

# U.S. Energy Policy In a Changing Market Environment

*By Tim R. Smith*

Recent dramatic changes in international crude oil markets, reflected in significantly lower and more volatile oil prices, have again brought energy policy issues to the fore. In response to these changes, several controversial policy responses have been proposed. Proposals range from taxes on oil imports to subsidies for the strained domestic energy industry. Given the diversity of proposed policy responses, the challenge for policymakers is to avoid quick-fix solutions by crafting policy responses aimed at a few predetermined objectives. Without clearly defined objectives to guide policy formation, energy policy initiatives are likely to be short-sighted and unable to adapt to an increasingly volatile market.<sup>1</sup>

This article identifies policy objectives that are deemed to be appropriate for the United States and considers whether current policy initiatives are consistent with these objectives. The first sec-

tion reviews the major turning points in the history of public policy toward oil. Other energy sources, such as natural gas and coal, have been important in the development of energy policy but oil has clearly been the most influential. The second section highlights the dramatic recent changes in the energy policy environment that have prompted a reexamination of current energy policies and have given rise to new policy proposals. The third section sets forth some long-run policy objectives that might be useful in guiding policy initiatives. The fourth section evaluates various energy policies in light of these objectives.

## **History of crude oil policies**

The United States has never codified a set of objectives for its energy policy. However, an examination of predominant turning points in crude oil policy helps identify the implicit objectives that have influenced policymaking.

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<sup>1</sup> This article reflects the state of world energy markets prior to the September 1, 1986, production agreement among OPEC members. This temporary agreement has not reduced uncertainty about the future of oil prices. Nor has it made the challenge for policymakers any less difficult.

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## 1900 to World War II

The basic problem for the oil industry in the early 1900s was overproduction and low prices. As a consequence, state governments tried to regulate oil production. Though Oklahoma and Texas tried to limit production, competition among oil producers in newly discovered oilfields led to soaring production and depressed prices. Competition to extract oil from common reservoirs also led to economic waste as underground pressure in the oilfields was dissipated.<sup>2</sup>

Quotas in oil-producing states did not prevent excess production from being shipped across state boundaries. In response, state governments sought help from the federal government in limiting state production. In 1935, the Interstate Transport of Petroleum Products Act established federal authority over oil production that exceeded what the states allowed. Federal control of production was not effective, however, and for the next 30 years an interstate agreement involving 20 states was used in policing production.

This early period, then, was characterized by concern over production of domestic oil. States attempted to conserve oil, a resource that was seen as limited in supply. The federal government had a minor role during the period. Federal energy policy did not become important until imported oil began influencing domestic crude oil prices.

## World War II to 1973

Though foreign sources of crude oil began developing in the 1930s, they did not become a major force in shaping energy policy until after World War II. Increasing U.S. imports of crude oil and refined products dominated the postwar

period up to 1973 (Chart 1). As part of an informal cartel of the world's largest oil companies, large U.S. oil firms sought to limit production from newly discovered foreign sources and to prevent a precipitous drop in world oil prices by fixing market shares.

Nevertheless, as the economic recovery built up after World War II, inexpensive foreign oil found its way into the United States, prompting opposition from some domestic producers. Imported oil gained an increasing share of the domestic market throughout the postwar period. By 1953, imported oil accounted for nearly an eighth of total U.S. supplies.

