Toward a National Energy Strategy
ABOUT USEA AND THE NES STUDY

The United States Energy Association (USEA) is the U.S. Member Committee of the World Energy Council (WEC). USEA is an association of public and private energy-related organizations, corporations, and government agencies. USEA represents the broad interests of the U.S. energy sector by increasing the understanding of energy issues, both domestically and internationally.

In conjunction with the U.S. Agency for International Development and the U.S. Department of Energy, USEA sponsors our nation's Energy Partnership Program.

USEA sponsors policy reports and conferences dealing with global and domestic energy issues as well as sponsors trade and educational exchange visits with other countries.

The USEA Board of Directors agreed that the year 2000 was an appropriate time to take an in depth look at United States energy policy. Previously the USEA had published 11 Annual Assessments of U.S. Energy Policy. The Board approved the USEA National Energy Strategy project under the leadership of Richard Lawson, Chairman of its National Energy Policy Committee. The project was directed by Guy Caruso. Informed by the results of workshops on key energy issues, a working group representing all sectors of the industry has prepared the following report.

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United States Energy Association

February 2001

Toward a National Energy Strategy

USEA

United States Energy Association

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DOE002-0442
ELEMENTS OF AN EFFECTIVE NATIONAL ENERGY STRATEGY

SETTING THE GOAL

Members of the United States Energy Association (USEA) believe that energy policymakers, regulators, consumers and producers face critical policy and investment choices in the decades ahead. In many markets increased demand outstrips reliable supplies. Key industries are being deregulated. Technology is advancing at an unprecedented rate. Environmental regulations have grown increasingly costly and complex. Consumers often express confusion at the array of energy choices now available. And energy companies confront both greater competition and unforgiving financial markets that can heavily penalize those companies that expand production to meet the increased energy demands of our growing population and economy.

The proper response to these uncertain times is the development and implementation of a sound National Energy Strategy (NES). USEA members propose that the objective of this strategy be the delivery to consumers—in a ready, reliable and environmentally responsible manner—of an increased supply of affordable energy resources and energy-related services from a broad range of energy providers.

CORE PRINCIPLES

USEA members believe that this National Energy Strategy should be anchored in four core principles:

- Economic efficiency. Economic efficiency is maximized when competitive markets guide decisions affecting global energy supply and demand. Moreover, given the inherent uncertainty of energy markets and of efforts to project future trends, a diversity of fuels strategy has proven more efficient than picking "winners and losers" when addressing long-term energy problems.

- Energy security. Energy security is best achieved through diverse supplies of all forms of domestic and international energy. Similarly, contingency plans are needed to mitigate energy supply disruptions, and these U.S. plans can be enhanced through international cooperation.

- Energy technology. Research and development can spur improvements in energy technologies that produce long-term cost-effective solutions to many environmental concerns. Research to address environmental problems and to expand energy choices is an appropriate and essential role for government. Partnerships between public and private sectors (domestic and international) can also speed this process.

- Regulation and incentives. Government officials can use regulation and incentives to ensure public health, safety and consumers' rights. Decisions to use these policy tools should be based on sound science and realistic needs. Such decisions also should be timely, consistent and coordinated so that the benefits of responsible environmental protection are kept in balance with the benefits of energy use.
A national goal and these core principles alone, of course, are insufficient to build an effective National Energy Strategy. The principles must be applied to key policy issues, and input should be sought from those most affected by policy decisions. It is critical that the new Administration focus not only on the near-term issues that are in today's headlines, but also on long-term issues. The concern over potential climate change, attributed in part to fossil fuel combustion, could be a major factor in shaping future energy choices. It is critical that policymakers and energy producers look to 2050 and beyond in shaping our research and regulatory agendas, and that we consider the long-term implications of policies we adopt today. Other long-term issues, such as depletion of traditional energy resources and the need for developing technologies to find and produce non-traditional energy resources must also be contemplated in current policies. This long-term planning, conducted in an open process with non-governmental organizations (NGOs) and private sector participation, is an appropriate federal role. The following are policy issues which USEA members regard as critical to the development of a sound National Energy Strategy.

KEY ISSUES

Meeting U.S. Energy Requirements

The President and Congress can help energy producers and suppliers insure an adequate energy supply to support the nation's needs as we enter the 21st century. However, securing a reliable energy supply in the coming decades will require careful review of policy options and judicious action by policymakers and government officials at every level.

Careful deliberation is required because energy production and consumption is so inextricably tied both to economic growth and population growth. For example, the United States experienced a significant economic boom at the close of the 20th century, supported in part by a dramatic rise in consumption of affordable energy. However, this expansion of

Energy Consumption in the United States 1850 - 2000

Quadrillion BTU

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Source: United States Department of Energy, Energy Information Administration
energy consumption occurred at a time when energy supplies, particularly in the electricity sector, barely expanded at all. Substantial reserve margins at the outset of the recent economic expansion made economic growth possible, but those margins have now been depleted. Electricity capacity and, more broadly, energy supply must be increased to support continued U.S. economic growth, even at a reduced annual rate.

