SUMMARY:

An Energy Policy for the United States of America

The American Association of Petroleum Geologists recommends that a national energy policy include the following points.

- Foster stability in price and regulations without price controls.
- Open federal non-park lands and offshore lands to oil and gas development with environmental safeguards.
- Emplace new incentive-driven conservation measures.
- Enhance funding for research and development for fossil fuels and all other energy resources.
- Provide for the capital needs for energy development that are not being met in the current tax climate.
- Establish national environmental priorities so that the unpredictability of environmental requirements can be accommodated in a long term plan to supply energy to the nation.
- Recognize that coal and nuclear are necessary in the intermediate term energy supply, and make provision for furthering clean coal technology R&D and for permitting and operation of new nuclear plants.
- Maintain or increase the R&D support needed to continue to develop all new and exotic potential fuels and energy sources. By 2050 they may be required to form the base of the national energy supply.
- Direct the U. S. Department of Energy to establish aggressive public education programs about energy occurrence, extraction, use and efficiency.

Fossil fuels, especially oil and natural gas, will constitute the bulk of America's transportation fuels and electrical generation for the near and intermediate future.

(Editor's Note: The following is the final Report of the AAPG President's Energy Policy Summit held April 23, 2001 at the Army Navy Club in Washington D.C.)

An Energy Policy for the United States of America

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Everyday, our Nation is held hostage by ever-growing production shortages of domestic oil and ever-increasing imports of foreign oil. Natural gas, the environmentally desirable alternative to coal and oil for electric generation and domestic use, has dramatically risen in price. Demand is soaring faster than supplies can be discovered, permitted, developed and transported to the U.S. market. The entire world will face severe shortages in the next 50 years – perhaps sooner. So, even though the United States is blessed with substantial oil and gas production, coal, nuclear, geothermal, and hydro resources, and has very large natural gas and oil resource bases, the sad fallout of no real energy policy is constantly over us. Our energy policy for the last two hundred years has been "cheap energy at any cost."

With efforts to develop such a policy now occurring within the Administration and on Capitol Hill, the *American Association of Petroleum Geologists* (AAPG) believes now is the time scientific input can genuinely impact energy policy discussion. AAPG, along with other scientific, professional, and learned societies, convened a one-day energy policy summit in Washington, D.C. on Monday, April 23rd. This Summit addressed the rationale, necessary elements, and the structure for a national energy strategy that can bring about a National Energy Policy truly meeting the Nation's needs. The key objective of this summit was to provide a good scientific background for decision-makers, policy-makers, and those who support those individuals for their future deliberations and discussions on energy. This paper reports the results of that conference.

The American Association of Petroleum Geologists and the co-convening societies, the American Association of Professional Landmen, the Society of Independent Professional Earth Scientists, the American Institute of Professional Geologists, the Society of Exploration Geophysicists, and the Association of American State Geologists, along with co-sponsors, the American Geological Institute, the National Petroleum Council, the Interstate Oil and Gas Compact Commission, the National Association of State Energy Officials, and the Potential Gas Committee, represent tens of thousands of geoscientists, engineers, and other professionals whose work it is to provide this nation's energy resources that sustain our society and drive the economy.

Our collective scientific expertise is in energy supply, and thus this paper focuses on supply issues. Despite this emphasis, we all recognize that conservation measures are part of the total energy solution for this nation. Population growth and an expanding economy have placed demands on the national energy supply that now cannot be adequately met. Shortages of electricity in California, high home heating costs this winter, and current rising gasoline costs threaten the national economy. It is not possible to conserve our way out of a shortage created by both increased demand and increased population. Through conservation, we can be more efficient in using the resources we have, slowing the rate of demand increase for additional energy resources. But the demand for new energy resources will continue to rise.

This report is AAPG's scientific advice to the nation.

Today

Fossil fuels are and will be the dominant sources of America's energy for at least the next 50 years and possibly beyond.

This nation consumes about 20 million barrels of oil per day, nearly 60% imported, and annually consumes more than 21 trillion cubic feet of natural gas, mostly domestically produced. While coal still accounts for about 60% of the electricity generated, natural gas has become the preferred fuel for new and for surge capacity generation. Demand grows annually for electricity, for transportation fuels, and for home heating. Population in the United States has reached 281 million people, and more new residents are immigrating than added by births over deaths. This indicates that demand for energy in our highly technical society will continue to grow. Conservation can slow the rate of growth, but the growth in demand is inexorable. We face the choice of either providing additional energy or of constraining the economy and forcing a lessened standard of living for our less advantaged citizens.