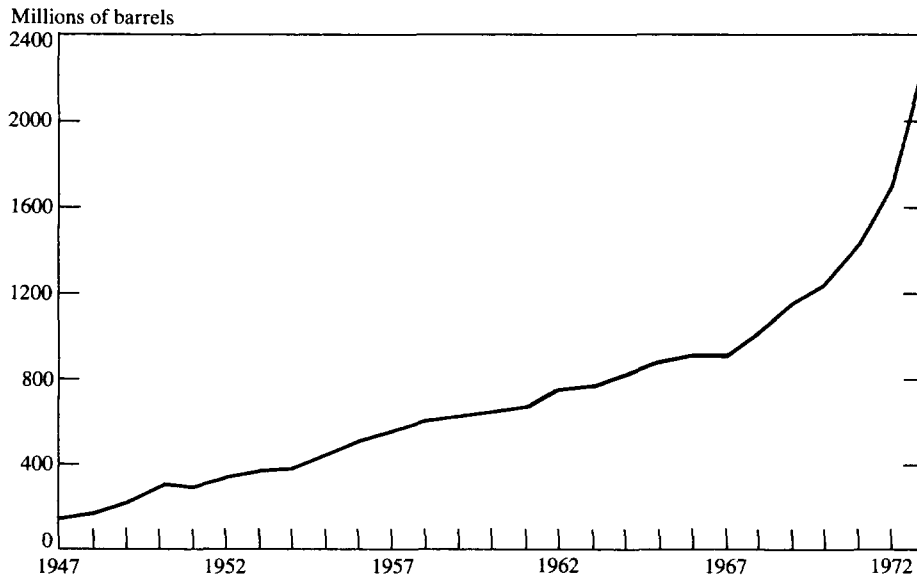
In response to growing pressure from domestic producers, President Eisenhower imposed mandatory oil-import quotas in 1959. The increase in oil imports and subsequent quotas imposed during the Eisenhower administration marked a major turning point in U.S. energy policy. The federal government was no longer a passive observer of state regulators but instead acted to stay the growth of imports. Under the quota system, the amount of foreign crude oil that domestic refiners could import was strictly regulated. As a result of this regulation, imports remained about an eighth of total supply between 1959 and 1973.

Another turning point in energy policy came when consumers reacted to the high domestic oil prices that resulted from the quotas. Consumer pressure led to new policies under the Nixon administration. With only limited access to inexpensive imported crude oil, growing U.S. demand put enough pressure on supplies to raise U.S. oil prices significantly above foreign prices. By the early 1970s, U.S. oil prices were 60 percent higher than foreign oil prices. Rather than remove the quotas, President Nixon exempted oil from Canada and Venezuela. Heating oil also was exempted in an effort to quell consumer criticism of the quotas. These concessions were minor, however, and did not allow supplies to rise fast

<sup>2</sup> The history of U.S. energy policy is discussed in more detail in Crawford D. Goodwin, ed., *Energy Policy in Perspective*, The Brookings Institution, Washington, D.C., 1977, and *Energy Policy*, Congressional Quarterly, Inc., 1981.

## CHART 1

### Growth in U.S. imports of petroleum and refined products



Source: American Petroleum Institute

enough. Under the quota system, demand continued to grow and domestic prices continued to rise. Serious shortages of crude oil and refined products occurred in the summer of 1971, when President Nixon imposed a freeze on wages and prices. This was the first in a series of price controls that would keep domestic oil prices below market-clearing levels throughout the decade. In response to shortages, all import quotas were lifted in 1973 and replaced with fees on imported crude oil and refined products.

During the period between World War II and 1973, therefore, the growing importance of foreign oil production was clearly a driving force behind energy policy. Policymakers were first motivated by concern for the domestic oil industry when the attempted cooperation among large companies failed to prevent the growth in imports and the subsequent slide in prices. Policy was later

influenced by consumers' objecting to the high domestic prices resulting from import quotas.

#### 1973 to 1982

Energy policy shifted again in response to the severe supply disruptions that began in 1973 and continued throughout the rest of the 1970s. First, the Arab oil embargo sharply reduced supplies and increased prices, and then the Organization of Petroleum Exporting Countries (OPEC) sought to exert its market power by imposing further constraints on supplies and seeking higher prices.

Saudi Arabia cut off oil shipments to the United States in October 1973, and thereby opened a decade of turmoil for the world's energy users and producers. Policies aimed at increasing domestic petroleum supplies and curbing the nation's appetite for energy were sought to ensure

national security. Policymakers were also influenced by concern for consumers objecting not only to high energy costs but also to the transfer of wealth to oil producers.

At the time of the embargo, controls on domestic oil prices were imposed by the President under authority of the Economic Stabilization Act of 1970. Under this two-tiered system, price controls were retained for existing production but removed for "new oil," meaning oil from wells drilled after 1973. The spread between the prices of old and new oil widened during the embargo, stimulating an increase in the share of supplies comprised of new oil. Price controls in the oil market continued under the Emergency Petroleum Allocation Act (EPAA) signed into law in 1973.