The Annual Energy Outlook 2001 Forecast

Energy policy must insure that supplies are adequate. The most recent Department of Energy/Energy Information Administration Annual Energy Outlook 2001 (AEO) reveals that the demand for energy of all forms is likely to increase significantly over the next 20 years. By 2020, total energy consumption is forecasted to increase by 32 percent, petroleum by 43 percent, natural gas by 62 percent, coal by 22 percent, electricity by 45 percent and renewable energy by 26 percent. At the same time, energy efficiency is projected to improve by 1.6 percent per year. The forecasts in consumption are stunning. Not only has crude oil production fallen by 14 percent since its peak in 1970, natural gas production also has fallen by 14 percent since 1973 and has remained virtually flat for seven years. Moreover, refinery capacity has fallen by 11 percent since 1981 and one-half of refineries have been shutdown over the same period.

The AEO forecast implies that massive investments in infrastructure will be made to produce and deliver energy to American consumers. However, the record to date does not inspire confidence that the current regulatory structure will support these investments. For example, the AEO projects an increase in refinery capacity of 1.7 million barrels per day and an increase in refinery utilization from 93 to 95 percent. A new EPA interpretation of rules relating to the expansion of existing capacity raises considerable doubt that this capacity will be built. If the 1.7 million barrels per day requirement is to be met through new capacity additions, eight to ten new refineries would have to be built. A large-scale refinery has not been built in the U.S. in over 20 years. The forecast also calls for an increase in refined product imports of 3 million barrels per day. This raises the question: will there be sufficient foreign refinery capacity to meet our stringent fuel specifications—especially with increasing regulation?

Similarly, the forecast for oil and natural gas consumption implies the construction of major new petroleum products and natural gas pipelines. Other natural gas facilities and petroleum terminals and facilities will be needed to meet the increased demand. How are we going to do this given the daunting regulatory apparatus and the well entrenched "Not In My Back Yard" (NIMBY) culture? The answer is that we need to develop and implement an energy policy that focuses on adequacy of supply to meet the growing needs of consumers. The goal should be to provide reliable

![U.S. Primary Energy Use](image)
and affordable supplies of energy to consumers. If it is not produced here, petroleum can be imported but most natural gas must be produced in North America because of very limited LNG import infrastructure. The AEO forecasts an increase in net oil import dependence from 55 to 64 percent during the next 20 years. This raises numerous questions about diversity of supply, national security concerns and the potential for increased price volatility.

The current shortfall of reserve margins in electricity can be traced to a consistent pattern of demand growth exceeding expectations. Indeed, over the past decade almost all institutions engaged in predicting electricity demand growth have settled on the figure of an increase of about 1.5% annually. However, the actual growth rate has exceeded 2.0% annually. Recognizing this short fall, the EIA's most recent forecast projects annual growth of 1.8% annually through the year 2020. By 2020, 393,000 MWs of new capacity will be required to meet demand growth and to offset capacity retirements. This is the equivalent of constructing approximately 40 new 500 megawatt power stations per year, over the next 20 years.

Closing this gap poses a major policy challenge. Moreover, policymakers face this challenge at a time when the national grid for electricity transmission is increasingly constrained and the ability to produce and deliver fuel to the generating facilities also is constrained. Furthermore, attracting investment and construction capital for infrastructure projects is growing increasingly difficult, as is permission to site new capacity, transmission and distribution facilities. In short, government intervention is required—in the form of an enlightened energy policy—in order to preserve economic growth, energy security and reasonable environmental protection.

Another major challenge is ensuring the reliability of the electricity transmission network, particularly at a time of increased market demand. Originally, transmission lines were used to deliver backup power and to economically exchange power among neighboring electric utilities. Today, market demand drives the use of the transmission system, and electricity is often "wheeled" great distances. Competition, in short, has turned local backup systems into a patchwork of interconnected electric super highways. This increased use has lead to concerns about congestion and reliability. Policymakers need to keep these new demands in mind and not create regulatory demands that compromise the transmission facilities needed to carry power from where it is generated to where it is consumed.

Some have argued that America's energy problems can be resolved by increasing our reliance on solar, wind, and energy efficiency measures. This report includes policy recommendations aimed at maintaining our diverse energy supplies. It also calls for more focused attention on energy research and development, and the continuation of efforts to develop solar, wind and efficiently applied technological initiatives that allow for market-based demand responses. However, the
principal focus of this report is on those energy resources and delivery systems that provide more than 98% of the nation's current energy supply. This is the appropriate focus for policymakers, too. Indeed, even if solar, wind, geothermal and efficiency measures quadrupled their contribution to the energy mix during the next 20 years, the dimensions of the energy supply issue described above remains essentially unchanged.

The evidence is everywhere that this nation faces a major energy supply challenge in the decades ahead. Failure to formulate effective policies to meet that challenge will likely compromise U.S. economic growth, energy security and social well-being.

Market-Based Energy Policies

The cornerstone of a sound National Energy Strategy is reliance on competitive markets to allocate energy supply and demand. This lesson is widely accepted and has proven, time and again, to be true. Of course markets are not perfect, particularly with respect to such externalities as energy security, public health and safety, and environmental protection.

Here, government policy will continue to play an important role in the energy sector. However, government officials at all levels should not impose new regulations on the energy supply system—even in an attempt to address health, safety and environmental issues—unless those regulations are based on sound science and incorporate the most cost-effective options. Policymakers should also continue to substitute competition for regulation to achieve these same goals, whenever possible.

