



ENVIRONMENTAL AND ENERGY STUDY INSTITUTE

# POLICY REPORT

KEN MURPHY, EXECUTIVE DIRECTOR ■ 122 C STREET, N.W., SUITE 700, WASHINGTON, D.C. 20001 ■ (202) 628-1400

## **ENERGY POLICY STATEMENT:**

### **A CALL TO ACTION FOR THE NEXT PRESIDENT AND CONGRESS**

Approved by Unanimous Vote  
of the Board of Directors  
of the Environmental and Energy Study Institute

October 5, 1988

The Environmental and Energy Study Institute is an independent, non-partisan organization established by the leaders of the Congressional Environmental and Energy Study Conference and other national policymakers to stimulate better-informed debate on these issues and to develop innovative and credible policy solutions.

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## FOREWORD

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This policy statement had its origins in a meeting of the Board of Directors of the Environmental and Energy Study Institute in March, 1988. That meeting produced a strong consensus that energy policy issues must be put back on the national agenda—an unexpected result given the fact that our Board includes in its membership Reagan Republicans, Carter Democrats, environmental leaders and corporate executives.

We then decided to develop an energy policy statement and make an effort to persuade the next President and Congress to make energy issues a top priority and to act on the recommendations the Board would develop.

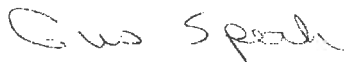
What makes this policy statement unique and compelling is that it has been drafted and agreed upon by a highly knowledgeable and very unlikely group of people. The members of our Board of Directors come from different political parties, ideologies and sectors of society, and disagree on many things.

But we have come together to urge the next President and Congress to take up our call to action.

We recognize that this will not be easy, but the problems are so serious that they demand bold leadership and difficult decisions.



Roger W. Sant  
Chairman of the Board



James Gustave Speth  
Vice Chairman

for the Board of Directors of the Environmental and Energy Study Institute

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## ***EXECUTIVE SUMMARY***

We believe that government must take decisive action to implement a new energy policy. The emergence of the global warming problem creates an imperative for action that cannot be ignored. The failure to act could well bring economic, environmental and human disaster previously unimagined. This is not a problem which can be addressed by an unfettered market since the problem of global warming is caused in large part by carbon dioxide produced from the burning of fossil fuels, whose prices do not reflect that damage. Therefore, we call for the next Administration and Congress to put energy policy at the highest level on the national and international agenda.

Moreover, there are other compelling problems that have persisted for years which also argue for a fundamental re-examination of U.S. energy policy. These problems include:

- The United States is engaged in a serious worldwide challenge to its competitiveness in which energy costs play an ever greater role, with U.S. costs per unit of output more than twice those of some of our competitors.

- The nation's current pattern of energy use is responsible for the unacceptably high levels of urban air pollution found in many areas of the country and for the acid rain and oxidants that are causing major crop and forest losses.

- Oil imports are rising and are projected to reach record levels. The growth of dependence upon oil from the Persian Gulf region raises energy security concerns. The cost of the military presence there adds billions of dollars to the direct costs of oil imports. In addition, the cost of oil imports is the single largest contributor to the country's record trade deficit.

While this country has apparently been willing to muddle through the problems of pollution, energy competitiveness and oil imports, the irreversibility of greenhouse warming does not allow that luxury. Several solutions are possible, but none is so appealing as improving energy efficiency, which uniquely responds to all of these concerns. And fortunately, the potential for increasing energy efficiency is immense. But achieving that potential will require the courage to raise the cost of using fuels that produce carbon dioxide.

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## BACKGROUND

### *Global Warming*

Temperature increases of 1.5-4.5° C by 2030—an unprecedented rate of warming—are predicted if current trends in greenhouse gas emissions continue. Global warming could lead to climate instability that could disrupt precipitation and agricultural patterns, threaten the collapse of ecosystems, increase the probability and severity of weather extremes (e.g., droughts, hurricanes) and raise sea levels around the world.