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*The world's crude oil supply can be characterized by a large number of major suppliers, each with a significant share of world production and some market power.*

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The Arab oil embargo ended in 1974 but OPEC clearly emerged as a formidable market force. As OPEC's official prices rose, the price of new oil in the United States also increased. Domestic price increases were seen as a windfall to oil companies, contributing to a general anti-oil industry sentiment. Two alternative methods arose for dealing with high-priced new oil. One would extend price controls to include new oil. The other would decontrol all oil but impose a tax on oil-producing companies to avoid the transfer of wealth from consumers to producers.

With the United States under inflationary pressures in the mid-1970s, the issue of oil decontrol was especially sensitive. Decontrol of old oil would substantially raise nominal prices of domestic oil, since old oil accounted for about 60 percent of all domestic oil produced in 1975.

At the time, domestic prices averaged about half of world prices. While the President and Congress struggled over the decontrol issue, price controls remained on old oil through numerous extensions of the EPAA. Just as the EPAA controls expired near the end of 1975, Congress passed the Energy Policy and Conservation Act providing for the phased decontrol of oil prices. Price controls would finally end on September 30, 1981.

As oil price controls were gradually ended in the late 1970s, the Crude Oil Windfall Profits Tax was imposed on the increased profits of producers. The tax, passed in 1980, followed OPEC's move in 1979 to increase its official price by the largest amount since the embargo in 1973. The tax was applied to the difference between the actual sales price and a certain base price. The base price and the tax rate varied for different categories of oil. For example, stripper wells—wells producing fewer than ten barrels a day—were given a higher base price and a lower tax rate than most other categories of domestic oil.

During the 1973-82 period, therefore, changes in energy markets motivated policymakers. Energy policies formulated during the 1970s were aimed at coping with serious supply disruptions. Concern for national security and consumers troubled by high energy costs and general price inflation appears to have shaped these policies.

### **Recent changes in the policy environment**

Now, as in the 1970s, dramatic and far-reaching changes in the policy environment are drawing the attention of policymakers. Not the least of these changes has been the precipitous drop in the price of oil, by more than 50 percent during the first half of 1986. The drop in oil prices and other events reflect fundamental changes in international crude oil markets that need to be understood before objectives are defined and policy initiatives are assessed.

TABLE 1

**Average crude oil production of major petroleum producing countries**  
(thousands of barrels per day)

<u>Year</u>	<u>Saudi Arabia</u>	<u>Total OPEC*</u>	<u>Canada</u>	<u>Mexico</u>	<u>United Kingdom</u>	<u>United States</u>	<u>China</u>	<u>USSR</u>
1977	9,245	31,298	1,320	981	768	8,245	1,874	10,682
1978	8,301	29,805	1,313	1,209	1,082	8,707	2,082	11,185
1979	9,532	30,928	1,496	1,461	1,568	8,552	2,122	11,460
1980	9,900	26,891	1,435	1,936	1,622	8,597	2,114	11,773
1981	9,815	22,646	1,285	2,313	1,811	8,572	2,012	11,907
1982	6,483	18,868	1,271	2,748	2,065	8,649	2,045	11,967
1983	5,086	17,583	1,356	2,689	2,291	8,688	2,120	12,027
1984	4,663	17,576	1,436	2,750	2,495	8,879	2,269	11,878
1985	3,388	16,028	1,460	2,740	2,559	8,920	2,428	11,795

Source: U.S. Department of Energy  
\*OPEC total includes production in Algeria, Iraq, Kuwait, Libya, Qatar, Saudi Arabia, United Arab Emirates, Indonesia, Iran, Nigeria, Venezuela, Ecuador, and Gabon.