Security of Supply

The U.S. is the only major industrial nation that significantly limits access to its own energy resources. Because of these constraints, U.S. dependence on foreign energy supplies inevitably will increase over the next 20 years. Many of these constraints need to be reexamined. New technologies are regularly adopted for energy production, storage and delivery that address the very environmental or public safety concerns that originally led to constraints. These objections to energy development and production no longer may be relevant. As time and technologies change, so also should restrictive energy policies. Domestic energy resources, such as coal, petroleum, natural gas and uranium, must be made available for environmentally sound exploration and development.

Policymakers should also consider recent changes in the international arena. A disruption of U.S. energy supplies could cause signifi-
cant damage to the U.S. economy. Terrorism, regional conflicts in energy exporting countries, industrial accidents and even acts of God require contingency plans and policies. A growing dependence on imported energy need not mean increased vulnerability to supply disruptions, provided effective emergency preparedness programs and policies are in place. Given the global nature of energy markets and the fact that the U.S. economy cannot be isolated from the risks of energy supply disruptions, contingency plans should include international cooperation as a key component.

Energy Efficiency

Investments in energy efficiency can reduce energy use and operating costs. The use of less energy can help protect the environment. When energy efficiency opportunities are identified, firms and individuals should take advantage of these opportunities. However, decisions that involve a trade-off between energy efficiency and energy production should be transparent. Such decisions also should not favor one option over the other, for the choice really involves a complementary relationship.

Indeed, when given appropriate competitive market signals, improved efficiency in energy production is as significant a priority as improved energy-efficiency among end users. In recent decades, improvements in technology and productivity have increased the efficiency of energy suppliers in all sectors. Policymakers should therefore allocate R&D energy efficiency funding on the basis of potential gain, regardless of whether that efficiency gain occurs during energy production or energy consumption.

Capital Investments

Enormous capital investments in all forms of energy—fossil fuels, nuclear energy and renewable energy—will be required to fuel the U.S. economy during the early decades of the 21st century. These investments will be needed in all phases of the energy sector, from production to generation to storage to transmission and distribution to improved end-use efficiency. A sound National Energy Strategy can help create the predictable operating and investment environment that all energy sectors require in order to thrive.

The regulatory process and tax policies are particularly important to attracting the requisite capital investment for growth in the energy sector, and the U.S. economy. Regulatory policies should be simple, durable and predictable, both at the national and local level. This is especially true of efforts to deregulate and restructure many U.S. energy markets. Such efforts are leading siting and transmission issues to become a matter of national policy. Federal policymakers should take these changes into account when reviewing energy laws and energy regulatory authorities. Tax policies should encourage investment for all forms of energy supply and infrastructure.

International Energy Trade and Development

Petroleum imports to the United States will likely increase for the next several decades, regardless of efforts to develop additional domestic energy resources. This reality, plus the continued globalization of the energy economy, will force U.S. policymakers to address international trade and development issues. Indeed, the future well-being of Americans and citizens of other countries will depend on the ability of U.S. leaders to promote open and fair trade practices in an effort to stimulate sustained economic growth in developing and transition economies.
Administration officials and Congressional members can take a number of steps to open energy markets. For example, they can:

- Include energy when negotiating Western Hemisphere free trade agreements.
- Work with the new government in Mexico to allow U.S. companies to participate in the oil, natural gas, coal and electric power sectors.
- Work with Canada as well as Mexico to develop a North American energy trade strategy.
- Incorporate as broad a definition of energy services as possible in the World Trade Organization's upcoming round of negotiations on "services."
- Drop unilateral trade and economic sanctions.
- Support the opening of markets currently closed to U.S. companies as a cornerstone of U.S. foreign policy.
- Utilize U.S. influence and credibility to discourage actions that damage the U.S. economy by the Organization of Petroleum Exporting Countries.

The new Administration should refocus development priorities, giving top priority to programs that encourage domestic resource development and utilization. For example, policymakers could establish a more direct link between trade promotion and international development. After all, emerging democracies cannot develop into modern, civil, stable societies unless those nations provide their citizens affordable and reliable energy supplies. Additional U.S. assistance would help develop these much-needed energy supplies.

For example, hospitals cannot refrigerate vaccines, schools cannot provide adequate lighting and clean water systems cannot function without energy. Poverty-stricken families in Africa may spend eight hours a day gathering fuel wood and animal waste to burn for light and heat. Providing basic supplies of energy can allow a mother these eight hours to teach children to read or to raise a crop for income. The cycle of poverty will never be broken without access to energy.

The World Energy Council indicates that as many as two billion people lack access to energy. The potential for social instability from poverty is a clear threat to U.S. security and our national interests. Increasing the supply of reliable and affordable supplies of energy to stimulate economic growth in developing and reforming nations must be a cornerstone of U.S. foreign policy. A new model of foreign assistance launched in 1990, energy partnerships, has proven to be more effective than traditional models in this area. The U.S. private sector, by donating their expertise, have fostered the development of economic climates conducive to trade and direct investment by U.S. corporations. These efforts have led to one dollar of matching expenditures by U.S. private sector organizations for every dollar of U.S. government assistance.