Environmental concerns about powerplant construction, nuclear energy, biodiversity, aesthetic and vistas, and recreational conflicts have combined to contribute to the inability of California, for instance, to meet its electricity needs, in part because of banned new construction, and in part by choice, without knowing that the choice meant lessened energy supply. While gasoline demand is growing rapidly, refinery capacity has shrunk as small refineries have been forced to close and no new refineries have been built because of siting issues and costs of complying with local, regional and federal permit conditions. These are the choices people make. Our concern is that not all understand the costs of their choices. Any national energy policy that increases supply of energy will face similar objections and arguments. It is absolutely necessary that people face these issues, and in the words of the recent report of the Sustainability of Energy and Water through the 21st Century Conference, the people must own the problem of their own consumption patterns.

Elitism is rampant in America. People demand that they be supplied with their energy and other resources and goods, but also demand that some one else pay the environmental, aesthetic, or property interference costs. Everyone must pay their fair share of the total cost of having resources to sustain their standard of living.

The Future

Superposed upon domestic problems is the probability that liquid fossil fuels may become more scarce through increased demand of growing economies. For instance, as China has become a net importer, they have also prepared to compete for the Asian petroleum supply. Global demand will eventually create scarcity, and prices will rise to compensate. Any energy policy must recognize that the United States may have to compete for non-domestic resources in the future, with the political instability, hostilities, and other issues that attend such competitions. Although the supply of fossil fuels is large, growth in demand through increased technology in current non-industrial countries and the crush of a forecast 10 to 12 billion person society will likely mean shortages. By 2050 nearly half of the nation's energy may have to come from energy technologies not yet developed, or perhaps, even not yet invented. Many argue that renewable energies, that is, solar, wind, and geothermal, will supply that energy. It is difficult to see how, with forseeable technologies, these sources will supply the huge amounts of energy required, although they will add to the supply mix.

It is incumbent upon us to initiate the development of energy resources and the research and development necessary to ensure a future energy resource to power this country. The problems did not occur overnight, and they cannot be solved overnight.

Oil and natural gas are the base of mechanized transportation throughout the world. The oil and the gas industry, together with coal and nuclear energy, is the bridge between the natural resources of the earth and electric power which is the engine of the modern economy.

An Energy Policy

1. *The first requirement of a national energy policy is to increase stability in price and regulations, so that proper investment decisions can be made without fear of major surprises from new ex post facto regulations or laws, changes in access to the resource bas, or political interference with the marketplace.*

   Instability in the market has wreaked havoc with the exploration industry in the United States, which works on slim margins and high capitalization. Not only have the exploration companies had problems, but a severe loss of infrastructure occurred during the last downturns. This may be permanent unless there is some assurance of stability. A well-articulated broad-based energy policy can stabilize the market place by including many energy sources, controlling excess regulations, and stable access to the resource base.

2. *Open federal non-park lands and offshore lands to oil and gas development with appropriate environmental safeguards. Natural gas is the fuel of choice for new power generation and many other uses. Demand has been growing, and it is anticipated that by 2010 demand will reach 30 trillion cubic feet (TCF) a year, as compared to 20 TCF now. To meet that demand will require much greater access to the resource base that is now off limits. Access must be eased.*

   Petroleum occurs in specific geologic settings. The consequence of geologic control of where of oil and gas occurs is increasing access to public lands, mostly BLM and Forest Service controlled, but also offshore. In recent years more and more federal non-park land has been made unavailable for energy production through a spectrum of closures, restrictions, and permit conditions. Yet, the federal non-park estate is where most of the future energy resources of this nation occur. Private lands have been largely explored and produced, while the federal estate has been only partly explored. By 1996, more than 65% of the onshore federal lands of the American west were somehow restricted to mineral entry, and that amount has been greatly increased by presidential and agency fiat in the last few years. To meet national demand for energy, particularly oil and gas, more access to non-park federal lands is required. Demand will not be met without such access.

   The 1999 National Petroleum Council report on natural gas outlines the east and west coasts, lands off Florida, and the Rocky Mountains as being highly probable natural gas resource areas that are currently under full moratoria and in the case of Rocky Mountain lands, increasingly restrictive access policies. In addition, the ANWAR 1002 Area, at 4.5 billion barrels, is perhaps the largest probable oil field known in the world today. That is nearly equal to 25% of U. S. reserves, and would provide a significant contribution to the nation’s oil supply for the next 50 years. The amount of oil in place is half again more than the total current U.S. oil reserve.