Carbon dioxide is the single largest contributor to global warming and represents half of all greenhouse gas warming. The combustion of fossil fuels is responsible for about 80 percent of the carbon dioxide emissions with deforestation producing about 20 percent. Additional contributions to global warming arise from the atmospheric increase of nitrous oxide, methane and tropospheric ozone associated with fossil fuel use. To slow the rate of anticipated warming, less fossil fuel must be burned. In addition, chlorofluorocarbons (CFCs), which are utilized in such key energy applications as refrigeration, air conditioning and foam insulation, contribute another 15-20 percent of greenhouse gas warming.

### *Environmental Quality*

The World Commission on Environment and Development in its report, *Our Common Future*, concluded that to have sustainable development, a sustainable environment also must be maintained.

In addition to global warming, the issues of acid rain and urban air pollution are direct consequences of the energy use pattern of the United States and the rest of the world. The energy used to fuel industrial growth and the country's increasing dependence on the automobile have resulted in spiralling urban smog and ozone levels, which are creating major human health problems.

It is now known that there are many ramifications of acid deposition and air pollution involving serious damage to forests, rivers and lakes, wildlife and crops. Furthermore, tropospheric ozone, produced by combustion of fossil fuels, is not only a major contributor to air pollution but a greenhouse gas as well. Other air pollutants from combustion increase methane and nitrous oxide, which also contribute to global warming.

### *International Economic Competitiveness*

The role of energy in international competitiveness is clear. The United States spent 10 percent of its GNP on energy costs in 1986. Japan spent 4 percent—less than half the proportion of GNP spent by the United States. In 1986, this represented a difference of \$200 billion—which was, therefore, not available for investments elsewhere in the economy.

In addition, oil imports accounted for \$44 billion (26 percent) of the nation's trade deficit in 1987. Projections by the Department of Energy indicate this could increase to \$100 billion by 2000. World



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and domestic economic markets are greatly affected by the size of the U.S. trade deficit. We question the capacity of the United States to continue this trend.

Competitiveness requires reducing the energy intensity of our economy—in manufacturing, industrial processes, transportation and in the delivery of services such as heat and light. It also requires the development and marketing (internationally as well as domestically) of energy-efficient products and technologies. Otherwise, the United States will again be in the position of losing international and domestic market share.

Increased recognition of the environmental stresses being placed upon our planet—many of which are derived from energy use—and the need to act now will drive the development of new and improved technologies and products. To meet the demand in developing and other countries will be especially important, as they will be dependent upon such technologies. The United States should see this as an important market opportunity. Other nations such as Japan, West Germany and Sweden have already begun to anticipate the demands of such a new market.

### *Energy Security*

With the collapse of world oil prices, oil imports have grown steadily and domestic production has fallen off. In 1987, oil imports constituted 35.5 percent of U.S. oil consumption. The United States has a mature petroleum industry with diminished reserves of inexpensive, easy-to-recover oil. The Middle East contains two-thirds of the free world's proven oil and natural gas reserves. The Department of Energy predicted in its 1987 energy security report that oil imports could account for more than half of U.S. consumption by the mid-1990s. This raises questions of vulnerability to potential supply disruption or, more likely, to sudden and substantial price hikes which, as was painfully learned in 1973 and 1979, can create economic chaos at home and abroad.

When the increased costs of military defenses in the Persian Gulf to protect the oil "pipeline" are included, imported oil is no longer "cheap."

Certainly, efforts to maintain diverse sources of supply and to continue the buildup of the Strategic Petroleum Reserve are important tools in helping reduce energy security concerns.

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## WHAT PATHS TO TAKE?

There are four categories of actions needed for a complete U.S. energy policy:

1. Increase energy efficiency, which we believe must be the first priority.
2. Stimulate the use of alternative energy sources and fuel switching.
3. Stop deforestation and promote reforestation.
4. Take leadership in developing international agreements to curtail greenhouse gas emissions from energy sources.

### **1. Increase Energy Efficiency**

Energy efficiency can provide the largest, easiest, fastest and “least cost” contribution to help remedy the problems outlined earlier. Energy efficiency also buys us time—critical in enabling us to better develop alternative energy resources and slow carbon dioxide emissions while still burning fossil fuels.

