Studies in Energy Policy

ENERGY— A CRISIS IN PUBLIC POLICY

Melvin R. Laird

A Report from the Chairman of the
AEI National Energy Project

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CONTENTS

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Like a comet catching the public's fancy, problems of energy short-term supply, use, and long-term availability—styled dramatically as a "crisis," or more quietly as a "challenge"—have moved toward center stage during this decade, spurred by four presidential messages, the oil embargo and price escalations of the Organization of Petroleum Exporting Countries (OPEC), and the deprivations of the severe winter of 1976-1977. Each of the last three administrations has sought to formulate and implement (and each allegedly for the first time) a comprehensive national energy policy.

In order to promote investigation and reasoned exchange of views on the complex of issues involved in energy, the American Enterprise Institute for Public Policy Research initiated its National Energy Project in the summer of 1974. The project has published twenty-four studies (with nine more in preparation), four national conferences, and six television programs on energy policy issues. On the basis of these efforts, and my governmental and private experience in energy matters—particularly as the chairman of the National Energy Project—I have prepared this paper to summarize my personal conclusions.

Definition of the Problem

Response to the problems of energy runs the gamut from smug unconcern—with perhaps a knowing wink about artificially contrived shortages and sinister conspiracies—to a doomsday view of absolute exhaustion of resources, leading to the breakdown of the civilized (or at least mechanized) world. Government leaders and professionals in the energy area tend to agree on the existence of varying degrees of "crisis" stemming from seemingly inexorably rising demand and diminishing supply, at least of petroleum and natural gas. These diverging curves are said to presage an era of ever-worsening shortages, changed life styles, and the need for growing government action. On the other hand, public opinion polls show that a majority do not believe in the reality of severe energy problems and feel instead they are being manipulated by forces beyond their control. Both these views, however, are mistaken.

This country and the world do face a severe crisis, not of energy but of public policy. Sadly and ironically the greater the time, attention, and effort

devoted to energy problems by the government, the more counterproductive have become our policies.

The first step to understanding the problem of energy is to understand that the immediate problem is simply a projected shortage of petroleum and natural gas. Domestically and abroad, we have abundant supplies of coal and uranium to last until the development of the "next generation" of energy sources–solar, geothermal, tidal, wind, et cetera–which are renewable. The problem called an energy crisis is thus not a problem of energy, or even energy sources, but of near-term supply and demand for two *commodities*–petroleum and natural gas. Before this decade, our energy policy with regard to these commodities was unremarkable as compared with other types of commodities, such as metals or foodstuffs, with the exception of the judicially created, aberrational regulation imposed on the wellhead price for natural gas. By the 1970s this free-market policy had given way to regulation to preserve the resources. Now we have a shortage not by an act of God, visited upon us for past misbehavior, but simply as the inexorable result of the application of simple rules of economics. As Professor Milton Friedman has observed: "Economists may not know much. But we do know one thing very well: how to produce shortages and surpluses. Do you want to produce a shortage of any product? Simply have government fix and enforce a legal *maximum* price on the product which is less than the price that would otherwise prevail." Our shortsighted policy judgment–maximum governmentally permitted prices for oil and gas–is presently the centerpiece of our national energy policy. Consequently, we are now faced with a plethora of ideas on how further to manage the governmentally created shortage.

The conventional wisdom on energy stresses that the shortages are caused instead by physical limitations on the availability of the natural resources. However, with regard to all mineral products there is a finite limitation. The question, therefore, should not be how much oil and natural gas is physically available but rather how much is available at what price over what period of time. As more difficult and expensive extraction methods are required for diminishing resources, the market prices the diminishing resource higher, thus inducing both less use of the product and substitution of other products for its uses.

That market solution is not being permitted to operate with regard to oil and natural gas. It is painful and worrisome to consumers to pay more for any product, particularly a product that is used as pervasively as energy. However, those who counsel artificially shielding consumers from the reality of the full cost of a product, such as oil or natural gas, are simply insuring that the consumers will in the future have even less of the product. Senator Russell Long of Louisiana recounts the story of the man who walked into a supermarket enquiring about the price of tomatoes. The grocer told him that his tomatoes were sixty-three cents a pound. "That's outrageous," replied the man. "Right down the street they are only twenty-three cents a pound."

"Why don't you go down there and buy them, then?" said the grocer. "Because they don't have any," said the frustrated buyer.

As to the raw availability of oil and natural gas reserves in the ground, figures are usually cited for the contiguous forty-eight states of the United States that indicate only between fifteen and twenty-five years of supplies remain. However, these gross numbers are meaningless without some indication of price. Deeper and more expensive wells in harder-to-reach areas and more sophisticated recovery techniques for existing but diminished stores of oil and natural gas are estimated to represent a potential which is many times the so-called proven reserve. As with other physical commodities, it does not pay to expend large sums of money in prospecting for the next generation of supplies. By even the most conservative estimates it is clear that this country and the world possess recoverable fossil fuel reserves sufficient to provide energy resources solely by themselves for hundreds of years. If prices are allowed to increase to market-clearing levels, then just domestic and secure foreign sources of supply will be sufficient to provide oil and gas for transportation and home use for the next fifteen to twenty years. The restriction of acceptable supplies to these sources is the result of the action of the OPEC monopoly, which not only has escalated prices beyond the market but also has diminished the secure world supply from a number of the largest producers. This will require a quicker—and more expensive—move to alternative fossil fuels such as liquefied coal. Thus the problem to address is not the simple exhaustion of resources but the price at which those resources will be produced.

Many have recognized that one response to diminished supply and high demand is to dampen demand by encouraging conservation. Here again the problem is best illuminated with regard to pricing policies. For products from bubble gum to bombers, how much is demanded by consumers is a function of its cost. It is therefore totally unremarkable that in the United States we have the highest energy use per capita, because we also have the lowest energy costs in the free world. In fact the real price of energy fell continuously for three decades right up to the OPEC oil price escalation and even today is lower in real terms than it has been earlier in our history. These decreases came as the result of vast new discoveries and improving energy technology. Yet this country today denies the reality of the new price levels and leads the world in self-deception because we persist both in strict price controls and in maintaining the lowest energy tax rates of any industrialized country.