Another priority should be fostering international trade and investment, which is best done by creating appropriate legal, regulatory, tax, trade and financial frameworks that open markets and facilitate foreign investment. Energy related economic development assistance has created investment and trade opportunities in South America and Eastern Europe and are on the verge of paying off in Asia and Africa. These programs administered by the U.S. Agency for International Development (USAID) should be expanded.

Funding of programs to support international development, export and investment also should be strengthened in the U.S. Department of Energy, Trade & Development Agency, Export-Import Bank; Overseas Private Investment Corporation and the U.S. Department of
Commerce. Jobs for Americans and employment opportunities for citizens of client countries are enhanced when energy driven economic growth becomes possible in developing and transitional economies. Global trade and investment in creating the energy infrastructure critical for a modern, civil, democratic society pays dividends in terms of U.S. energy, economic and national security.

The need for global attention to developing countries energy requirements rivals the need after World War II for a Marshall Plan to rebuild Europe. In fact, an energy Marshall Plan for developing countries and transitional economies can re-establish U.S. global leadership in this area and mitigate our domestic energy problems and improve our economic and national security.

Energy Research, Development, and Deployment

Technological advances have allowed us to find, produce, transport and utilize energy in ways unimaginable only a few decades ago. Technology has contributed dramatically to an energy supply system that is efficient, safe, and environmentally secure. Future technological advances are expected to stimulate continued improvement in all of these areas as well as contribute to a diverse, robust, and economical energy future.

However, investments to maintain and improve the existing energy system have declined over the past few years, thus jeopardizing system reliability. The downward trend in investment is in part responsible for a rash of power system interruptions in the eastern and mid-western regions of the country in the summer of 1999, and the rolling blackouts in California in 2001.

Paralleling the reductions in investment in capital improvements is a sharp decline in both public sector and private sector energy R&D expenditures during the 1990s. Analysis currently underway within the World Energy Council indicates that this phenomenon is not limited to the United States, but is true of all OECD countries. Total research appears to be less than half of 1990 levels. Increases in research and development budgets are needed to create a new technology base on which to build modern infrastructures for the production and delivery of oil, natural gas, coal and electricity.

A key element of technology advance is the achievement of consensus on the issue of the role of the federal government in research, development, and deployment. Particularly in the case of technologies for critical energy infrastructures, where system failures can have consequences that reach far beyond state boundaries, a role for the federal government should be defined. In addition, where technical and business risks of new technologies are high, risk sharing through collaborative leadership initiatives involving the public and private sectors seems appropriate.

Priority should be given to research efforts that can contribute to production and utilization of domestic energy resources. The federal government should focus on basic and applied research that can increase energy supply while improving both energy efficiency and environmental protection. Research and development priorities should be reviewed to insure that those energy sources most likely to contribute to a diverse and robust fuel supply system over the next twenty years are adequately funded. Increased federal funding for research and development in all arenas—oil, gas, coal, nuclear, and renewable energy—should be considered.

Initiatives to improve energy delivery—including natural gas pipelines, electricity transmission systems, and energy storage facilities—also require increased funding. Near-term
programs are needed to ensure reliability of supply while system upgrades are needed to handle the new patterns of traffic on electricity transmission systems and pipelines caused by wholesale and retail competition. Finally, new technologies must be developed to begin the process of transforming the entire electricity power system—from generation to end use—into the equivalent of continental-scale integrated circuit, able to respond rapidly to changes in system loading while retaining power stability. The result will be a digital infrastructure that links an upgraded transmission system to a new distribution system, capable of supplying all customers with affordable, abundant energy, and differentiated energy products and services.

U.S. public spending for R&D should be better coordinated with other OECD countries. Doing so will improve the efficiency of research efforts and minimize duplication of efforts. U.S. research programs should reflect the potential for applications outside the U.S., particularly in developing economies. As energy issues increasingly become global concerns, federal government investments in R&D will have higher paybacks if the new technologies are deployed globally as well as domestically.

Education and Public Awareness

Well-educated energy consumers enhance market efficiency, especially in an era of deregulation. Accordingly, policies that promote consumer awareness and education about key energy issues need to be an integral part of the proposed National Energy Strategy.

Workers in the energy sector can also benefit from education and training. This is particularly true at a time when labor markets are tight and enrollments in energy related disciplines are declining at most colleges and universities. The explosive growth during the 1990s of information technology companies—which compete directly with potential energy workers, especially for technically-trained people—has reduced the workforce pool for energy companies. Unless action is taken soon, the U.S. education system may be unable to produce a sufficient number of well-trained graduates to meet demand in the coming decades.

Balancing Energy Demand and Environmental Concerns

Energy and environmental issues have become inextricably linked to one another, and to national policy decisions. This linkage is both broad and deep, and involves concerns about air quality, toxic wastes and global climate change, to name a few policy issues. Balancing the economic efficiency and reliability of a competitive energy market with appropriate environmental policies is key to developing an effective National Energy Strategy. When balancing America’s energy needs and our nation’s broad economic and social goals, policymakers should be guided by sound scientific and economic analysis. They should also apply cost-benefit and risk analyses when reviewing environmental laws and regulations.

