. Some in both camps felt that Congress should clarify FERC's role in legislation, while others thought it should just continue to evolve through FERC's own decisions.
- b) **Resolve RTO structure** – FERC's push for larger and more independent, regional transmission organizations was seen by almost all interviewees who commented as a very positive step that will greatly improve competition and economic efficiency in the wholesale markets. However, numerous interviewees commented on the need for FERC to move more quickly to establish the long-term boundaries and structures of these "rolled-up ISOs." Some interviewees also argued that even if the RTOs operate regional transmission systems, utilities should spin-off transmission holdings to independent transmission owners.
- c) **Pricing Issues** – Several important pricing-related issues came up during the interviews. Numerous interviewees commented that it was important for customers at the retail level to see prices closer to real-time prices, and that FERC and the ISOs create the ability for customers to exercise a "demand response." By being able to respond more directly to real-time prices, customers would not only save money for themselves but could help reduce prices for everyone while tempering market power. Some interviewees pointed out that residential and small customers should also be enabled to respond, and that to do so will require development and deployment of advanced meters, "smart" appliances, and web-based information technologies. Several also suggested the use of "congestion" or "locational" pricing--charging consumers more for electricity consumed in areas that have high service costs, just as real-time pricing has higher prices for peak periods of the day.
- d) **PUHCA and PURPA reform** – A number of interviewees argued that both long-standing laws, PUHCA (the Public Utility Holding Company Act) and PURPA (the Public Utility Regulatory Power Act), should be greatly reformed or repealed in light of electric industry restructuring. With respect to PUHCA, which among other provisions limits utility investment in unregulated subsidiaries and utility mergers and acquisitions, some interviewees argued that PUHCA may actually be thwarting competition by restricting utilities from investing in other electricity markets. However,

given the recent bankruptcy of Enron, some interviewees remained skeptical about full-scale PUHCA repeal in a regulatory environment that may not provide adequate safeguards against abuse of market power. They suggest streamlining PUHCA's financial reporting requirements by transferring financial oversight from the SEC to FERC. PURPA, among other things, requires utilities to buy output from qualifying renewable and cogeneration facilities. Some argue that the law is no longer useful would no longer be necessary if there was a National RPS requiring all suppliers to buy renewables.

- e) **Other issues** –interviewees also mentioned included the need for uniform disclosure/labeling of electricity including its resource mix and environmental characteristics; and the need for uniform wholesale and retail business practices.

Natural gas markets: Some interviewees were concerned about the volatility of natural gas prices over the last eighteen months. They noted that deregulation of natural gas markets, the growth in demand for natural gas as a “cleaner” fuel, limited development of new domestic natural gas supplies, and the development of very active natural gas trading markets may all have contributed to this volatility. Among those who mentioned natural gas markets, there was general agreement on the need to assess the causes of volatility carefully before deciding on changes in regulatory policy.

D. Enhance Distribution Infrastructure and Systems

As mentioned above under the first goal on energy supply, numerous interviewees mentioned the need for substantial new investment in energy distribution infrastructure. Most felt that the key policies necessary to support this investment are clearer electricity market roles and rules, and a streamlined siting and permitting process for developing power plants, gas pipelines and electricity transmission.

Improving the transmission system seemed to be the top priority among the most interviewees. As many pointed out, there are substantial bottlenecks in the national electricity transmission grid and inadequate incentives to build the necessary transmission additions. Ownership and operation rights and responsibilities need to be clarified through FERC's RTO process before investment is likely to flow. Moreover, several interviewees pointed out that RD&D is needed to improve the efficiency of transmission using superconductivity and improvements in both DC and AC options.

Some interviewees also stressed the need to ensure electricity system reliability as generation and transmission markets are deregulated. They suggested several policy options: establishing reserve capacity requirements at the RTO level and/or national level; providing incentives for distributed generation; and using time of use pricing and other demand response mechanisms to limit load spikes.