The way to achieve effective and equitable energy conservation is to permit the marketplace to signal the higher true cost of energy to the consumer. This will permit the usual market corrections to function for energy as they do for other goods traded in the international market, such as coffee. While there are obvious and vast differences between the OPEC-dominated market for nonrenewable resources such as oil and the temporary supply and

price movements of an agricultural commodity such as coffee, it is interesting to look at the governmental response and its result. As the price of that commodity has escalated, consumers have discovered the virtues of tea and of going without, while lower-priced new blends are finding their way to grocers' shelves. Fortunately, the government has not established a ceiling price for coffee, frozen the price for "old" coffee, allocated entitlements to coffee importers, offered tax incentives to encourage shifting from coffee to cocoa, instituted a massive research and development program for substitutes, or any of the other of the panoply of existing or proposed programs that have mushroomed in response to the energy crisis. Consumers' use patterns as well as producers' supply response for oil and natural gas could and would follow a similar pattern if the true economic signposts could be read through the mists of policy chaos.

The next aspect of energy problems that requires greater definition is international. Because the Communist world and its major energy producers, the Soviet Union and China, are basically self-sufficient but not significant exporters, near-term concerns focus on the central role of OPEC as the major oil suppliers to the world. While the United States still produces more oil than any other country in the world other than Saudi Arabia, our increased demand has made us in recent years a heavy oil importer—a position we share with virtually all other industrialized states. New sources of oil such as the North Sea and Alaska will change the degree but not the basic relationship. The OPEC countries have demonstrated the market power and the political cohesiveness to increase exponentially the price of oil and thereby to effect the most radical realignment in the flow of the world's wealth in human history. But apart from fear and private outrage, the governmental response to this OPEC *coup de riche* has been strangely meek and accommodating. For our country the challenge is to separate the two aspects of oil import dependence—the national security aspect and the economic aspect—and to divine both domestic and international policies to deal with each of them.

Finally, the problems of energy production and use must be separated from the myth of energy—that it is the nearly mystical lifeblood of the nation. This divorce will permit us to view energy in its many manifestations—fuel for transport, heat sources for homes and offices, fuel for industry, generation of electrical power—as a group of problems surrounding treatment of these commodities. Energy is vital, but no more than, for example, food—whose commodity markets have not become the proving grounds for social policy experimentation. Economic insights hard won in historical experience still apply to the field of energy. These lessons are ignored at our peril, for those who do not learn the lessons of history may not be around to repeat them.

The Crisis of Government Policy

Contrary to much public rhetoric, we do have an energy policy. The question is not its existence but its rectitude.

Prior to World War II our energy policy did not differ significantly from other commodity and mineral policies and was almost purely laissez faire. This system had accommodated the shifts from wood to sperm oil, sperm oil to coal, and coal to oil. After World War II government action in the energy field increased, but not within the framework of a comprehensive policy. One of the first major governmental energy undertakings was the decision to attempt to harness the power of the atom for peaceful purposes under the nuclear reactor programs of the Atomic Energy Commission. The 1950s witnessed two major federal policies which have continued to impact oil and natural gas: the Mandatory Oil Import Program and the Natural Gas Act and its court constructions, which required Federal Power Commission regulation of natural gas prices. (Added to these national policies must be the activities of the Texas Railroad Commission to establish market-demand prorationing.) The government thus moved into energy markets in an ad hoc and unintegrated way, and began to establish policies which sent signals into the marketplace that were misleading—regulated prices for natural gas established by a bureaucratic decision of fair rate of return and artificially high prices for oil to protect the domestic industry from low-cost foreign competition.

The present decade has seen tremendous growth in new governmental energy decisions and various attempts at sweeping energy policy. In 1971 the first presidential message on energy was largely exhortative, while laying heavy stress on government research and development, particularly in nuclear energy. Shortly thereafter, as part of the new economic policy, the U.S. Cost of Living Council extended price controls to oil, as it did for other goods and services. However, unlike the situation for other goods and services, oil price regulation has remained in effect as mandated by federal legislation. In addition, the U.S. Department of the Interior established a new mineral leasing policy, which has made coal extraction from federal lands more difficult, costly, and time-consuming. The Congress, meanwhile, was enacting tough new coal mine safety legislation and a wide variety of new environmental laws, including, particularly, the National Environmental Policy Act (NEPA), the Clean Air Act, and Federal Water Pollution Control Act amendments. In the mid-1970s the Congress took the first steps toward mandatory energy conservation with a lower national speed limit followed by specified mileage requirements for automobiles.

Oil and Natural Gas. The result of these policies has been to inculcate growing uncertainty in the energy market, among both producers and consumers, as to the future of governmental action. The signal has been sent that hydro-

carbon resources, the basis of our present energy supplies, will not be treated like copper, magnesium, or even food or fiber. They are instead to be set aside in a special category for heavy governmental attention and regulation. Domestic production of oil, natural gas, and coal has suffered from this uncertainty and special treatment, as well as from the programs which created it.

With regard to natural gas, of course, direct federal price regulation has continued unabated since 1954. While recent federal regulatory decisions have dramatically increased the price obtainable for interstate shipments, that price is still below the presently unregulated intrastate market. In particular because natural gas deregulation legislation has narrowly failed in Congress in the last two years, producers have probably been watching Washington more carefully than their geological studies in deciding when and where to explore for new supplies. On the demand side, the same federal policy which has held the price of natural gas far below competing fuels on a B.t.u. basis has encouraged its use and substitution for other fuels, so that, at prevailing prices, there is an enormous amount of unsatisfied demand for natural gas. From the perspective of conservation, this policy is clearly indefensible because in a free market natural gas would be the premium fuel among fossil fuels. It is relatively easy to handle, it burns much more cleanly than oil or coal, and thus it requires far less in environmental hardware.