### Changing markets

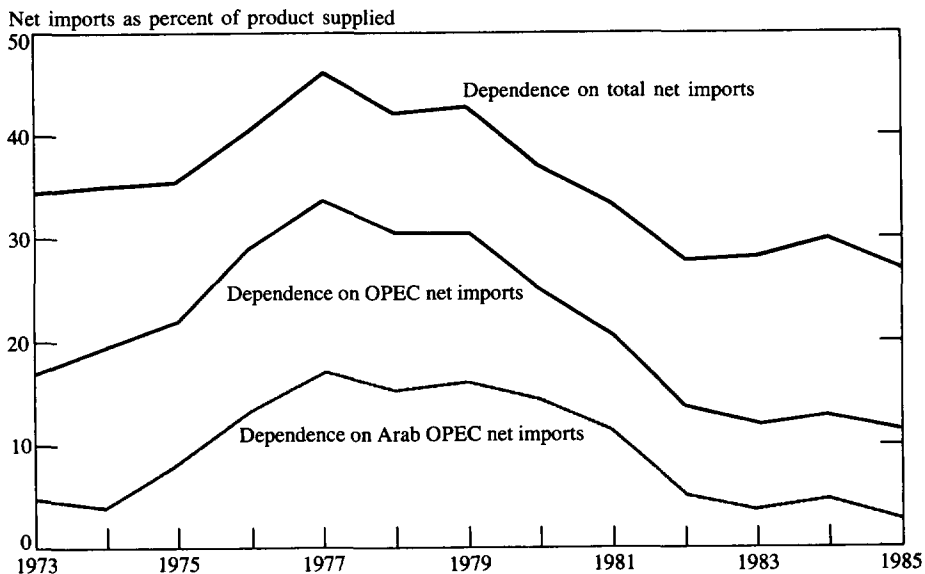
*Production.* World crude oil supplies have changed dramatically. High prices in the late 1970s stimulated enough production outside OPEC to eventually undermine the cartel. Now, the world's crude oil supply can be characterized by a large number of major suppliers, each with a significant share of world production and some degree of market power (Table 1). Any large producer can influence world crude oil prices for awhile by significantly increasing or decreasing production. That influence is short-lived, however, because other producers quickly respond to market fluctuations. The flow of crude oil from foreign sources also is heavily influenced by political considerations and the need to generate revenue for economic development in exporting countries. These characteristics of world petroleum markets suggest that oil prices will be more volatile in the future.

In the United States, dependence on petroleum

imports has declined significantly since the late 1970s (Chart 2). The United States imported 32 percent of its oil supplies in 1985, as against 48 percent in 1977. Meanwhile, the sources of U.S. crude oil imports also have changed. More and more oil comes from non-OPEC sources, such as Mexico and Canada (Table 2). In 1985, Mexico was the leading source of crude oil imports to the United States, with Canada ranking second. The United States imported an average of 815,000 barrels a day from Mexico that year and 768,000 barrels a day from Canada. As a result, the share of imports coming from OPEC countries has declined from 70 percent in 1977 to 36 percent in 1985.

In 1986, however, OPEC's waning importance has begun to reverse itself. Total OPEC supplies have increased since the cartel abandoned its quotas in favor of a policy of aggressively regaining market share. Substantially lower prices for imported crude oil will undoubtedly increase U.S. imports as oil from foreign sources becomes

**CHART 2**  
**U.S. dependence on petroleum net imports**



Source: U.S. Department of Energy

relatively less expensive than domestic oil. Production declined in the United States in 1985, and lower oil prices are expected to bring even lower production levels in 1986. In addition, U.S. reserves will grow more slowly as oil companies cut back on their exploration and development activities.

*Consumption.* As world supplies of crude oil have increased, oil consumption by the industrial world has declined (Table 3). The high relative prices of energy in the 1970s stimulated the development of energy-saving technology for both residential and industrial application. Many of these cost-reducing enhancements to the capital stock are just now being fully implemented. Moreover, lower prices are expected to encourage consumption far less than they would have a decade ago because of increased uncertainty about future price movements.

Technology-based energy conservation has allowed the U.S. economy to expand with less than proportionate increases in energy consumption. Chart 3 shows the steady decline in energy consumption per constant dollar of gross national product. Reduced oil and natural gas consumption has been largely responsible for the decline.

*New pricing mechanisms.* Underscoring these general trends in production and consumption have been changes in the nature of transactions in oil and natural gas markets. More of the world supply of crude oil is being sold in the spot market. While most oil is still sold under long-term contracts, the growth in spot market transactions has made prices much more volatile than previously.