In short, environmental regulation should be formulated in a way that achieves reasonable environmental objectives while recognizing the on-going need to provide companies and consumers a reliable and affordable supply of energy so U.S. economic growth remains robust.

Global Climate Change—a Way Forward

Climate change is a long-term global issue that, in the last decade, moved from a scientific question into the international political arena. As recently as 1990 the United Nations-sponsored Intergovernmental Panel on Climate Change (IPCC) reported that a global
warming trend may be underway, and that greenhouse gases emissions from human sources may increase the potential impact of global warming. The IPCC recommended that an international agreement be negotiated setting forth a pathway to limit man-made greenhouse gas emissions, especially energy-related carbon dioxide emissions. In 1992, 160 nations heeded this advice and signed the Rio Agreement on Climate Change, formerly known as the "United Nations Framework Convention on Climate Change" (FCCC).

The United States was among the nations to ratify this agreement, which has as its objective stabilizing the atmospheric concentration of greenhouse gases at a level that prevents dangerous anthropogenic interference with the climate system. In ratifying the FCCC, the United States, Europe, Japan and other industrialized countries agreed to take the lead in modifying longer-term trends in anthropogenic emissions, to make best efforts to reduce emissions to 1990 levels by 2000 and to provide technology and funds to developing countries to ensure that emission levels would remain as low as possible—without jeopardizing economic development.

In the months that followed, many U.S. companies, and even entire industry sectors, began to develop programs to increase operating efficiencies, put new technologies in place, and implement business practices aimed at lowering greenhouse gas emissions—while, at the same time, maintaining a growing U.S. economy. These voluntary programs, often in conjunction with government partners, have paid off. Recently, the Department of Energy released a report showing that U.S. greenhouse gas emissions are more than two hundred million tons per year lower than they would be had industry and business not taken these voluntary actions.

A sound long-term climate change policy that complements a sound long-term energy policy must be developed to ensure that the greenhouse gas emissions growth line continues to bend downward while the economic growth curve continues to move upward. Sound climate change policies can make this happen, particularly if these policies:

- Emphasize voluntary action;
- Are cost effective, flexible and focus on long-term solutions that recognize that our economy is built on the availability of reasonably priced energy of all forms;
- Address both cost-effective mitigation actions—such as avoiding emissions through enhanced energy or operating practices—and adaptation to changes that occur for whatever reason;
- Expand research programs that address science, economics and technology development;
- Remove barriers to the deployment of new technologies and encourage rapid deployment through incentives;
- Address the needs of developing nations, including their desire to build their domestic capabilities and grow their economies; and,
- Encourage local action and actions by governments as well as by industry.

Unfortunately, as we enter the 21st Century U.S. climate policy is not based on a long-term strategy. Over the last three years, the U.S. Administration's strategy has been short term and directed at ratifying and implementing the 1997 Kyoto Protocol. This agreement, concluded in December 1997, would require the U.S. and other developed countries to meet mandatory emission reduction targets by 2008-2012. For the United States, the Kyoto Protocol would mean a reduction of greenhouse gas emissions to a level that is seven percent below 1990 levels with additional, but as yet unidentified reductions, after 2012. To meet the
initial target the U.S. would have to cut its emissions by 30-35 percent below projected levels. Doing so would be very costly. Most analyses show that reaching this target in such a short time period would reduce the U.S. GDP by several percentage points.

To date, the Kyoto Protocol has not been submitted to the U.S. Senate. If it were, it likely would not be ratified, which is a requirement for the United States to be bound by that agreement. The United States is not alone in its concerns about the impact of the Kyoto Protocol. As of January 2001, no developed country has ratified the agreement. Most nations realize that the Protocol would require significant changes in energy, economic and trade policies and would seriously affect the lives of every citizen. Moreover, the European Union has strenuously resisted elements in the Protocol that theoretically could reduce the cost of compliance. These elements include a proposed emissions trading program, the Clean Development Mechanism (directed toward emissions abatement in developing countries) and land use and forestry programs. Such elements are key to offsetting costly short-term mandatory emission reduction targets. To date, nations are looking for reasonable and cost effective approaches to deal with the climate issue. Increasingly, it is appears likely that most nations will concentrate on new technology development, deployment and transfer to limit greenhouse gas emissions.

In the decade ahead, the federal government should seek to meet the commitment expressed in the FCCC by devoting sufficient scientific resources to determine the maximum atmospheric concentration of greenhouse gases that would "prevent dangerous anthropogenic interference with the climate system" (From Article 2 of the FCCC). Additionally, the U.S. should work with other nations, including developing countries, to establish an equitable long-range plan to prevent the exceeding of this unacceptable concentration. This plan should include all market-based measures that contribute to the ultimate goal, including making maximum use of cost-reducing implementation measures. Moreover, governments should work with industry to develop a broad suite of technology options from which energy users could select in order to meet climate change policy goals in 2050, 2075 and 2100.
POLICY RECOMMENDATIONS

Competitive markets, investment tax credits, deregulation, environmental impact statements and licensing permits are among the tools available to National Energy Strategy policymakers. The following are the policy recommendations and tools that members of the United States Energy Association believe would most effectively help a wide array of U.S. energy producers and energy-related service companies meet America’s growing demand for ready, reliable, secure and affordable energy resources:

Enhancing Energy Supplies

- The nation should encourage power supply expansion with policies that fully recognize that no single energy source can meet our growing energy needs. This means that any federal incentive that encourages energy production should promote maintenance of a diverse energy portfolio made up of fossil fuels, nuclear and renewable energy sources. Sufficient availability of basic energy fuels as feedstock for non-energy applications should also be considered in the development of a diverse energy portfolio.