With regard to oil, this country has now established a three-tier market price for a generally homogeneous product. The effect of this pricing policy, intended to shield American consumers to some extent from the exponential price increases forced on the world oil market by OPEC, has been to place us in the anomalous position of paying foreign producers more for a product than we are willing to pay domestic producers. The price differential between domestic price and foreign price has been roughly equalized by the federal government through a series of "entitlements"—transfer payments among producers and refiners seeking to rationalize costs between those who use domestic resources and imports.

The continued price regulations coupled with uncertainty over future policy directions on oil have dampened incentives to find and produce more domestic oil, a result directly contrary to the increasing demand for a reversal of the trend toward dependence on foreign oil. In addition to sending erroneous signals to the marketplace, the federal government has been agonizingly slow in permitting development of the most promising future source of domestic oil—the U.S. outer continental shelf (OCS). The rate of leasing and exploitation of these areas continues to lag far behind the optimistic goals, which have been continuously revised upward throughout the decade. At present only a tiny fraction of the promising sedimentary areas in the OCS have been leased and explored. Sheer bureaucratic inertia, coupled with the technical and legal complexities of full compliance with the requirements of NEPA, continues to plague attempts to move this program forward. Com-

pliance with NEPA must be shortened in time and restricted in legal challenge so that it is allowed properly to aid government decision making and not operate as a relief program for bureaucrats and lawyers.

The justifications for these confusing and counterproductive policies for oil and natural gas are usually premised on three positions: (1) that there is no free market for oil and natural gas to return to because supply (and, for oil, distribution and sales) are dominated by a domestic cartel of a few large companies; (2) that deregulation would result in windfall profits to producers for products they developed at lower cost and lower expectation; and (3) that continued price regulation is necessary to shield lower-income citizens from the reality of (at least in the near term) higher prices. However, these are weak reeds upon which to have disrupted a rational energy policy.

First, with regard to market concentration of the producers, natural gas supply is one of the least concentrated natural resources industries in the country. The largest ten firms account for less than 40 percent of the market, and small independent wildcatters abound. Interstate distribution and retail sales are already the province of fully regulated public utilities. With regard to oil, the major companies are indeed enormous and include some of the largest corporations in the world. However, the degree of concentration of the market is much less than for other major sections of the U.S. economy, such as automobiles, steel, copper, and aluminum. If the fear is concerted action and conspiracy, the remedy is enforceable disclosure and antitrust laws to provide assurance and remedies.

In the case of "windfall" profits, from the standpoint of increasing energy supplies the ideal result might be to realize them and have them plowed back into energy exploration and development. Given political realities and public confidence, the profits available from an immediate price escalation to market levels for oil and natural gas could be recaptured for the public through the mechanism of a one-time tax on these inventory revaluation profits, as has already been part of the natural gas deregulation legislation before the Congress.

The problems of the poor in paying for increased energy costs is a highly emotional and difficult one. Because our society is still ordered in large measure in reliance on technology and living patterns developed during a period of much lower energy costs, near-term adjustment to higher prices will be especially difficult. Single family dwellings require heat and electricity, and there is clearly a minimum beyond which even ardent conservation cannot cut without leading to a standard of living which we as a society have judged unbearably difficult. The wide dispersal of housing and the separation of housing from jobs, coupled with the lack of adequate mass transportation in many areas, mean for at least the near term continued reliance on individual transportation in automobiles. However, price increases in any product are always painful, and much more so for those used as pervasively as energy. Yet energy is not unique in its necessity to everyday life. Food supplies cer-

tainly fall in that category even more dramatically. We have not, however, radically changed our food pricing policies to accommodate the poor but rather have designed particular social welfare programs for the poor. The problem then is not to require an energy policy to cure the social problems of the country but rather to recognize the social impact of a correct energy policy and then to make a welfare or subsidy system equitable in avoiding untoward hardship.

Coal. In what is fast becoming the favorite cliche of energy aficionados, coal is "America's most abundant domestic resource." But as one wag has it, there are only two problems with coal: you can't dig it and you can't burn it. This is of course an oversimplified way of pointing out that environmental restrictions have made the more dominant use of coal much more difficult. Yet it is not the environmental restrictions themselves that are playing havoc with the present market for coal; rather it is the uncertainty surrounding those requirements that does not permit accurate long-term analysis of and reaction to the cost of coal that is restricting its use.

The major direct governmental regulations affecting coal are presently focused on the safety of underground miners, requirements for returning strip-mined land to its original character, and the leasing policy on federally owned land. No matter how onerous the first two requirements may be to coal mine operators, it is clear that once final standards are set, however difficult, the costs of compliance can and are being internalized in the price of coal in the marketplace. The third element, the government leasing policy, is analogous to the situation in OCS drilling: bureaucracy in concert with NEPA have slowed effective development to a crawl.

The most dramatic constraint on coal is not the direct regulation but the indirect regulation achieved through operation of the federal environmental laws, particularly the Clean Air Act. Present standards under the Clean Air Act set stringent primary ambient air quality standards to protect the public health. Secondary ambient air quality standards are also established for many pollutants, including some of the most troublesome components of coal combustion, the sulfur oxides, to protect the generalized "public welfare." But in addition to these national ambient standards, the act also requires each state to adopt implementation plans to achieve the air quality standards, and it permits them to set standards of their own that are more stringent than those of the federal government. The combination of these latter two requirements and authorities has been the establishment of exceedingly strict air quality limitations, which are often achievable only by burning natural gas or very low-sulfur oil. Coal in new plants can often be burned only in conjunction with post-combustion clean-up technology, such as "scrubbers," which add tremendously to the cost. Moreover, the clean-air standards themselves can be and are amended by state government in conjunction with the federal Environmental Protection Agency to be more strin-

gent. The result is a moving target for compliance with Clean Air Act requirements, which make capital commitment for coal, particularly to retrofit existing plants, exceedingly hazardous as a business judgment and often uneconomic compared even with high-priced foreign oil.

Instead of dealing with this problem directly by establishing preemptive national standards—which do not have the environmental overkill found in many state plans—and thus sending clear and certain signals to the market, the present tendency in federal policy has been to attempt to force conversion into coal by an overriding regulatory program. This is a classic example of a government program having unwanted side effects, which force yet greater government intervention.