In regard to streamlining the siting process, some argued that the Federal government should be able to override state and local jurisdictions, while others wanted earlier, more consistent and more proactive inter-governmental coordination. While the problems seem most acute with large power plants (particularly coal-fired ones),

interviewees also expressed concern with the time and difficulty of siting gas pipelines and new electricity transmission lines. Some interviewees argued that facility and transmission line planning should be more inclusive, balancing expansion with other options to reduce congestion such as distributed generation, demand side management, and strategically locating new power plants. Finally, several interviewees stressed the importance of instituting locational pricing for transmission services, thereby creating market signals for efficient investment in new transmission capacity.

E. Minimize Health and Environmental Impacts

Virtually all of the interviewees recognized the inextricable link between energy use and environmental and health impacts. They saw many avenues for energy policy to impact the environment, and for environmental policies to influence energy choices. The policies and programs that interviewees recommended to minimize health and environmental impacts fell into three specific areas: 1) energy resource and technology choices; 2) environmental regulation; and 3) pricing policies.

1) Energy Resource and Technology Choices

Efficiency: There is near-unanimous recognition that improving energy efficiency reduces energy use and its associated health and environmental costs. As described above, there is a wide range of different programs and policies in that can improve efficiencies in transportation, electricity, buildings, industry and other end uses that interviewees support, although priorities may differ.

Renewables: The next most commonly mentioned set of policies to address health and environmental impacts was renewable energy resources such as wind, solar, and biomass. Again, expanded use of renewable energy resources was widely supported, although there was not full agreement on how much we can realistically expect from these resources over time. There were also differences of opinion on the best program and policy mechanisms to foster renewable resource development, and concern about impacts of a rapid shift on workers and investors in conventional fuel industries. See discussion under Goal 1 for more detail.

Hydrogen: The use of hydrogen fuel cells also garnered widespread enthusiasm. Interviewees recognize this as a potentially very environmentally friendly fuel source for both mobile and stationary sources, particularly if it is ultimately derived using renewable resources. In the near term, there was openness to using natural gas (or conceivably coal with carbon sequestration) to produce hydrogen. But as described in Goal 1, there is greater uncertainty about hydrogen than about renewable resources as far as commercial viability and large-scale use.

Cleaner Fossil Fuels: Among more conventional energy resources, interviewees also recognize that natural gas has lower environmental impacts than oil and coal given current technologies and extraction techniques. Further development of clean coal technologies was seen by many as a way to achieve substantial environmental and health improvements, but many other interviewees believe it would be easier to achieve environmental goals by phasing out coal and expanding use of less-polluting fuels.

Nuclear: A number of interviewees commented that nuclear power is relatively clean from the standpoint of average daily air emissions. Still, most thought that the health and environmental risks that nuclear is currently perceived to carry (operational safety, waste management and disposal, proliferation) outweigh the air emissions benefit. Instead, nuclear was mentioned by some as a possible long-term alternative if environmental goals cannot be achieved through other means.

ANWR: Finally, as discussed above under energy supply, drilling in ANWR is perhaps the most controversial energy-environment issue at the moment.

2) Environmental Regulation

Over a quarter of those we interviewed commented on the need to provide greater certainty and stability in energy-related environmental regulations (particularly concerning air emissions and efficiency standards). Many interviewees across a broad spectrum suggested that if we could set up a long-term environmental framework (coupled with long-term electricity market rules), we could probably substantially simplify or eliminate other energy regulations and policies that support specific technologies and fuel types.

Multi-pollutant regulations for power plants: Promulgating a clear, long-lasting multi-pollutant rule was a very high environmental priority for almost all interviewees who discussed environmental policies. Across the board, interviewees argued that a clear long-term framework was essential, and many expressed a willingness to support more stringent regulations in exchange for long-term certainty. The majority of those interviewees, again across a fairly broad spectrum of stakeholders even including some conventional energy suppliers and producers, argue for a four-pollutant law covering SO₂, NO_x, mercury, and CO₂. However, several interviewees involved in fossil fuel production said that mandated CO₂ reductions would be unacceptable to them. They did indicate a willingness to consider voluntary and incentive measures to address CO₂. Numerous interviewees were willing to support more stringent performance standards phased in over time. Many said that rules should be set with an eye to accomplishing major reductions, over a realistic timeframe, without excessive costs, without declaring any fuel source unacceptable *a priori*, and giving regulated industries flexibility in how to meet the standards. Several interviewees said that for example, coal-fired technologies should be allowed to compete to meet stringent standards—if they can meet those standards, then coal can remain a major fuel source.