Even long-term contracts have become more responsive to market conditions. So-called "net-back" agreements, which tie the price of crude

**TABLE 2**

**Sources of U.S. imports of crude oil and petroleum products**  
(thousands of barrels per day)

Year	Canada	Mexico	United Kingdom	Caribbean Basin Countries*	Other Non-OPEC	Total Non-OPEC	Total Arab OPEC	Total OPEC	Total Imports
1977	517	179	126	1,242	550	2,614	3,185	6,193	8,807
1978	467	318	180	1,165	484	2,613	2,963	5,751	8,363
1979	538	439	202	1,091	548	2,819	3,056	5,637	8,456
1980	455	533	176	955	491	2,609	2,551	4,300	6,909
1981	447	522	375	793	534	2,672	1,848	3,323	5,996
1982	482	685	456	718	627	2,968	854	2,146	5,113
1983	547	826	382	732	701	3,189	632	1,862	5,051
1984	630	748	402	706	902	3,388	819	2,049	5,437
1985	768	815	314	458	866	3,221	475	1,825	5,045

Source: U.S. Department of Energy  
\*Includes Bahamas, Netherlands Antilles, Trinidad and Tobago, Puerto Rico, and Virgin Islands

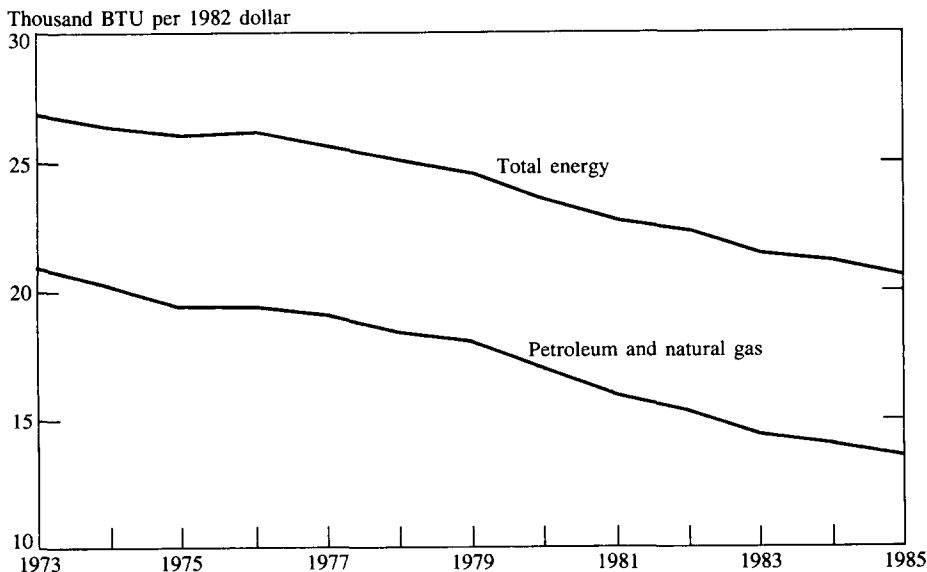
**TABLE 3**

**Average petroleum consumption of major noncommunist industrial countries**  
(thousands of barrels per day)

Year	Canada	France	Italy	Japan	United Kingdom	United States	West Germany
1977	1,661	1,973	1,476	5,015	1,655	18,431	2,478
1978	1,701	2,077	1,551	5,115	1,683	18,847	2,596
1979	1,766	2,107	1,607	5,173	1,690	18,513	2,664
1980	1,730	1,965	1,602	4,680	1,420	17,056	2,360
1981	1,615	1,745	1,705	4,445	1,325	16,058	2,120
1982	1,450	1,645	1,614	4,196	1,337	15,296	2,045
1983	1,345	1,600	1,590	4,185	1,290	15,231	2,005
1984	1,338	1,523	1,520	4,338	1,595	15,726	2,057
1985	1,489	1,489	1,491	4,090	1,410	15,666	2,018

Source: U.S. Department of Energy

**CHART 3**  
**Energy consumption per dollar of GNP**  
Seasonally adjusted



Source: U.S. Department of Energy

petroleum to product prices, have become increasingly popular. Nearly all Saudi Arabian crude oil is now sold under netback contracts with refiners. These contracts place all of the risk of fluctuations in refined product prices with the crude oil producer, making crude prices more responsive to conditions in the product markets.