The last 15 years of energy policy experience demonstrated that improving energy efficiency works. Efficiency improvements cut fuel use in power generation, transportation, industrial processes and in end-uses such as heating, cooling and lighting while delivering the same or improved level of services at substantial cost savings. While the United States uses little more energy today than it did in 1973, it produces 40 percent more goods and services. According to analyses done by the American Council for an Energy Efficient Economy, efficiency improvements have cut the nation’s annual energy

bill by \$160 billion. However, the United States is still only half as efficient in its energy use as Japan, West Germany and Italy. And the progress this country has made has now stopped, and annual energy use has begun to climb again.

To regain these efficiency increases will require new government initiatives, particularly those that affect the price of fuels. Various policy options for improving energy efficiency are discussed below.

*Tax Strategies:* We have learned that price is the single most effective means through which to stimulate efficiency improvements. Therefore, in this time of relatively low energy prices, tax options must be courageously explored. Tax strategies should be examined to determine their ability to effect substantial reductions in energy use. At the same time, one must develop a plan that minimizes adverse impacts upon low-income households; the use of Social Security tax offsets is one such example.

Serious problems require serious solutions. One way to reduce the amount of fossil fuel burned and encourage the use of non- or low-emitting carbon fuels is a tax on carbon dioxide emissions. Therefore, we urge that a “carbon dioxide tax,” as well as other mechanisms that would directly encourage emissions cuts, be explored.

We believe a phased-in gasoline tax (potentially approaching European levels) has the advantages of raising substantial revenue in an administratively simple way, affecting consumer behavior and creating less macroeconomic impact than

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alternative energy taxes. In addition, we urge consideration of an increased "gas guzzler" tax, as well as a "gas sipper" rebate for replacing an inefficient vehicle with the purchase of a fuel efficient vehicle.

*Utilities:* The utility sector offers great potential for efficiency improvements. Some utilities have done well in financing consumer efficiency and capturing the economic potential of efficiency improvements for residential, commercial and industrial customers. There is considerable "least cost utility planning" activity underway at the state regulatory level. Competitive bidding for energy conservation and diversified production is being tried in New England and a few other states. Efforts to design incentive rates of return for efficiency investments by utilities are underway in some states. Therefore, we recommend that the Public Utilities Regulatory Practices Act (PURPA) be amended to further encourage such activities at the state regulatory level.

Utilities (especially coal-burning facilities) also are the major contributor to acid rain and an important factor in greenhouse gas emissions (carbon dioxide and nitrous oxide). Efficiency strategies, both in production and consumption, are important in reducing all of these emissions. Yet most of the acid rain legislative proposals are focused on "scrubber" technologies which actually require more fuel to operate and, therefore, increase carbon dioxide emissions. We urge that acid rain proposals give priority to efficiency strategies, which not only reduce carbon dioxide emissions but also save

dollars, to the full extent of their economic potential, including environmental costs. We also recommend that fuel switching from coal to gas and the substitution of non-greenhouse gas producing technologies be allowed to compete on the same basis as other control technologies.

*Subsidies:* Coal releases about twice as much carbon dioxide as natural gas, and petroleum is approximately halfway in between. Therefore, existing federal subsidies for energy production may be encouraging the development and use of fuels with high carbon dioxide emissions and discouraging the use of non- or low-carbon emitting fuels and energy efficiency strategies.

The Joint Committee on Taxation estimates that from 1989-1993, the exclusion of interest on state and local government industrial development bonds for energy production (largely coal-fired) facilities will result in tax expenditures of \$800 million. Expensing of exploration and development and depletion costs for oil and gas and other fuels will result in \$7 billion in tax expenditures over the next five years. Some sources estimate that subsidies to the nuclear industry run as high as \$11 billion a year.

We recommend the removal of production subsidies that encourage the unwise use of fossil fuels and an end to the predominance of nuclear subsidies, which dwarf assistance to efficiency and renewable energy supply sources.

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*Transportation:* Special attention should be paid to the transportation sector since it uses more than 63 percent of the oil consumed in the United States and is responsible for a large amount of pollution and greenhouse gas emissions (nitrous oxide, tropospheric ozone, methane and carbon dioxide). The amount of oil used for transportation is roughly equivalent to the total amount of oil produced domestically. Cars and light trucks are the largest users of oil and account for fully one-third of all U.S. oil use.