Several interviewees, primarily energy suppliers and producers but including some in other constituencies, argued that CO₂ was not really a pollutant and should not be regulated at this time. Among the diverse groups supporting four-pollutant regulation, some argue that CO₂ should only be included if CO₂ credits are tradable and offsets can be purchased in a broad market (including other sectors in the U.S. and actors outside the U.S.). Other interviewees were not as optimistic about CO₂ offsets.

There seemed to be widespread support for the notion that a strong multi-pollutant law could greatly simplify if not replace the current framework for dealing with New

Source Review (NSR), and could also quell the debate over what to do with the power plants “grandfathered” under the Clean Air Act. In the absence of strong multi-pollutant laws, interviewees pointed out that both these issues will likely remain points of contention blocking harmonized energy and environmental policy. As mentioned previously, many want regulations in both areas strengthened and enforced. Others argue that NSR as currently administered is an obstacle to early retirement of older plants, and in fact creates a perverse incentive for power plant owners not to make new investments in efficiency-increasing equipment for fear that retrofitting requirements triggered by NSR will make the investment prohibitively expensive. Still others argue that policies should compensate owners for retiring old, dirty plants and making major improvements in others. One interviewee argued for trading lower near-term emissions reduction requirements for power plant owners’ commitment to replace their older plants with the least-polluting commercially viable new technologies, thereby promoting a shift to renewables, fuel cells and other new generation technologies.

3) Tax Policy and Pricing

A third set of policies frequently mentioned was using taxes to internalize environmental and other costs (e.g. military and national security) of energy production and use. A carbon tax, BTU tax, and/or gasoline tax could encourage environmental improvement by prompting more efficient production and use and a shift away from fossil fuels. The tax policies also have the advantage of not “picking” specific technologies or fuel sources to replace those that are taxed. Numerous interviewees across a broad spectrum of constituencies felt that implementing one of these taxes would be the most effective energy-environmental option on the menu. They argued that such taxes could be phased in over time, and could be designed to be revenue neutral by reducing other taxes such as income tax by a corresponding amount. Yet, from every interviewee who mentioned taxes, there was recognition that these energy related taxes would be an extremely difficult sell in the U.S. despite widespread and long-term acceptance in Europe and Japan. Among those who did not favor taxes, the primary concerns was that they would not significantly change behavior unless they were high enough to create a serious burden on low-income households and the most energy-intensive industries.

On the other side of the tax coin, there were many suggestions for using tax credits to favor the development of renewable energy sources, efficient energy production and end-use technologies, and cleaner fossil fuel combustion. Tax credits and incentives have been mentioned as ways to implement a number of supply, efficiency, environmental and infrastructure policies cited above.

F. Develop New Technology

Although different interviewees preferred different technologies, there was both broad and deep support for promoting federal policies and programs to support new technology development. One cross-cutting comment was the need to make the R&D tax credit permanent, so that private investors can have more certainty about the affordability of multi-year R&D programs. The four specific areas that interviewees mentioned most often were 1) research, development and demonstration (RD&D); 2)

tax policies and other subsidies; and 3) system benefit funds (SBFs), and renewable portfolio standards (RPS).

As described above under the first two energy policy goals, numerous energy related technologies were identified by interviewees for RD&D support: 1) clean coal; 2) hydrogen fuel cells for stationary and mobile applications; 3) more efficient vehicles (including hybrids, fuel cells, and alternative fuels); 4) renewable technologies (wind, photovoltaics, and biomass mentioned most often); and 5) nuclear power plant standardization and waste storage. Generally, interviewees expressed greater interest in funding technologies in which industry had not already heavily invested (though there was some support for public-private RD&D partnerships). The only technology that did not engender universal support among those who brought it up was clean coal. As noted above, some interviewees argue that coal use should be phased out.