Futures markets have recently become an important tool for oil market participants. Producers, refiners, and traders can use the futures markets to hedge against future price movements. Trading on petroleum futures markets still represents a relatively small proportion of all crude oil transactions, but the steady growth in trading volume nevertheless signals the beginning of a time when oil is traded as a commodity much like wheat, coffee, and soybeans. As more and more oil is traded on futures markets, oil prices will react more quickly to market factors.

Decontrol has been largely responsible for the change in contractual arrangements for the sale of natural gas. Long-term contracts, which for decades guaranteed steady supplies at predictable prices, have been largely replaced by direct spot market transactions between producers and utilities. Pipeline companies serve increasingly as common carriers that simply transport gas between producers and end-users or distributors.

### *Policy participants*

Energy policy has always been influenced by special interests. Until 1973, energy policy was heavily influenced by oil-producing companies. During the remainder of the 1970s, consumer interests played an expanded role. Special interests associated with energy issues have become well organized over the years, and they will almost



certainly continue to affect policy formulation.

Recent changes in energy markets have affected the financial condition of many energy policy participants. While consumers have benefited generally from the recent decline in crude oil prices, financial hardship has resulted for most oil and gas producers in the United States. As a result, any new energy policies developed currently will be formulated in an environment where the domestic oil and gas industry is financially quite weak.

The oil and gas industry has been adversely affected by weak world demand, large supplies, and soft prices. The downward slide in crude oil prices and the persistent surplus of natural gas have led to sharp cutbacks in exploration, development, and production. Overcapacity in drilling and associated declines in the value of oilfield equipment have resulted. Though this decline in equipment value has meant lower drilling costs, it has also meant increased financial pressures on contract drillers and energy lenders. Even integrated oil companies—those with refining operations that benefit from lower priced crude oil—have significantly cut outlays for exploration and development.

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The economic health of the energy sector, therefore, is likely to greatly influence the formulation of new energy policy. Current weakened conditions may provoke sympathetic responses from policymakers. Such sympathy has already been seen in the protectionist proposals for an oil import tax. Short-term efforts to protect the domestic energy industry, while bringing relief to troubled energy-producing regions in the country, might impair longer run adjustments to fun-

damental changes being made in the world's energy markets. Despite the influence of special interests, energy policy needs to be forward looking and sensitive to a new market environment.

### **Policy objectives**

Identifying policy objectives is a critical step toward developing consistent and effective energy policies. Policymakers have never before clearly defined objectives to guide their choices. As a result, policy measures have been largely short-term responses to changes in the policy environment. This section brings forward some broad objectives by which existing and proposed energy policies can be evaluated.

Though never explicitly delineated, three main concerns appear to underlie past energy policies. First, energy supply disruptions could jeopardize national security. Second, energy resources could be extracted too rapidly or too slowly, leading to additional costs ultimately being borne by consumers or producers. And third, energy price shocks could be destabilizing to the national economy. These three concerns point to three corresponding long-run objectives that are desirable guides for evaluating current and proposed energy policies. In brief, energy policies should be consistent with the objectives of maintaining national security, assuring efficient energy resource extraction, and achieving economic stability.

The first two of these objectives stem from markets that do not always work perfectly. Energy markets may not always provide a reliable supply of energy. And they may not always extract energy resources at the rate society wants. That is, market prices do not always reflect all social costs and benefits of private production and consumption decisions. When prices do not reflect all the costs and benefits, there is a role for energy policy. For example, policies might be designed to increase secure energy supplies when the market is providing a large amount from sources

that may be deemed politically unreliable. Or, policies might be aimed at delaying extraction of energy resources to make more energy available for future generations. However, policymakers should intervene in energy markets only when they have more information or better incentives than market participants.<sup>3</sup>

The third objective, economic stability, arises from a recognition that political instability in world energy markets has clearly contributed to economic instability in the United States. In the 1970s, energy markets plainly had sharp effects on the domestic U.S. economy. Thus, well-designed energy policies can augment monetary and fiscal policy in providing for sustained economic growth without inflation.

These three objectives do not make an exhaustive list. Nor do they necessarily require policy responses. Taken together, however, they do provide an essential guide for developing and evaluating energy policy.