For this sector, as well as other sectors, we believe that complementary strategies will be necessary, working in tandem rather than one strategy working alone, to attain optimum energy efficiency improvements. Technologies are currently available which would allow fuel economy to be doubled, while retaining the current mix of vehicles. New fuel economy standards are an important tool in putting together an effective strategy. However, any new standards must be structured carefully to ensure fairness in the treatment of domestic versus foreign manufacturers. A combination of new standards with fuel and transportation sector taxes (which are discussed earlier) will result in more efficient use of petroleum-based fuels.

*Energy Efficiency Research & Development:* The development and implementation of efficient technologies should be accelerated. This will require increased federal support for efficiency R&D and demonstration. Such support should be provided through cost-sharing

and cooperative planning with the private sector. There are exciting developments in transportation, electrical power generation, lighting and building climate control systems and in industrial process projects.

Energy efficiency and conservation R&D budgets were slashed by more than 50 percent during the 1980s, despite many successful projects which will ultimately yield billions of dollars worth of energy savings. Assistance with demonstration or commercialization of promising technologies is important because often the most innovation and willingness to take risks occurs in small companies which are not sufficiently capitalized to handle those costs. We urge that such assistance be provided in a careful, selective manner, recognizing that too often in the past "pork barrel" rationale determined where assistance was provided. We also recommend that greater efforts to improve technology transfer from the national laboratories to the private sector be encouraged. Moreover, efforts should be undertaken to make federal facilities a model of and testing ground for energy efficiency.

In summary, efficiency holds great potential. It is the priority strategy enunciated by the report "Developing Policies for Responding to Climatic Change" (prepared under the auspices of the World Meteorological Organization and the United Nations Environment Program) and the Toronto World Conference on the Changing Atmosphere. However, after making great strides during the decade

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following the oil price spirals of the 1970s, the latest Energy Information Administration statistics show the energy use per unit of economic output beginning to increase rather than continuing to decrease.

Improved energy efficiency is not the entire solution. But because enormous, cost-effective improvements are possible in every sector of the economy, and it makes sense to do them for many compelling reasons, we should move forward without delay. Expediting the implementation of energy efficiency technologies is the key way to reduce greenhouse emissions in the near-term and buys time for the longer-term transition to non-fossil fuels.

## **2. Stimulate the Use of Alternative Energy Sources and Fuel Switching**

*Solar and Other Renewable Energy Sources:* Renewable energy sources are important contributors now and will be much more important to our energy mix in the longer-term. Solar, wind, geothermal, ocean thermal, biomass, hydropower and other renewable sources produce no net greenhouse emissions and are technologies that should be supported, developed and implemented as expeditiously as possible.

The federal R&D budget for renewable energy has been cut drastically in the 1980s. Tax credits for renewable energy have been phased out. These actions slowed the development of renewable energy sources and greatly hindered their ability to compete.

Because of the importance of renewable energy sources to our energy future, we recommend a rejuvenated federal R&D program for renewables—in partnership with the private sector through cost-sharing and cooperative planning arrangements. We support policies that will provide selective commercialization and implementation assistance to promising technologies. The United States has lost ground in many areas of renewable energy development (notably wind and photovoltaics) to our trading competitors. This is a highly competitive area and hard work will be required to stay in the race. Government policies to enhance renewable energy development and implementation will pay off through worldwide marketing opportunities, the slowing of global warming and the reduction of harmful conventional emissions.

For example, with the help of federal R&D support, the installation costs for wind turbines have fallen by more than half since 1981 to \$800-1200 per kilowatt—becoming competitive with conventional power sources. Photovoltaic costs have decreased substantially to today's cost of \$4-5/watt—making them competitive in remote locations—but must approach \$1/watt to compete in most markets. At the same time, the reliability and efficiency of renewable technologies has continued to increase. Federal support can play a critical role in accelerating these developments.

In addition, urban tree planting can be a highly competitive and cost-effective way to reduce air conditioning power loads and directly reduce carbon dioxide emissions.

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This should be encouraged, as well as painting structures light colors to obtain optimal benefits.