In addition to RD&D, numerous interviewees suggest that tax or other incentives should be provided to facilitate their adoption and use of emerging technologies. Depending on the technology, incentives might best be focused on manufacturers and producers or consumers, and on output/production or investment. Production tax incentives would generally be for technologies further along on the development curve than the investment credits. Interviewees also pointed out that as technologies become commercially available and more cost competitive, incentives should be ramped down.

As an indirect way to stimulate development of renewable energy sources and energy efficient technology, several interviewees advocated SBFs and RPS/EPS mechanisms. As discussed above in regard to energy supply and efficiency policies, an SBF could provide funding from a non-by-passable energy surcharge for a wide range of energy efficiency and renewable energy technologies. An RPS would require suppliers of electricity to derive an increasing percentage of their supply from new renewable resources, and an EPS would require increasing levels of efficiency.

IV. POTENTIAL STARTING POINTS FOR BUILDING CONSENSUS ON NATIONAL ENERGY POLICY

This section identifies potential starting points for a balanced, comprehensive and consensus-based national energy policy. The starting points have been synthesized from interviewee comments on which goals and policies are most important to them, and from interviewee suggestions on ways to meet their own top priorities while also providing gains or minimizing trade-offs for others.

The starting points are grouped under two headings: policies that seem to have broad support among the energy leaders we interviewed, and policy “packages” that could become elements of a comprehensive energy policy package.

The NEPI assessment team stress that the ideas presented below represent a synthesis of ideas presented by interviewees, and are meant as a starting point for discussion at the Expert Workshop. They are not meant as a proposal from the assessors. Rather, we have attempted to integrate and build on what we heard from the interviewees, without advocating a single answer to any policy question.

In reviewing these potential starting points, we encourage the energy leaders we interviewed and the participants in the Expert Workshop to assess how well the starting points *considered as a whole* meet the core interests of major constituencies, and how well they meet the key energy policy goals that energy leaders named in our interviews:

- Improving Domestic Supply from Diverse Sources
- Increasing Efficiency of Production and Use
- Promoting Stable, Efficient Markets and Pricing
- Enhancing Distribution Infrastructure and Systems
- Minimizing Health/ Environmental Impacts
- Developing New Technology

A. Policies with Widespread Support

Increase incentives for efficient energy production, distribution and use: Gains in energy efficiency can pay economic, security and environmental dividends. There appears to be broad support for Federal policies promoting the following efficiency strategies and technologies: replacing older power plants with newer, efficient plants; co-generation and distributed generation; more-efficient transmission lines; developing a demand-response in electricity markets; promoting efficiency improvements in homes, commercial buildings, and industrial facilities and processes; and increasing efficiency in appliances and other equipment. There is not, however, full agreement on the best instruments to implement these policies (education, incentives, regulation).

Increase certainty in environmental regulation: Both environmental advocates and regulated groups (e.g. fossil fuel generators; the automotive, building materials and appliance industries) say they would prefer environmental requirements and incentives to remain stable over at least an 8-12 year period, to increase certainty about both environmental results and investment decisions. This interest in longer-term certainty

has led several interviewees to suggest potentially workable energy-environment policy packages (see the next sub-section).

Improve vehicle efficiency: There was broad support for improving the efficiency of motor vehicles over time. However, there were differences of opinion over the appropriate time frame, and the best policy mechanism or mechanisms to achieve this end. Many supported some combination of increasing CAFE standards, RD&D, and providing incentives for more efficient cars. Others argued that a gas tax would be better for both increasing the demand for more efficient vehicles and reducing vehicle miles traveled. There were also some concerns expressed over not sacrificing vehicle safety for greater efficiency.

Invest in hydrogen technologies: There is broad support for continuing to develop and commercialize hydrogen fuel cells for stationary and mobile use. Many interviewees stressed the environmental, fuel diversification and potential long-term domestic availability/security benefits of hydrogen technologies. However, some interviewees said that there may not be a large commercial market for hydrogen fuel cell development within the next 20 years. In their view, incentives for hydrogen should not substitute for near-term improvements in efficiency and environmental performance of existing and evolving technologies. Finally, several interviewees said that rather than accepting incremental development of hydrogen, the Federal government should create a national plan, backed by major public and private investment, for accelerated development of hydrogen technologies and infrastructure.