### *National security*

National security is provided by the federal government because, as a public good, it is not provided by private market participants. Individuals cannot capture the benefits from providing national security because those who do not pay cannot be excluded from enjoying the benefits. Instead, the government taxes individuals and provides national security.

Dependence on imported oil is a national security concern. As significant amounts of imported oil are subject to political considerations, such as an embargo, reducing the potential damage to national security is a legitimate policy objective.<sup>4</sup> Market forces alone will not address the national security concern. Market prices do

not differentiate the value of supplies that have a low probability of embargo from supplies that have a high probability of being disrupted.

National security could be affected by potential disruptions in foreign energy supplies. Foreign sources might not be available in time of war and domestic supplies might not be expanded enough to satisfy wartime energy requirements. Supplies of oil from politically unstable sources can be subject to embargo, as they were in 1973. Thus, an embargo would place national security in jeopardy to the extent that the United States depends on embargo-prone supplies to defend its borders. While Chart 2 suggests that dependence on Arab OPEC supplies has been significantly reduced in recent years, there is widespread concern that the dramatic increase in availability of oil from the Middle East and the associated decline in world oil prices since 1985 have begun to reverse this trend. Such a reversal would no doubt increase the potential national security costs of a Middle Eastern embargo.

Energy policies have been motivated in the past by concern for national security. The mandatory import quotas imposed in 1959, conservation measures taken in the 1970s, and the Strategic Petroleum Reserve are examples of policy responses directed, at least partly, at the national security problem. As in the past, national security will be an important consideration in evaluating future energy policies.

### *Efficient energy resource extraction*

Primary energy resources—oil, natural gas, and coal—need to be extracted at a rate that maximizes

<sup>3</sup> The economic rationale for energy policy is discussed in James M. Griffin and Henry B. Steele, *Energy Economics and Policy*, Academic Press, New York, 1980.

<sup>4</sup> Though some might argue that economic instability resulting from an embargo is a national security concern, it is treated in this article as a separate policy objective. National security problems associated with energy supply disruptions are more narrowly defined in this article to include only situations where the ability of the United States to power its armed forces and defend its borders is impaired.

the benefits of the resource to society. While determination of this “efficient” rate of extraction is very difficult in practice, it is a desirable goal for energy policy. Most energy policies affect the rate at which energy resources are extracted. For example, a subsidy to energy producers accelerates production while an excise tax delays production. Policymakers should be sensitive, therefore, to the effects of policies on extraction. When private markets come close to extracting energy resources at an efficient rate, they should be left alone. Intervention by policymakers could, in these cases, reduce the social benefits from extracting the resources.

In some cases, policy actions can improve the allocation of energy resources over time. Since the interest rate reflects the market’s valuation of future consumption relative to current consumption, it governs the rate at which energy resources are used. But the rate at which market participants discount future consumption may differ from the rate at which society discounts future consumption. One reason for this difference is that energy use by future generations is a public good. Private market participants may value the wellbeing of future generations but have no incentive to conserve energy resources for the future. Policies that delay extraction provide this public good that collectively benefits market participants but is not provided in a private market setting.

Though nearly all past energy policies have affected the rate at which energy resources are used, little attention has been given to the net effect of these policies on the pace of extraction. For example, favorable provisions in the tax law have the effect of stepping up production of oil and natural gas but this effect has been offset to some extent by the Windfall Profits Tax. Clearly, these two policies have different results with respect to the objective of efficient extraction of energy resources. Since the effects of one policy might offset the effects of another policy, it is important to understand these effects and to evaluate

future policies in light of the objective of extracting resources efficiently.

### *Economic stability*

Economic stability is another desirable goal for energy policy. Energy policy should be consistent with macroeconomic policy objectives. Though the objectives of macroeconomic policy are beyond the scope of this article, the general objective of economic stability spills over into the energy policy arena.

Disruptions in energy markets can destabilize the U.S. economy. Changes in energy prices affect inflation and real economic activity. For example, the 1973 Arab oil embargo produced a price shock that fueled inflationary pressures and slowed real economic growth in the United States.