*Other Alternative Energy Sources:* Alternative transportation fuels, such as methanol from natural gas, ethanol and hydrogen, are seen by many as important in reducing urban air pollution and demand for OPEC oil. However, we should be certain that the production and use of alternative fuels will not result in an increase in carbon dioxide emissions above that of the displaced fuel.

While nuclear power does not generate greenhouse gas emissions, it would take a completely new design to compete economically and gain public and investor support. Therefore, we do not believe that it can make any substantial additional contribution to our energy mix in the near future when compared to other available efficiency and renewable energy options.

*Fuel Switching:* Because there are large differences among fossil fuels in the amount of carbon dioxide released when they are burned, we recommend that legislative and regulatory barriers to fuel switching be removed. The Clean Air Act should be amended to ensure that efforts to meet air quality standards do not exacerbate the greenhouse problem or stand in the way of innovation. Since natural gas produces only half as much carbon dioxide as coal, fuel switching or co-burning of natural gas with coal can significantly reduce greenhouse emissions together with other conventional pollutants.

### **3. Stop Deforestation and Promote Reforestation**

The forests of the world are vast “sinks” for carbon dioxide. Deforestation has increased as a result of economic development projects and growing demand for firewood in over-populated areas, particularly in developing countries. Twenty percent of the world’s annual carbon dioxide emissions result from deforestation.

The halting of deforestation and promotion of reforestation are important strategies for helping slow the rate of global climate change, as well as providing an environment that can support sustainable development. Moreover, any reductions in deforestation play a critical role in helping preserve biological diversity. We, therefore, urge the adoption of domestic and international policies which seek to stop deforestation and encourage reforestation.

For example, it is possible to help offset the carbon dioxide emissions of a coal plant with a reforestation program. Costs can be held to modest levels by utilizing debt-for-nature swaps. Reforestation is a critical mitigation strategy which helps buy time since countries will not be able to stop burning fossil fuels in the short-term.

### **4. Take the Leadership in Developing International Initiatives to Reduce Global Warming**

The United States cannot solve these energy and environmental problems by itself. Global strategies developed and

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faithfully implemented by both industrialized and developing nations are required. Strong leadership domestically and internationally by the United States is critical if effective global strategies to limit greenhouse emissions are to be developed.

In coming years, much of the increase in greenhouse gas emissions will come from increased industrialization and agricultural production in developing countries. Therefore, we urge that energy efficiency and renewable energy strategies become an important component of U.S. bilateral and multi-lateral foreign assistance programs. The United States should work with other donor nations to ensure that their programs also share this priority. Efforts to improve technology transfer to developing nations should be a priority. This is critical if significant steps are to be taken to slow global warming.

Much of the energy currently used in the developing world is used very inefficiently. At the same time, many applications of solar and other renewable energy sources are particularly well-suited for developing countries and are already cost-effective. While the need to develop global agreements on energy use presents a great challenge, it also offers significant opportunities for the United States—and other nations—to develop expanded international markets for efficiency and renewable technologies.

We recommend that the United States call for an international convention to address future world energy usage and develop global strategies to limit carbon

dioxide and other greenhouse gas emissions.

We also recommend that the United States seek a total phase-out of chlorofluorocarbons (CFCs), since CFCs contribute nearly 20 percent of all greenhouse gas warming. Because CFCs are heavily used in energy applications, i.e., refrigeration and air conditioning, development of efficient substitutes should be accelerated.

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## **CONCLUSION**

The nation stands at a turning point. Government actions will be required to address these energy problems in a timely way. The government must take an activist stance but—knowing that strictly regulatory approaches do not work—should seek to tap the power of the market through its actions.

As energy policy decisions are made, policymakers must be careful not to think they have solved one energy or environmental problem, only inadvertently to exacerbate another. For this reason, we urge that energy policy options be examined through a comprehensive “greenhouse lens” as part of the decisionmaking process.

The environmental/energy problems of today are global in scope and require global cooperation if they are to be resolved. The United States should move aggressively domestically—and provide international leadership on these critical issues. The industrialized nations of the world have a special responsibility to take leadership. The United States and the Soviet Union as the world’s largest users of fossil fuels should assume leadership and work cooperatively in taking steps to slow and halt global warming.