Increase incentives for use of renewable energy: The reasons for renewable energy's broad support are similar to the reasons cited for hydrogen: lower environmental impact, diversification of supply and potential for long-term availability at low fuel cost. Specific policies that seem to have broad support include a national renewables portfolio standard (though some argued that an RPS should not set quotas for the use of any particular renewable resource), and tax credits and other incentives for use of renewable energy in buildings, homes and distributed generation.

Continue funding and tax credits for energy RD&D: Most interviewees supported Federal energy RD&D programs in principle, though many wanted to see re-allocation and/or increases in RD&D funds and a stable private R&D tax credit. The most often mentioned areas of focus include hydrogen fuel cells, clean coal technologies; energy efficiency and renewable energy technologies, and nuclear power plant standardization and waste safety. As noted above, a few interviewees believe it would be more efficient to eliminate all Federal energy RD&D funding.

B. Potential Policy Packages

Following are several potential policy "packages" that build on interviewee suggestions. Each package includes several policies. In compiling them, we tried to ensure that each package

- 1) has support among interested constituencies;
- 2) clearly advances one or more of the key energy policy goals named above;

3) shows some potential for resolving contentious issues that could otherwise derail progress on widely shared goals.

Again, in compiling the following packages, the organizers do not mean to imply that other possible packages are not equally worthy of consideration.

Automobile energy use:

- Continue RD&D funding for efficient and alternative fuel vehicles, particularly hydrogen fuel cell vehicles;
- Increase in CAFE standards, including SUVs, at a moderate rate;
- Provide “feebate” incentives to encourage the purchase of fuel efficient cars;
- Increase gasoline taxes at a moderate rate;
- Create an Energy Star program for efficient tires.

Power plant environmental regulation and siting:

Some or all of the following elements could be integrated in a regulatory framework that would remain stable for a period long enough to facilitate power plant investment planning (e.g. 8-12 years):

- Create a multi-pollutant framework for power plant emissions, using a “3P” approach (SO_x, NO_x, Hg), with cap-and-trade instruments within appropriate geographic boundaries, and tax incentives for meeting targets ahead of schedule;
- Within this 3P framework, trade smaller near-term emission improvements for commitments to replace existing power plants with much cleaner new technology over clearly defined periods;
- As a complement to the 3P framework, develop a long-term initiative to reduce power plant net CO₂ emissions through incentives and market mechanisms.
- Implement New Source Review in ways that encourage efficiency-improving investments in existing plants;
- Provide tax or other financial incentives for reducing emissions from existing plants and for early retirement of grandfathered plants;
- Improve interagency coordination and community involvement to streamline the siting of new power plants and associated transmission lines and pipelines.

Domestic fuel supply:

- Streamline permitting process for oil, gas, coal, and renewable energy exploration and development on Federal lands in lower 48 states by increasing interagency coordination in reviews/hearings, without relaxing environmental standards or community consultation requirements;
- Explore ANWR reserves within area authorized by Congress to assess the magnitude of the resource, using strict environmental safeguards, but do not drill for now;

- Reduce demand for oil by decreasing/shifting automobile energy use (see automobile package above);
- Create a Federal Renewables Portfolio Standard that requires electricity suppliers to increase the percentage of supply from renewable resources. In parallel, consider repeal of PURPA sections requiring renewable resource purchasing;
- Provide job training and consider compensation for workers in conventional fuel industries who are displaced as a result of shifts in Federal energy policy;
- Expand tax incentives for investments in renewable energy and combined heat and power applications, and make these incentives certain for a substantial period (10+ years).

Electricity Markets:

- Continue to restructure U.S. electricity markets to promote competition;
- Clarify, affirm and consider strengthening FERC authority to investigate and regulate concentration of market power in electricity generation and transmission, without duplicating SEC or Justice Department functions. As a complement, consider amendments to PUHCA to streamline financial reporting and encourage competition in the public interest;
- Expeditiously resolve the long-term boundaries and structure of regional transmission organizations (RTOs);
- Promote integrated demand response in electricity markets;
- Create Federal standards for distributed generation (grid interconnection, net metering and backup charges);
- Maintain protections for consumers and low-income households.