The failure of the federal government to come to grips with the crucial environmental/energy trade-offs is partially attributable to the fact that, in the Congress as well as in the executive branch, policy direction for energy and environment is treated separately. With missionary zeal, those in government dealing with each set of issues push their own programs toward conclusions that are often contradictory and sometimes actually impossible of resolution by the decision maker in the private sector, at the end of the regulatory chain. It is clearly necessary that the federal government employ one and not two sets of scales to weigh and balance the requirements for environmental quality and energy supply and use. Unless these conflicting directions are resolved, and market forces are permitted to make the rational substitution of coal for high-priced oil, coal is likely to remain America's most abundant resource, but its most abundant resource in the ground. What is needed is the establishment of line responsibility within the executive branch to face up to the difficult balancing decisions involved. A Department of Energy and Environment, combining the major federal responsibilities in both areas, would keep these vital decisions from routinely being referred to the President and his staff for resolution and force joint analysis of costs and benefits. Congress, too, must recognize the interrelationship of these considerations and restructure its committee organizations to address them jointly.

Nuclear Power and Energy R & D. Nuclear power and governmentally supported energy research and development may seem to be strange bedfellows for joint policy consideration, but in fact the present generation of light-water reactors represents the culmination of a thirty-year governmental R & D effort. Research on future generations of nuclear power has been by far the largest ongoing federally sponsored energy effort. Without reopening the presently economically irrelevant question of the wisdom of the initial decision to derive electricity from nuclear power, it is clear that the federal R & D investment in light-water reactors has produced a mature technology that is at least competitive and often cheaper to install and maintain even than plants using price-controlled hydrocarbon fuel sources.

The safety of this present generation of nuclear reactors is not a major

policy issue. These reactors have operated on ships and on land for over two decades and have never led to a reactor-related fatality. The industry is the most rigorously regulated of any in the country, and independent studies such as those undertaken by Professor Rasmussen of M.I.T. and the recent analysis by the Mitre Corporation have shown that operating safeguards have made nuclear power safer than many long-established industrial activities. Disposal of low-level wastes from the existing and planned reactors is being handled safely, and indefinite term disposal technologies appear to be nearly at hand.

The present debate on nuclear power is thus focused on the unresolved problems of a "plutonium economy."

The plutonium produced in light-water reactors can be reprocessed and recycled, with the result that less fresh uranium is required. More importantly, this plutonium can also be used to fuel breeder reactors. The other ingredient of breeder fuel is the depleted, nonfissile uranium that is separated out as a byproduct of the enrichment process. Our national inventory of depleted uranium already dwarfs our coal reserves as a future source of energy. Thus the breeder offers an important energy alternative that relies on domestic fuels and greatly extends the use of our uranium reserves.

However, the breeder involves the commercial use of plutonium, and plutonium can be diverted from peaceful purposes to the manufacture of nuclear weapons. Clearly, the future deployment of breeder reactors must await the development of an international system of controls and sanctions to restrain the proliferation of nuclear weapons. This has already been made a matter of priority concern by both the Ford and the Carter administrations, and a satisfactory resolution seems likely within the next few years.

Nevertheless, policy questions still remain as to the heavy commitment of federal R & D funds both to the breeder and to nuclear fusion. In the case of the breeder, the basic technology is well established. The question whether the breeder can prove itself as an economically competitive system for generating electricity is one to be settled by the marketplace. When international agreements are in place to control the misuse of plutonium, the government technology should be made available to industry and further involvement by the government in developmental efforts should be discontinued.

Nuclear fusion technology, on the other hand, is certainly far from demonstration. Indeed, it has not yet moved from being a theoretical possibility to even a laboratory working model. However, the potential advantages of fusion in its closed-cycle operation and absence of radioactive byproducts are most promising. It is clear that the rewards from such a technology are so far in the future that private enterprise will not presently pursue it. Also, because the technology is still in the research stage, the federal commitment is not nearly as great as would be required for other technologies where heavy purchase of hardware is required in the near term.

Thus a continuing federal commitment to research the possibility of fusion energy seems appropriate.

Federal research and development of energy technologies generally is a most appealing political reaction to the perceived "crisis" premised on the absolute exhaustion of at least oil and natural gas hydrocarbon resources. However, the attempt to prove government commitment by escalating the research and development budget is often a tremendously inefficient mechanism, which preempts the more efficient substitution of energy options in the marketplace. Government bureaucrats, no matter how brilliant, cannot make the ultimate decision, or even a series of decisions, about the next generation of energy resources as effectively as the marketplace can. The argument is often made that energy needs an Apollo-like commitment of federal resources. However, the moon project, whatever its other benefits, was a tremendously inefficient way to force into the marketplace products like Teflon and Tang. In addition, the substitution of taxpayer-supported research buries and distorts the true cost of particular products and technologies.

Finally, it is often argued that government intervention is a useful way in which to speed up new technologies for energy generation through federal loan guarantees or price floors. This method has the attractiveness for government planners of being "off-budget," that is, of not appearing as a governmental expenditure. This is, of course, a charade in that government-supported loans achieve a primacy in private credit markets which, in effect, crowd out other forms of private borrowing. They do not create new capital but merely insure that a governmental decision of the most promising development projects will have the preferred position over all others. Government intervention in energy development and in credit subsidies thus makes meaningful cost/benefit assessment of the technology supported virtually impossible by hiding the true costs from the marketplace and artificially inflating benefits.

OPEC and the World Oil Market. Certainly the central development of this decade in moving energy concerns to the top of our national agenda, both by government and by private citizens, was the oil price escalation forced by the producers' cartel of OPEC. But the world economies have been made to pay a tremendous economic cost by the political actions of this monopoly. The contrived scarcity forced by OPEC price escalations far above the marginal social cost of energy has led to vast inefficiencies and a gross misallocation of the world's resources. The present price of oil is now far beyond not only the production costs but also the discounted depletion costs. The monopolists of OPEC have justified their pricing policies in benign terms by asserting that they have simply priced their commodity in terms reflecting its true forthcoming scarcity. But monopolists always argue that their wisdom is greater than that of the marketplace. The result is the present worldwide

economic jolt, requiring crash fuel substitutions and energy transitions that are more expensive and more wrenching than would have occurred without monopoly actions.