- Policies that restrict access to energy sources should be modified to provide environmentally sound access to domestic resources in a way that supports the continuance of a diversified energy portfolio and reduces foreign dependence. Such policies should not merely focus on one aspect of the energy supply system, but rather support and encourage all components of a sector’s production and delivery of its energy supply (e.g., from oil exploration and production through the building of refining capacity). Congressional mandates under the Federal Land Policy Management Act and related acts should be adhered to. These acts require agencies to give balanced consideration to multiple competing uses of federal lands. Experience has shown that federal lands do not have to be restricted solely to environmental or aesthetic uses.

- National policy should specifically focus on diversifying energy resources in the national portfolio. The U.S. Strategic Petroleum Reserve should be maintained and utilized only for severe supply disruptions.

- Investment tax credit mechanisms and accelerated depreciation (or equivalent mechanisms) should be primary government tools to encourage reliable, affordable and environmentally effective energy supplies, end-use technologies and a sound energy infrastructure. Private investment should be encouraged through flexible tax mechanisms that insure equitable opportunities for all energy sectors. In the interest of stimulating the use of the most market efficient technologies, tax incentives should encourage facility construction but not subsidize the delivery of products to consumers.

- Tax incentives should be enacted to spur capital investment in the energy sector. These tax incentives will help the U.S. energy industry ensure adequate and uninterrupted energy supplies and services to U.S. consumers and enhance U.S. national
security through the preservation of a viable domestic energy industry. For example, expensing of geological and geophysical (G&G) expenditures for oil and gas wells should be enacted. Tax incentives should also be utilized to encourage energy efficient capital stock.

Encouraging Energy Efficiency and Affordable Prices

- Energy efficiency should be promoted through governmental policies that focus both on production and demand. For example, the convergence of retail competition, wholesale competition, and improved technologies should greatly expand the type and magnitude of price-responsive demand in electricity markets. Efficiency products should be promoted through directed research and subsequent market availability. Artificial efforts to mandate market penetration of efficiency schemes should be avoided. Regulatory polices that allow and encourage retail customers to respond to market prices will improve economic efficiency, discipline market power, improve reliability, and reduce the need to build new generation and transmission facilities.

- Policymakers should rely on a properly structured marketplace for energy decisions regarding pricing, technology deployment, energy efficiency, and selection of fuels and energy suppliers. Market competition is a dynamic process that produces long-term benefits for the public. Governmental policies should seek to establish and preserve the conditions necessary for efficient competition to work. Government officials at all levels should only cautiously impose new regulations on the energy chain. Moreover, efforts to address health, safety, and environmental concerns should be based on sound science and cost-effective options. Specifically, regulations should not be imposed in the hope of reaching a goal that researchers cannot demonstrate as achievable at a reasonable cost.

- Energy markets should be free and competitive, and utilities should be allowed to compete fairly in these markets. Energy markets have been opened to competition, and increasingly consumers need to be free to buy their energy and energy-related services from whichever supplier they choose, including natural gas and electric utilities that wish to offer these services. Regulatory authorities should reject attempts to impose restrictions or competitive handicaps that limit the ability of distribution utilities to compete in newly emerging energy service markets, while ensuring against cross-subsidization between regulated and unregulated businesses. By doing so, regulators can preserve the social benefits of efficient competition in energy markets.

- The low-income home energy assistance program (LIHEAP) should be extended and funding increased. Currently LIHEAP funds are reaching only 15% of the households eligible for assistance. The low-income weatherization program should also be expanded.

Stimulating Global Energy Trade and International Development

- U.S. leadership in energy services and technology should be promoted on a global basis. Artificial constraints on exports and global market penetration should be severely limited. For example, unilateral trade sanctions damage U.S. companies, workers and consumers by excluding them from key markets in which foreign-based companies are free to invest.
Tax provisions which diminish the international competitiveness of U.S. multinational energy companies by exposing those firms to double taxation (i.e., the payment of tax on foreign source income to both the host country and the United States), and to restrictive anti-deferral rules, should be eliminated. The complexity of the U.S. international tax rules obscures tax planning and often introduces substantial risks, hindering effective capital investment.

A cornerstone of U.S. foreign policy and development assistance should be to institute a “Marshall Plan” to increase the supply of reliable, affordable and market-based energy for developing countries and countries in economic transition in a manner that opens markets to U.S. goods and services, fosters cooperative partnerships between the U.S. and overseas energy firms, and enhances international economic and political security. This plan would encourage the export of advanced U.S. technologies, policies and practices appropriate to developing countries for the efficient supply and use of energy.

Foster more open political, legal and institutional structures in developing and reforming countries so as to encourage energy trade and investment. U.S. expertise and technology can be utilized to serve the global market through capacity-building, sectoral reform and financing.