V. Next Steps: Use of the Assessment at the NEPI Expert Workshop

The primary use of the Assessment Report will be as a briefing document for the Expert Workshop. As a briefing document, it is intended to provide a starting point for discussion. The expert participants will begin each segment of the discussion by reviewing and commenting on the key elements of the Assessment: the goals, policies and possible packages identified in interviews. The participants will be encouraged to build on the Assessment in seeking points of consensus. They will not, however, be limited to discussion of the points presented in the Assessment.

As noted in the Introduction, the results of the Expert Workshop will be distributed to all of those we interviewed and to interested Congressional leaders.

The NEPI organizers look forward to further communication with those we interviewed. The organizers also wish to express their appreciation to all those who took the time to speak with us during the Assessment process.

APPENDICES

- A. Information about RMI and CBI
- B. Persons Interviewed
- C. Interview Questions

Appendix A

Information about Rocky Mountain Institute and the Consensus Building Institute

Rocky Mountain Institute

Rocky Mountain Institute is an entrepreneurial nonprofit 501(c)(3) organization that fosters the efficient and restorative use of resources to create a more secure, prosperous, and life-sustaining world. Its staff show corporations, communities, individuals, and governments how to create more wealth and employment, protect and enhance natural and human capital, increase profit and competitive advantage, and enjoy many other benefits—largely by doing what they do far more efficiently. Its work is independent, nonadversarial, and transideological, with a strong emphasis on market-based solutions. It is focused on the following main areas and the interconnections between them:

- Energy
- Water
- Climate
- Buildings & land development
- Transportation
- Innovative business practices
- Communities

RMI was established in 1982 by resource analysts Hunter and Amory Lovins, who still lead it. What began as a small group of colleagues focusing on energy policy has since grown into a broad-based institution with more than 45 full-time staff, an annual budget of nearly \$5 million (much of it earned through programmatic enterprise), and a global reach. By demonstrating new ways to save natural and human resources, RMI not only helps protect natural capital; it also creates new wealth—financial capital—to improve quality of life, achieve worthy social goals, and lay the foundation for future prosperity.

RMI Personnel for NEPI:

Amory B. Lovins, Chief Executive Officer (Strategy)
L. Hunter Lovins, Chief Executive Officer (Strategy)
Thomas Feiler Managing Director, Research and Consulting
Karl R. Rábago, Managing Director, Research and Consulting

Consensus Building Institute

The Consensus Building Institute, Inc. (CBI) was established in March 1993, with offices located in Cambridge, Massachusetts. CBI is committed to refining the art and science of consensus building. CBI's mission is to: (1) assist public and nonprofit agencies and institutions in the United States and abroad in their efforts to develop and employ consensus building and dispute resolution in performing their public-interest functions; (2) conduct workshops, seminars and other training programs, and develop and disseminate instructional materials and practice guides, designed to advance public understanding of the theory and practice of dispute resolution and consensus building; and (3) undertake and publish the results of independent studies and assessments of consensus building and dispute resolution efforts in the United States and abroad.

A nonprofit organization, CBI was created by MIT Professor Larry Susskind and other leading practitioners and theory builders in the field of consensus building. CBI's founders, board members and staff have been involved in the design and implementation of consensus building efforts at the local, state, national and international levels. We draw on this extensive experience to help government, business, advocacy and community groups develop new consensus building and dispute resolution capabilities.

During the past nine years, CBI has provided training and facilitation services to a broad spectrum of domestic and international public agencies including the U.S. Department of Energy; U.S. Environmental Protection Agency; the U.S. Air Force; the Dutch Ministry of Housing, Spatial Planning, and the Environment; the United Nations Commission on Sustainable Development; United Nations Framework Convention on Climate Change Secretariat; and ambassadors to the World Trade Organization. We have secured grants for the research and promotion of alternative dispute resolution techniques and systems from The William and Flora Hewlett Foundation, The Carnegie Corporation of New York, The Pew Charitable Trusts, The Charles Stewart Mott Foundation, The Rockefeller Brothers Fund, The Kendall Foundation, The Surdna Foundation, The United States Institute of Peace, and The German Marshall Fund of the United States.