The oil price rise has been reflected in a dramatic reversal of the increasing levels of consumption of oil that had characterized the world market until 1973. In the industrialized economies of the United States, Japan, France, the United Kingdom, and West Germany, for example, oil use increased by a total of 7 percent from 1972 to 1973. But subsequent to the quadrupling of prices in 1973, consumption in these five countries *decreased* by 5 percent both in 1974 and in 1975. The rate of decrease for the United States was, of course, the lowest of the five countries because of the domestic-energy price-control policies that have shielded the American consumer from the full impact of the higher world oil price and have artificially displaced some demand for natural gas to oil because of worsening supply constraints.

It is highly probable that these near-term consumption decreases will become larger as substitution of other energy sources for oil and improvements in the energy efficiency of capital goods, such as automobiles, begin to operate in conjunction with simple forbearance of use. Despite this conservation, petroleum and its products are likely to remain the dominant world energy source for the remainder of this century.

Even with the production from new western oil fields, such as the North Sea and Alaska, the OPEC producers will continue to dominate the world market in the near term. Saudi Arabia is the largest producer in OPEC and has the ability to increase supply relatively quickly. Production costs are almost inconsiderable compared with price and are usually estimated at less than 20 cents per barrel. These low production costs compared with prices have led to an enormous and continuing transfer of wealth from oil-importing countries, particularly the heavy users of the industrialized West, to the exporters.

As to the economic implications, the original concern was the ability of the world economic system and the willingness of the OPEC states to "recycle" the transferred revenues. There has been little or no disruption, however, as the system has accommodated the transfers and the OPEC members have stepped up consumption of goods and services from the industrialized states. Indeed, the most populous states of OPEC, such as Iran, Venezuela, and Nigeria, have economic needs and aspirations outstripping oil revenues and are clearly motivated to maximize income. Even Saudi Arabia, whose production potential overhangs the entire world oil market, has plans to spend a substantial portion of its revenues internally.

With regard to geopolitical considerations, the major threat is a supply interruption, most likely to influence the United States and other Western nations' policy in the Middle East. Not unreasonably, this threat has led to governmentally initiated increases in petroleum storage capacity and multilateral agreements in effect to share the shortage throughout the West in

times of supply cutoff. But while other major industrialized states increased their storage capacity an average of 25 percent just from 1973 to 1975, this country is only now beginning work on a strategic storage program. For this country, storage of crude oil to supply domestic refineries should be accompanied by separate positioned storage for the one oil product upon which we are now heavily import-dependent: residual fuel oil.

While the short-term embargo threat and the international economic system have begun to accommodate to the new order imposed by OPEC, Professor Hendrik Houthakker has suggested a program for the future to begin to reverse the ongoing transfer of wealth to OPEC. His analysis indicates that price and supply elasticity for petroleum can be harnessed by oil-importing nations to staunch the outflow. A uniform and nondiscriminatory tariff on imports of crude oil and products by the members of the International Energy Agency could in effect displace the export tax on oil from OPEC countries. The overall price of oil would not change, because an import tariff additive to existing prices would force a sharp reduction in demand. To continue to maximize revenues, OPEC would be forced in fact to lower its effective price for oil. Thus a portion of present oil revenues would be recaptured by the governments of the consuming countries, easing balance-of-payments pressures and strengthening the economies of the West.

Conclusions and Recommendations

The energy crisis can be solved only after we identify clearly what the component problems are. We face not a menacing gap between supply and demand but a shortage manufactured by governmental policies at home and abroad. The apparent gap in supplies of energy is a result of artificially high demand because of controlled prices and the continuing disincentives to increase domestic hydrocarbon supplies and move to alternatives. We have in the recent past demanded more energy than producers were willing to supply, but that demand is for energy at low administered prices.

For problems created by the government, we must look to government for resolution—not in expanding regulation to correct the past errors of excessive interference with still more programs but rather in a fundamental reassessment of the role of the government in energy and a much-needed retrenchment. If we can find the wisdom to treat energy supplies as the important commodities they in fact are, and demand of government only that it establish the framework to permit market forces to work, we will both have redressed the energy imbalance and have relearned the crucial lesson of a free society.

Recommendations: A Simplified Energy Policy. Following are steps the government could take immediately to alleviate the crisis in public policy.

–Deregulate the prices of newly discovered natural gas and of oil: (a) enact a "windfall profits" tax to recapture the producers' short-term inventory revaluation; and (b) use these funds for cash grants to low-income citizens to ease the transition to fair market energy prices and to permit their consumption decisions to be reflected in the marketplace.

–Accelerate leasing and development of oil and natural gas on the outer continental shelf.

–Establish preemptive federal air and water quality ambient standards to protect the public health.

–Set preemptive emission standards for new and existing industrial installations, which will remain fixed for the life of the plant.

–Amend the National Environmental Policy Act to require completion of the environmental impact approval process within six months and to restrict legal challenge to an environmental impact statement to one proceeding at the conclusion of the process.

–Establish a federal Department of Energy and Environment to include the present Federal Energy Administration, Energy Research and Development Administration, Environmental Protection Agency, Department of the Interior, National Oceanic and Atmospheric Administration, and the Forest Service.

–Create new committees in the House of Representatives and the Senate with legislative and oversight jurisdiction for both environmental and energy policy.

–Streamline and standardize the procedures of the Nuclear Regulatory Commission to permit fair and safe reactor licensing decisions within one year. Restrict court challenges to one proceeding at the conclusion of the process.

–Restrict federal funding to energy research undertakings. Withdraw federal funds from development projects and authorize no federal loan guarantees for energy projects.

–Accelerate completion of a Strategic Petroleum Reserve for crude oil and for residual fuel oil.

–Working through the International Energy Agency, establish a uniform oil import tax for all members.