Promoting Energy Technology Development and Long-Range R&D Initiatives

Investments in energy technology research and development should focus on energy sources and uses that realistically can be expected to have a significant impact on economic growth and environmental performance over the next 20-30 years. This requirement implies the development of a balanced portfolio of energy sources and fuels (fossil, nuclear, renewables) to promote national security. Structural changes and technologies that increase the flexibility and value to the user of the energy system should also be encouraged. Finally, technologies must be developed to assure that we will be able to handle increased traffic levels and meet the needs of a digital economy.

Balancing Energy Use and Environmental Concerns

Government sponsored education programs should recognize the importance of energy infrastructure and energy sources to continued energy security and economic development. Energy and environment programs should be deployed at all educational levels that recognize energy supply and energy efficiency as critical to the modern economy and national energy security. Maintenance of robust educational programs capable of producing engineers and technicians in sufficient numbers to meet the growing needs of the nation’s energy infrastructure should be an important consideration in all government programs affecting educational institutions.

The development and deployment of energy infrastructure should favor all technologies that are capable of producing energy at emissions levels below existing national standards. For example, if investment and production tax credits are used to encourage investment, the credits or other mechanisms should be available to all technologies that produce end-use energy below the emissions standards without the
application of administrative credits. Moreover, national policies should promote—at current or better levels—the maintenance of non-emitting energy technologies in the nation’s energy portfolio.

- The safe and efficient movement of energy goods and services requires that increased attention be given to improving the United States transportation infrastructure. For example, oil products and coal are heavily dependent on safe waterways and harbors and coal relies greatly on adequate railroad capacity. Most movement of energy goods and services require a well maintained road system.

Unifying the Energy Policy Process and Creating Regulatory Predictability

- The President should establish an interagency task force on energy policy chaired by the Secretary of Energy. The membership of the task force should include economic policy departments and agencies and the appropriate national security organizations.

- Energy Policy must be predictable. In recognition of the capital-intensive and durable nature of energy infrastructure investments, energy policy requires the adoption of a long-term view. Private investors in energy projects must be able to plan such investment with the reasonable certainty that, once begun, a project can operate in a regulatory climate, which safely can be forecast for the duration of the construction period and operating life of that facility. Revised regulatory standards should not be imposed until acceptable technology to achieve the new standards is demonstrable. This requires the use of fresh approaches to coordination by relevant agencies, such as regulatory bodies and those federal agencies responsible for sponsoring energy R&D. The net effect may extend considerably the time required to alter regulatory standards, but this approach is consistent with practices affecting operating licenses, which, at least nominally, provide for use of a new facility for four or more decades.

- Comprehensive electric industry restructuring should seek to encourage long-term improvements to the electric system. Finding the right mix of market solutions and government oversight to ensure an economical and reliable electricity supply will be difficult—but it is possible. For example, 17 electricity restructuring bills were introduced in the 106th Congress. While no consensus legislative package has yet developed, significant issues embodied in the proposed legislation include, among others, repealing PURPA and PUHGA, facilitating new state restructuring actions by resolving federal/state jurisdictional issues, resolving market power and transmission access problems, and grandfathering existing state restructuring plans to protect them from federal preemption. Tightly linked with the emergence of efficient competition in the electric industry is the need for comprehensive tax legislation that facilitates the construction of new transmission facilities and provides fair electric competition among publicly owned, cooperatively-owned and shareholder-owned electric companies.

Moreover, Congress and policymakers should develop policies that promote investment in new generation and transmission lines. Policies should also promote voluntary flexible approaches to the creation of regional transmission organizations and electricity markets. Finally, the North American Electric Reliability Council should evolve into a self-regulating organization, with FERC oversight, that enforces reliability rules on all transmission operators and users.
U.S. Energy Flow Chart 1999
(Quadrillion BTU)
OVERVIEW

While petroleum currently supplies 40 percent of America's primary energy needs, reliance on this fuel varies greatly by sector. For example, petroleum supplies 97 percent of transportation needs, 35 percent of industrial needs, 8 percent of commercial needs and 13 percent of residential needs. The most common—and important—petroleum products are gasoline, diesel fuel, kerosene, heating oil, residual fuel oil, liquefied petroleum gases, asphalt and petrochemical feedstocks.

Since 1970, production of crude oil has declined from 9.6 million barrels per day to 5.8 million barrels per day. At the same time, consumption has increased from 14.7 million barrels per day to about 20 million barrels per day, or some 300 billion gallons per year. During these same 30 years, oil imports have increased from 23 percent of U.S. petroleum demand to the current level of about 55 percent. The U.S. Department of Energy's Energy Information Administration forecasts that petroleum demand will continue to grow during the next two decades.

The Energy Information Administration's (EIA) Annual Energy Outlook 2001 highlights several other important facts about the role of petroleum in our nation's future:

- Net petroleum imports are projected to increase to 64 percent of U.S. demand in 2020.
- The greatest growth in petroleum demand will occur in the transportation sector, where increased travel more than offsets fuel efficiency gains.