Our annual budget is about \$1.8 million.

CBI Project Personnel for NEPI:

Larry Susskind, President
Bill Moomaw, Board Member and Senior Consultant
Jonathan Raab, CBI Senior Consultant
David Fairman, CBI Vice President
Kelly Sims Gallagher, CBI Consultant
Stan Byers, CBI Consultant
Cynthia Brady, CBI Consultant

Appendix B

Energy Leaders Interviewed for NEPI Assessment

Energy Producers and Suppliers

Marty Andreas, Assistant to the CEO, Director of Corporate Marketing, Archer Daniels Midland

Allan Barnett, President, Astropower, Inc.

Mike Bergey, President, Bergey Wind Power Co.

Hap Boyd, Vice President, Enron Wind

Red Cavaney, President & CEO, American Petroleum Institute

Mike Ferguson, Vice President and Regional Manager, Kinder Morgan Bulk Terminals

David Freeman, Chairman, California Consumer Power & Conservation Financing Authority

Gay Friedman, Senior Vice President, Interstate Natural Gas Association of America

Janet Gellici, Executive Director, Western Coal Council

Phil Harris, CEO, and **Craig Glazer**, Manager of Regulatory Affairs, PJM Interconnection LLC

Darrell Henry, Director of Public Affairs, American Gas Association

Glenn Jackson, Director of Legislative Affairs, Williams Companies

Peter Kelly-Detwiler, Vice President, AES New Energy Ventures

Thomas G. Kraemer, Vice President, Coal Marketing, Burlington Northern Santa Fe Railway Co.

Susan Labombard, Federal Affairs Representative, Ameren Energy

Kevin Leahy, Special Assistant to the CEO, Cinergy Corporation

Ned Leonard, Assistant General Manager, Western Fuels

Wayne Leonard, CEO, Entergy Corporation

Kevin Lindemer, Senior Director, CERA

Kevin Madden, Executive Vice President, AGL Resources, Inc.

Bob Mauro, Technical & Policy Advisor to the Board, National Hydrogen Association

Paul McNeill, Vice President of Business Development, Marketing & Sales, HPower

C. Michael Ming, Managing Director, K. Stewart Energy Group LLC

Roger Naill, Senior Vice President, AES Corp.

Obie O'Brien, Vice President, Government Affairs, Apache Corp.

Terry O'Connor, Vice President External Affairs, Arch Coal Inc

Karen O'Neill, Vice President for New Markets, Green Mountain Energy

Alan H. Richardson, Executive Director, American Public Power Association

Mark Schwartz, Chief Economist, Exxon/Mobil

Scott Sklar, President, The Stella Group, Ltd.

Vic Svec, Vice President, Public Relations, Peabody Group

Randy Swisher, Executive Director, American Wind Energy Association

Carl Weinberg, Consultant, Weinberg Associates

Jane Woodward, President and CEO, Mineral Acquisition Partners, Inc.

Energy-Related Products and Services

Dan Arvizu, Senior Vice President, CH2M HILL

Judith Bayer, Director of Environmental and Government Affairs, United Technologies Corp.

David Cole, Director, Center for Automotive Research

Kevin Duggan, Manager of Government and Regulatory Affairs, Capstone Turbine Corp.

Douglas Durst, President and **Jody Durst**, Executive Vice President, Durst Real Estate

Edward Gray, Director, Energy Policy, National Electrical Manufacturers Association

Steven Hauser, Director, Energy Programs, Pacific Northwest National Laboratory

Lou Hayden, Legislative Director, National Association of Home Builders

Jeffrey Hollender, President, Seventh Generation

Thea Lee, Assistant Director for Public Policy and International Economics and

Jane Perkins, Environmental Liaison, AFL-CIO

Charles McDermott, President, CEO Coalition to Advance Sustainable Technologies

Dennis Minano, Vice President, Corporate Affairs, General Motors Corporation

David Samuel, General Manager, Global Energy and Utilities, IBM

Charles Samuels, Government Relations Counsel, Association of Home Appliance Manufacturers