APPENDIX A

ENERGY RESEARCH AT THE AMERICAN ENTERPRISE INSTITUTE

Since it was founded in 1974, the AEI National Energy Project has been responsible for bringing to the energy debate a new perspective. The project, through its continuity, objective research, reasoned participation, and debate among policy makers and others, has brought much unbiased and nonpartisan information to an area where prejudice and partisanship have frequently been the norm. The project's activities have ranged over the entire spectrum of energy issues, from nuclear safety to the question of whether we should drill for oil offshore. Although the National Energy Project (NEP) was formally terminated in 1976, publications, television productions, and conferences on energy issues continue at the American Enterprise Institute.

Studies Published

The following studies have been published, publicized in the media, and widely used by policy makers, academia, and business circles.

U.S. Energy Policy—A Primer. Critique of government policies toward the energy market. Dr. Edward J. Mitchell, director of the National Energy Project.

Natural Gas Regulation: An Evaluation of FPC Controls. Analysis of Federal Power Commission price controls and their effects on the natural gas market. Dr. Robert B. Helms, AEI senior staff member and formerly professor of economics at Loyola University, Baltimore.

Energy Self-Sufficiency: An Economic Evaluation. Assesses methods, costs, and benefits for U.S. achievement of energy self-sufficiency. M.I.T. Energy Laboratory Policy Study Group principal participants are: Morris A. Adelman, Henry D. Jacoby, Paul L. Joskow, Paul W. MacAvoy, Herman P. Meissner, David C. White, and Martin B. Zimmerman, all professors at M.I.T.

Dialogue on World Oil. Edited proceedings of the October 1974 conference on world oil problems sponsored by NEP, edited by Dr. Edward J. Mitchell.

The Natural Gas Shortage and the Congress. Seeks to resolve debate over field price regulation of natural gas through examination of congressional testimony. Patricia E. Starratt, formerly special assistant for legislation, Federal Energy Administration.

Performance of the Federal Energy Office. An evaluation of the role played by the FEO during the oil embargo imposed by OAPEC. Dr. Richard B. Mancke, associate professor of international economic relations, Fletcher School of Law and Diplomacy, Tufts University.

Price Controls and the Natural Gas Shortage. Evaluates four major policy proposals for the alleviation of the natural gas shortage. Paul W. MacAvoy, member of the President's Council of Economic Advisers, and Robert S. Pindyck, assistant professor of economics in the Sloan School of Management at M.I.T.

Toward Economy in Electric Power. Suggests a possible reform of public regulation of electric utilities resulting in lower consumer prices and more abundant supplies. Dr. Edward J. Mitchell, director of the National Energy Project, and Peter R. Chaffetz, AEI staff. This study grew out of a research project funded by the National Science Foundation.

The Liquid Metal Fast Breeder Reactor: An Economic Analysis. Dr. Brian G. Chow, chairman and professor of physics, Saginaw Valley College (Michigan).

The Middle East: Oil, Politics, and Development. Collection of papers presented at a Toronto Energy Conference, edited by John Duke Anthony, professor of political science, Johns Hopkins University School of Advanced International Studies.

The Question of Offshore Oil. Edited proceedings of the March 1975 conference sponsored by NEP, edited by Dr. Edward J. Mitchell.

Is Nuclear Power Safe? Proceedings of the May 1975 televised Round Table on nuclear power.

The Energy Dilemma: Which Way Out? (reprint). Remarks delivered by Dr. Edward J. Mitchell at the October 1974 meeting of the Business Council, Hot Springs, Virginia.

Middle East Oil in a Revolutionary Age. Study of the internal politics and international decision making involved in the imposition and maintenance of the Arab states' policy of selective export controls and total boycotts. Dr. George Lenczowski, University of California, Berkeley.

Offshore Oil: Costs and Benefits. Proceedings of the March 1975 televised Round Table on offshore oil.

Energy Policy: A New War between the States? Proceedings of the October 1975 televised Round Table on energy problems confronting the states.

Saudi Arabian Development Strategy. Examination of Saudi government economic policies in an attempt to assess their effects on the Saudi economy and their implications for world trade and finance. Dr. Donald A. Wells, professor of economics at the University of Arizona.

Public Interest Lobbies: Decision Making on Energy. Study of philosophy, leadership organizations, and membership of public interest lobbies and their effect on energy issues. Examines process through which these groups attain and integrate scientific, technical, and economic opinions into their decision making. Dr. Andrew S. McFarland, University of California, Berkeley.

The World Price of Oil: A Medium-Term Analysis. Professor Hendrik S. Houthakker, Harvard University.

Vertical Integration in the Oil Industry. Edited by Dr. Edward J. Mitchell, director of National Energy Project.

Federal Energy Administration Regulation: Report of the Presidential Task Force. Examination of FEA regulation of the petroleum industry with conclusions and recommendations. Paul W. MacAvoy, Yale University and member of President's Council of Economic Advisers. (Ford Administration Papers on Regulatory Reform.)

Horizontal Divestiture. Highlights of a conference on whether oil companies should be prohibited from owning nonpetroleum energy resources, edited by W. S. Moore, American Enterprise Institute.

Government Credit Subsidies for Energy Development. Dr. Murray L. Weidenbaum, Washington University, St. Louis, and Reno Harnish, National Energy Project staff.

Energy for Europe: Economic and Political Implications. Looks at European response to the current world energy situation. Professor Guy de Carmoy, European Institute of Business Administration.

Studies in Process

The Trans Alaska Pipeline. Case study in energy politics; traces development of policy positions for the pipeline based on environmental concerns, and then notes impact on these positions of the energy crisis. Richard Corrigan,

Washington correspondent for *Anchorage Daily News* and *Energy Policy Quarterly* as well as energy columnist, *National Journal Reports.*

An Analysis of the FEO Petroleum Allocation Program. An inside look at the FEO's role in the 1973 gasoline shortage. Dr. William Johnson, professor of economics, George Washington University.

Oil Pipelines. Are oil pipelines owned by major petroleum companies operated in the public interest? Dr. Edward J. Mitchell and Reno Harnish.

Legislative Discussions Affecting the Naval Petroleum Reserves. Edward deLong, United Press International correspondent.