Clearly, petroleum will provide a major source of energy for years to come.
EMERGING CONSUMPTION PATTERNS

The Energy Information Administration projects an increase in demand for all petroleum products of 1.4 percent per year for the next twenty years, or slightly higher than the 1.3 percent per year that EIA projects for all energy sources during this same period. This projection for higher petroleum demand comes at a time when consumers have endured a heating oil price spike and a gasoline price spike, and at a time when petroleum refiners have faced significantly higher crude oil prices.

As demand has increased and supplies tightened, the Organization of Petroleum Exporting Countries (OPEC) has reasserted its grip on world oil supplies, keeping crude oil prices above $30 per barrel for almost one year. U.S. imports of crude oil and products have grown during this same period, as has utilization of refinery capacity. Indeed, the petroleum industry continues to strain as it seeks to meet the growing demand for home heating oil, gasoline, diesel fuel and petrochemicals. In recent months the U.S. economy has slowed somewhat, but overall economic growth remains a healthy 2.4 percent and demand for petroleum continues to grow despite higher product prices.

EIA's Supply-Demand Scenario

In Annual Energy Outlook 2001, EIA analysts set forth a scenario that they believe will close the gap between rising petroleum imports and product prices and America’s need for affordable, reliable energy supplies. Here are the outlines of that scenario, which looks out to the year 2020:

> Crude oil production declines by 0.7 percent per year.
> Crude oil imports increase by 1.6 percent per year.
> Petroleum product imports increase by 4.6 percent per year.
> New light duty vehicle efficiency increases from 24.2 to 28.0 miles per gallon.
> Freight truck and aircraft efficiency increase by about 0.7 percent per year.
> Refinery capacity expands from 16.5 to 18.2 million barrels per day.
> Refinery utilization increases from 93 to 95 percent.

Policymakers concerned about our nation’s economic and energy future must decide whether this scenario is realistic. While it is impossible to assess precisely the likelihood of any forecast, or even the many elements of the EIA forecast, it is possible to compare EIA’s projections to historical experience. It is also possible to identify the policy assumptions used to create this forecast and, of equal importance, to present a series of ideas to help policymakers forge an effective National Energy Strategy for the decades ahead.

History vs. Projections

EIA analysts argue that domestic crude oil production will slow significantly during the next 20 years. However, when they quantify that argument, they propose a modest decline in petroleum production of a mere 0.7 percent per year. This figure does not represent historical trends, which show a decline in U.S. crude oil production during the 1990s of some 2.5 percent per year. This slower rate of decline in petroleum production translates into a lower than expected rate of growth in crude imports, at least in EIA’s scenario.

More specifically, EIA forecasts that during the next two decades the United States will
increase its crude oil imports at the modest rate of 1.6 percent annually. However, during the past decade, U.S. crude oil imports actually increased a substantial 3.9 percent per year. The EIA scenario for petroleum products also is at variance with the historical record. EIA projects that petroleum product imports will increase at the rate of 4.8 percent per year. During the past decade, petroleum product imports actually declined by 1.2 percent per year.

History is no guide, either, to EIA projections about increases in vehicle efficiency. The EIA scenario foresees a faster rate of vehicle efficiency in the next two decades than occurred during the past decade, but the projected rate is slower than the actual rate of improvement during the mid-1980s.

On the other hand, EIA projections hew fairly close to historical fact in the area of petroleum refinery capacity and utilization. During the past decade, U.S. refinery capacity has increased a total of approximately 850,000 barrels per day. This figure is comparable to EIA's forecast that within two decades, U.S. refinery capacity will have increased 1,700,000 barrels per day. The projected increase in refinery capacity utilization also appears to be close to the likely mark. While capacity utilization has increased from 86.6 percent to 93 percent during the past decade, EIA analysts forecast an increase of 2 percentage points by 2020.

POLICIES TO MEET AMERICA'S GROWING PETROLEUM DEMAND

While EIA's forecast is often at variance with the historical record, both history and EIA's most recent forecast indicate that petroleum demand will grow significantly in the decades ahead, even if all projected energy efficiency gains are realized. The only way to meet this increased demand for petroleum is to adopt national policies that support growth in petroleum supplies. The alternative is to limit demand by imposing sharply higher petroleum prices on U.S. homeowners, commuters, transportation companies and factories. However, these higher prices would slow U.S. economic growth.

Ensuring Adequate Supply

A National Energy Strategy can be developed that meets America's growing demand for petroleum without substantially raising prices. Studies have shown that vast amounts of proven crude oil reserves and undiscovered crude oil resources exist, both domestically and abroad. However, policies that support continued investments in finding and producing these resources are needed to bring these crude oil supplies to market.

Companies will make the decisions to invest in finding and producing the needed petroleum once policies are in place to support such long-term capital commitments. Unfortunately, the recent EIA forecast simply implies that significant investments will be made, domestically and abroad, without addressing the need to develop policies favorable to increased crude oil production.

The same is true of petroleum products. Stakeholders must come together to adopt policies that insure an adequate supply of gasoline, diesel fuel, home heating oil and petrochemicals. Concerns about environmental impact should take into consideration the unparalleled improvement in exploration and production technology. For example, the exploration footprint has been improved by 90 percent during the past decade, and similar, if less dramatic examples, exist in other areas of petroleum production.
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