3. *The national energy policy must emplace new incentive-driven conservation measures.*

   While we are supply-side professionals, as individuals we understand the need for much greater conservation of petroleum. As professionals, it hurts to see our efforts squandered by inefficient use. Transportation of people and goods could be much more efficient by subsidized non-highway mass transportation systems. There are many possible

conservation measures and we hope that significant conservation will become part of national policy.

4. *Funding for research and development for fossil fuels and all other energy resources should be enhanced, focused on university and other public and private research groups. Advanced technologies are required to develop smaller and less profitable deposits, while decreasing the footprint and other environmental impacts of energy development.*

   It is in the national interest to extract as much resource as possible from the domestic base. R&D is not carried out by the independent energy industry that is now dominant in this country, nor are breakthroughs going to come from conservative government-housed programs. Without enhanced R&D, the nation will slip ever further down the deficient energy supply path. Inventing and developing the next generation of energy resources must be led by federal funding.

   Increased use of high technology in the petroleum exploration and extraction industry has decreased the drilling of dry holes by 25%, decreased the footprint of activities on the North Slope of Alaska by a full order of magnitude (from 60 acres per well pad to less than 6 acres), and increased the efficient rates of extraction. For the independent industry, continued research and development of new technology can increase the nation's energy supply, for all energy sources.

5. *Energy policy must provide for the capital needs for energy development that are not being met in the current tax climate. There is no incentive to invest in high risk exploration and development projects. Our tax policy, as far as energy resources and economic minerals are concerned, fails to recognize the need to recover exploration and early development costs as soon as they are incurred.*

   Some possible incentives include:

   A) Immediate expensing of exploration and drilling costs, including lease costs.

   B) Restore the depletion allowance back to 22.5%

   C) Elimination of energy E&P deductions from consideration for Alternative Minimum Tax calculations.

   D) Recognize the more rapid depletion of reservoirs by a five-year or less depreciation schedule for tangibles.

6. *Reasonable environmental requirements are part of doing business, and we support them. Unreasonable requirements harm the supply, and increase costs to the consumer. National environmental priorities must be established so that the unpredictability of environmental requirements can be accommodated in a long term plan to supply energy to the nation.*

   As one example, there has been a 3 million barrel a day loss of refining capacity in the United States since 1980, while demand has greatly increased. The costs of complying with the myriad new requirements to build refineries or to do major expansions, coupled with the unwillingness of some locales to host the facilities that supply them with their energy, has resulted in shortages. Combined with a complex and diverse set of local, state, and regional gasoline chemistry requirements (there are some 56 different chemistries of gasoline produced in this country), this has resulted in spot shortages and higher consumer

prices. There is no spare refinery capacity in the United States today. These are the major reasons for current high gasoline prices.

It is possible to explore for oil and gas and economic minerals and protect the environmental systems of which these resources are critical elements and upon which human civilization depends. There is no question that exploration for oil, gas and economic minerals disturbs the environmental systems in which the exploration takes place, however, the criteria for evaluating the meaning of such disturbances must be the fundamental principle of equity jurisprudence. Equity jurisprudence demands balancing of the equities in often polarized positions involving resources. The ultimate measure for evaluation is whether the disturbance or environmental impact represents serious permanent and irreparable damage to a unique and significant resource.

7. *The national energy policy must recognize that coal and nuclear are necessary in the intermediate term energy supply, and make provision for furthering clean coal technology R&D and for permitting and operation of new nuclear plants.*

   Coal produces more than half our electricity now, and will continue to do so for the forseeable future, therefore it is necessary to make it as clean and efficient as possible. Nuclear is the one energy source currently available that could enhance the production of electricity. Not only is the technology available and commercial, is has the advantage of having no emissions. Until new sources of energy are proved, coal and nuclear are the only large-scale resources that can supply the increasing demand for electricity.

8. *The national energy policy should maintain or increase the R&D support needed to continue to develop all new and exotic potential fuels and energy sources. By 2050 they may be required to form the base of the national energy supply.*

   Renewable and alternative energy resources have been explored for many years, but without success in full-scale commercialization. This does not mean they will never meet significant needs. In fact, we believe that solar, fuel cells, and advanced nuclear hold much promise. Gas hydrates have great potential, but commercial success is further away.

9. *The U. S. Department of Energy must establish aggressive public education programs about energy occurrence, extraction, use and efficiency.*

   American culture has divorced its connection to our resource base. Most Americans do not understand the choices they make about resource access and use. They do not see coal mines when they flip on a light switch, nor a refinery when they fill a gasoline tank. They do not see oil wells when they travel through the national parks in automobiles. It is imperative that we bring knowledge of the resource base to the American people, but it must be accomplished through the federal government, whose only vested interest is in the good of the people.