The Political Economy of OPEC. Study examines economic and political elements of cooperation and conflict within OPEC for both immediate and long-range periods. OPEC's ability to maintain its newly established control over pricing will be assessed. Robert Mabro, St. Anthony's College, Oxford.

National Energy Companies. Compares relative efficiencies and performance of nationalized energy industries and private sector energy companies. Research will entail examination of the British Coal Board, Gas Corporation, and newly constituted National Oil Company and the Italian National Oil Company. David P. Stang, Senate Interior and Insular Affairs Committee, and Dr. William Schneider, chief economist, staff of Senator James Buckley.

The ERDA Strategy. Evaluation of agency's approach to spending billions of dollars on energy research. David Johnson, professor of economics at Louisiana State University.

A Canadian or Alaskan Gas Pipeline Route? Dr. Walter Mead, University of California, Santa Barbara, heads a research team involved in this project.

Nuclear Safety. Would review evidence on nuclear dangers and relate these probabilities to evidence of possible benefits from several nuclear scenarios. Laurence Moss, nuclear consultant.

Conferences Held

The National Energy Project has sponsored four conferences bringing together experts and distinguished U.S. and foreign leaders in various fields to discuss the key topics.

Conference on World Oil. This was held October 3 and 4, 1974, at the AEI

offices and the Mayflower Hotel. For the first time, representatives of the oil-producing countries and the oil-consuming nations, together with leading economists, businessmen, and members of public interest groups, met together to discuss the world's serious oil problems. Principal speakers included Hendrik Houthakker of Harvard University, Donald Macdonald of Canada's Department of Energy, Mines, and Resources, George Lenczowski of the University of California at Berkeley, Alan Greenspan of the Council of Economic Advisers, Henry Jackson, senator from Washington, Melvin R. Laird, chairman of the AEI National Energy Project, and Sheikh Ahmed Zaki Yamani, minister of petroleum and mineral resources, Saudi Arabia.

Conference on Offshore Oil. This was held March 20 and 21, 1975, in Los Angeles, California, at the Beverly Hilton Hotel. Topics discussed included "The Value of Offshore Oil," "Environmental and Onshore Impacts of Offshore Drilling," "Social Cost-Benefit Analysis of Offshore Drilling," and "The Appropriate Pace of Offshore Drilling." Participants included Mayor Tom Bradley of Los Angeles; Dr. Robert Dorfman of Harvard University; Jacques-Yves Cousteau of the Cousteau Society; Dr. Walter Mead of the University of California at Santa Barbara; and Dr. H. William Menard of the Scripps Institution of Oceanography.

Conference on Regional vs. the National Interest in Energy. This was held at the Madison Hotel in Washington on October 2 and 3, 1975. The purpose of the conference was to address regional energy issues in order to help formulate a national energy policy. Speakers included Vice President Nelson Rockefeller; Governor David Boren of Oklahoma; Senator Pete V. Domenici of New Mexico; Senator Edward W. Brooke of Massachusetts; Stewart Udall, former secretary of the interior; Frank Zarb of the Federal Energy Administration; and Milton Russell of the Council of Economic Advisers staff.

Horizontal Divestiture. This was held January 27, 1977, in Washington, D.C., at the offices of the American Enterprise Institute. The purpose of the conference was to bring together persons with expertise and interest from the academic world, government, business, and the public to exchange their views and thereby aid in the examination of horizontal divestiture and related issues. Participants included Walter Adams of Michigan State University; Morris A. Adelman of Massachusetts Institute of Technology; Betty Bock, director of antitrust research, The Conference Board, and New York University School of Law; Darius W. Gaskins, Jr., director, Bureau of Economics, Federal Trade Commission; Thomas E. Kauper, University of Michigan Law School and former assistant attorney general of Antitrust Division, U.S. Department of Justice; Richard Mancke of Tufts University; Jesse W. Markham of Harvard Graduate School of Business Administration; Edward J. Mitchell, director of AEI National Energy Project; Robert Pitofsky,

Georgetown Law Center and former director, Bureau of Consumer Protection, Federal Trade Commission; F. M. Scherer of Northwestern University and former director, Bureau of Economics, Federal Trade Commission; Gary L. Swenson, senior vice president of The First Boston Corporation; David J. Teece of Stanford University Graduate School of Business; and J. Fred Weston of University of California at Los Angeles.

TV Productions Held

The AEI National Energy Project has sponsored six televised productions. These shows are aired over more than 400 TV stations nationwide. The programs are as follows.

The Energy Crisis. Round Table discussion held September 25, 26 and 27, 1973, which resulted in two one-hour shows and one two-hour show all of which are moderated by Dr. Paul McCracken, former chairman of the President's Council of Economic Advisers. Presenting "Basic Issues" on September 25 were Senator Clifford P. Hansen (R-Wyo.); Representative Morris K. Udall (D-Ariz.); Charles E. Spahr, chairman of Standard Oil of Ohio; and Representative Mike McCormack (D-Wash.). Discussing "Future Options" on September 26 were Senator Jennings Randolph (D-W.Va.); Senator Mark O. Hatfield (R-Ore.); Dixy Lee Ray, chairman of the Atomic Energy Commission; and Philip H. Trezise, senior fellow at Brookings Institution and former State Department official. On "Domestic and International Issues," September 27, were Senator J. William Fulbright (D-Ark.), chairman of the Senate Foreign Relations Committee; John N. Nassikas, chairman of the Federal Power Commission; George W. Ball, former under secretary of state; and Charles J. DiBona, special assistant to President Nixon for energy policy.

Is the Energy Crisis Contrived? Round Table discussion held July 22, 1974, included Senator Walter F. Mondale, Dr. James W. McKie, Charles H. Murphy, Jr., Stanley H. Ruttenberg, and Paul W. McCracken, as moderator.

A Dialogue on World Oil. Discussion was held at the Mayflower Hotel on October 4, 1974, as part of a two-day conference on world oil problems. The TV production which resulted in two one-hour shows included Melvin R. Laird as moderator; George Ball, former under secretary of state; Donald Macdonald, minister of energy, mines and resources of Canada; Sheikh Ahmed Zaki Yamani, minister of petroleum and mineral resources of Saudi Arabia; Senator Henry M. Jackson; and John W. Sawhill, then Federal Energy Administrator.