Energy Consumers

Charles Acquard, Executive Director, National Association of State Utility Consumer Advocates

Patrick Atkins, Director of Environmental Affairs, Alcoa

Jon Doggett, Senior Director, Congressional Relations, American Farm Bureau

R. Bruce Josten, Executive Vice President, Government Affairs, U.S. Chamber of Commerce

Tom Jorling, Senior Vice President, International Paper

Peter Molinaro, Director of Government Affairs, Dow Chemical Co.

Brad Redlin, Federal Policy Analyst, Center for Rural Affairs

Environmental and Other Public Interest

Dan Becker, Director, Global Warming and Energy Program, Sierra Club

Sally Bingham, Minister, Episcopal Environmental Coalition Diocese of California

Ralph Cavanagh, Director, Energy Program, Natural Resources Defense Council

Phil Clapp, President, National Environmental Trust

Howard Geller, Executive Director, Southwest Energy Efficiency Project

Alden Myer, Director of Government Relations, Union of Concerned Scientists

David Nemtzov, President, Alliance to Save Energy

John Passacantando, Executive Director, Greenpeace USA

Nancy Skinner, International Director, Cities for Climate Protection

Jerry Taylor, Director of Natural Resources Studies, Cato Institute

Government

Mathew Brown, Energy Policy Director, National Council of State Legislators

Tom Fulton, Deputy Assistant Secretary for Land and Minerals Management, Department of Interior

Kathleen Hogan, Director, Climate Protection Division, U.S. EPA

Doug Larson, Executive Director, Western Interstate Energy Board

William Nugent, President, National Association of Regulatory Utility Commissioners

Richard O'Neill, Chief Economic Advisor, Federal Energy Regulatory Commission

Cameron Whitman, Director, Policy & Federal Relations, National League of Cities

Appendix C

NEPI Energy Leader Interview Questions

1. What should be the top 2-3 goals of a comprehensive national energy policy? Why are these goals critical to the nation?
2. What specific policies or programs are needed to achieve each of these goals?
3. Why does your company/organization/constituency support these particular policies/programs?
4. Which 2 or 3 of these policies/programs should have top national priority now, and why?
- 5a. Are you familiar with the way these policies/programs are formulated in the SAFE Act of 2001 passed by the House last summer, and in the Senate bill recently introduced by Sens. Daschle and Bingaman? To the extent that you are familiar with each of the bills, please comment on how well each satisfies your goals and interests, and what changes you would most like to see in each.
- 5b. Where do you think the current legislative activity in the House and Senate is likely to lead? Is there likely to be substantial energy legislation in 2002? If so, how likely is it to meet your interests?
6. In developing a coalition for purposes of advancing your policy goals, which groups/constituencies do you see as your strongest allies? Which groups do you see as potential allies? Which groups are least likely to support your preferred policies?
7. Could you suggest a package of policy options that meets your primary policy goals and those of your allies, and might also gain support from groups that have different priorities? In other words, is there a comprehensive package or particular tradeoff that would meet your interests while also potentially meeting the interests of a broad array of constituencies?
8. What information, if any, do you think is important to introduce into the policy making process that is not already being considered? How could that information be provided?
9. The NEPI organizers are planning to convene a group of nationally recognized energy experts to review the key issues identified by you and other stakeholders, and to seek consensus on a set of principles and policy recommendations that could meet the primary interests of all key constituencies. We are looking for experts who have a reputation for independent, strategic, and creative thinking, and who are widely respected. We expect that these experts will be experienced in both the substance of energy policy issues and the “real-world” policy making process.
- 9a. Do you have comments on the considerations we’re using to select experts? Are there any other considerations you think are important?

- 9b. If asked to nominate 2-3 individuals to participate in the expert group, whom would you suggest? Please try to suggest at least 1 expert whose views on national energy policy are significantly different from your own.
10. Do you have other comments? Are there things we haven't discussed that you think are central to development of a sound national energy policy?