Offshore Oil: Costs and Benefits. Part of a two-day conference held in Bever-

ly Hills, California, on March 20 and 21, 1975. Moderator was Tom Bradley, mayor of Los Angeles. Participants included Governor Brendan T. Byrne of New Jersey; Jacques-Ives Cousteau, chairman of the board of the Cousteau Society, Inc.; H. J. Haynes, chairman of the board, Standard Oil of California; and Royston Hughes, assistant secretary of the Department of the Interior.

Is Nuclear Power Safe? Round Table discussion held May 15, 1975, included Daniel Ford, executive director, Union of Concerned Scientists; Craig Hosmer, former U.S. Congressman, California; Ralph E. Lapp, nuclear/energy consultant; Laurence I. Moss, nuclear engineer and environmentalist; and Ralph Nader of the Center for the Study of Responsive Law. Melvin Laird was moderator.

Energy Policy: A New War between the States? Round Table discussion was part of a two-day conference on Regional vs. the National Interest in Energy held October 2 and 3, 1975. Moderator was Melvin R. Laird. TV panel consisted of Governor David Boren of Oklahoma; Senator Edward Brooke of Massachusetts; Stewart Udall, Overview, Inc.; and Frank Zarb, administrator of the Federal Energy Administration.

APPENDIX B

AEI NATIONAL ENERGY PROJECT ADVISORY COUNCIL 1974-1976

Melvin R. Laird, *Chairman*
Edward J. Mitchell, *Project Director*
Richard M. Fairbanks III, *Assistant to the Chairman*

Kenneth J. Arrow
Professor
Harvard University

George W. Ball
Partner
Lehman Brothers

Thomas Bradley
Mayor
City of Los Angeles

Harold Brown
President
California Institute of Technology

James L. Buckley
U.S. Senator
New York

Robert Cahn
Christian Science Monitor

Ruth C. Clusen
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League of Women Voters

Marlow W. Cook
U.S. Senator
Kentucky

Wendell H. Ford
Governor
Kentucky

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Governor
Wyoming

Paul R. Ignatius
President
Air Transport Association

Mike McCormack
U.S.Representative
Washington

Walter F. Mondale
U.S. Senator
Minnesota

John N. Nassikas
Chairman
Federal Power Commission

Vermont Royster
University of North Carolina

Philip E. Ruppe
U.S. Representative
Michigan

Glenn T. Seaborg
Professor
University of California

Charles E. Spahr
Chairman
Standard Oil of Ohio

Edgar B. Speer
Chairman
U.S. Steel Corporation

Elvis J. Stahr
President
National Audubon Society

Chauncey Starr
President
Electric Power Research Institute

Clement J. Zablocki
U.S. Representative
Wisconsin

1977 PUBLICATIONS TO DATE

PARTICIPATION IN AMERICAN PRESIDENTIAL NOMINATIONS, 1976, Austin Ranney (37 pages, $2.25)

THE LEGISLATIVE VETO: UNSEPARATING THE POWERS, John R. Bolton (50 pages, $2.25)

SCANDINAVIA AT THE POLLS: RECENT POLITICAL TRENDS IN DENMARK, NORWAY, AND SWEDEN, Karl H. Cerny, editor (304 pages, $5.75)

AUSTRALIA AT THE POLLS: THE NATIONAL ELECTIONS OF 1975, Howard R. Penniman, editor (373 pages, $5.00)

ARMS IN THE INDIAN OCEAN: INTERESTS AND CHALLENGES, Dale R. Tahtinen (84 pages, $3.00)

REGULATION OF POLITICAL CAMPAIGNS—HOW SUCCESSFUL? Lawrence Spivak, moderator (60 pages, $2.00)

CIVIL-MILITARY RELATIONS, Andrew J. Goodpaster and Samuel P. Huntington (84 pages, $2.50)

THE MEDICAL MALPRACTICE DILEMMA, John Charles Daly, moderator (46 pages, $2.00)

UNIONS IN THE MILITARY? David Cortright and Strom Thurmond (30 pages, $1.50)

REVIEW: 1976 SESSION OF THE CONGRESS AND INDEX OF AEI PUBLICATIONS (67 pages, $2.00)

INTANGIBLE CAPITAL AND RATES OF RETURN: EFFECTS OF RESEARCH AND PROMOTION ON PROFITABILITY, Kenneth W. Clarkson (77 pages, $3.00)

STRIKING A BALANCE: ENVIRONMENT AND NATURAL RESOURCES POLICY IN THE NIXON-FORD YEARS, John C. Whitaker (344 pages, $5.00)

THE FUTURE OF THE UNITED NATIONS, John Charles Daly, moderator (48 pages, $2.00)

PUBLIC INTEREST LOBBIES: DECISION MAKING ON ENERGY, Andrew S. McFarland (141 pages, $3.00)

TO EMPOWER PEOPLE: THE ROLE OF MEDIATING STRUCTURES IN PUBLIC POLICY, Peter L. Berger and Richard John Neuhaus (45 pages, $2.50)

SOVIET NUCLEAR PLANNING: A POINT OF VIEW ON SALT, Lewis Allen Frank (63 pages, $3.00)

SELECTED 1976 PUBLICATIONS

GOVERNMENT CREDIT SUBSIDIES FOR ENERGY DEVELOPMENT, Murray L. Weidenbaum and Reno Harnish (55 pages, $3.00)

SIGNIFICANT DECISIONS OF THE SUPREME COURT, 1974-75 TERM, Bruce E. Fein (148 pages, $3.00)

CASTROISM AND COMMUNISM IN LATIN AMERICA, 1959-1976: THE VARIETIES OF MARXIST-LENINIST EXPERIENCE, William E. Ratliff (240 pages, $4.00)

BRAZIL IN THE SEVENTIES, Riordan Roett, editor (118 pages, $3.50)

Discounts: 25 to 99 copies—20%; 100 to 299 copies—30%
300 to 499 copies—40%; 500 and over—50%

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