Although many past energy policies, such as those formed during the 1970s, were aimed at coping with destabilizing supply disruptions, economic stability should be an explicit objective for new policies. The recent Saudi Arabian production increase sent oil prices plummeting, resulting in another shock to the U.S. economy. Developments discussed earlier in this article suggest that world oil prices are likely to become increasingly volatile. Thus, energy policy needs to be sensitive to the potential for price shocks, to increased price volatility, and to the objectives of macroeconomic policy.

### **Policy directions**

The policy objectives discussed above help define the overall role of policy in energy markets. Moreover, they can be used as a means of evaluating existing and proposed energy policies. When policy formulation is guided by a coherent set of objectives, transitions to new market conditions are likely to be smoother over the long run.

In this section, current and proposed energy

policies are evaluated in light of the policy objectives discussed. Though it is essential that each policy be examined relative to the objectives, the process is made more difficult by the interrelationships between different policies. Policies directed at one objective can be closely related to policies directed at other objectives. As a result, policies must be matched with objectives, with awareness of the effects one policy response may have on the results expected of other policies.

### *The Strategic Petroleum Reserve*

Now that the world is awash in oil, many policymakers have advocated slowing or stopping additions to the Strategic Petroleum Reserve. The reserve was authorized by the Energy Security Act of 1980 as protection against future supply disruptions. If the policy of stockpiling oil has merit when measured against energy policy objectives, then curtailing additions to the reserve when oil is relatively inexpensive could be a mistake.

The Strategic Petroleum Reserve provides a cushion against another embargo, allowing time for domestic production to be increased. Adding to oil stocks makes sense when oil can be purchased and stored at costs lower than the adjustment costs that would attend an embargo. The drop in world oil prices in 1986 makes it more likely that the costs of adjusting to an embargo will exceed the costs of strategic stockpiling of oil.

The Strategic Petroleum Reserve provides secure supplies of oil with minimal distortion of energy markets. Market prices guide the decision-making of producers and consumers with respect to the production and use of energy resources over time. The Reagan administration has maintained a posture of allowing markets to work when they can. Unlike taxes and subsidies, stockpiling of oil entails little distortion of private incentives regarding the rate of energy resource extraction.

Since oil supply disruptions lead to fluctuations in domestic economic activity, the Strategic Oil Reserve can help smooth out those fluctuations. This feature of the reserve should come into play only when supply disruptions are contrived and do not reflect underlying supply and demand conditions. For example, high oil prices associated with an embargo could be mitigated by releasing oil from the reserve. However, if increases in demand for gasoline put upward pressure on domestic crude oil prices, the government should not interfere with the price signal. To do so would ignore the objective of efficiency in energy resource extraction.

In principle, the Strategic Petroleum Reserve is consistent with all three major energy policy objectives. It provides some protection against risks to national security and economic stability while not interfering with market allocation of energy resources. The extent to which energy markets would be affected, of course, varies with the rate at which oil would be added to the stockpile or released from it.

Timing also affects the cost of a stockpiling policy. The Strategic Petroleum Reserve can contribute to national security at lower cost if oil is added to the reserve when it can be purchased at low prices. Just as oil might be released from the reserve when oil prices are high, oil should be added when prices are low.

### *A tax on imported oil*

An oil import tax has been proposed as a means of protecting the domestic energy industry and raising revenues to help reduce the federal budget deficit. A tax on oil imports would raise domestic oil prices and accelerate production. Only short-term national security concerns are addressed by an oil import tax and the effects on the efficiency of energy resource extraction and overall economic stability are uncertain.

A tax that would reduce imports and raise

domestic oil prices likely would not have the long-run benefit of enhancing the ability of the United States to protect itself. The degree to which the national security objective is met depends on the effects of higher domestic prices on capacity. If reserves are depleted without significant increases in domestic capacity to produce oil, then future national security could be jeopardized.

Using an oil import tax to relieve short-term vulnerability to supply disruptions entails additional costs. A policy that stimulates domestic production is not the only way to secure energy supplies. There are foreign supplies with little risk of embargo available at lower cost than many domestic supplies. Denying consumers these low-cost supplies while giving an artificial signal to domestic producers is not consistent with an objective of extracting energy resources at an efficient rate.

The effect of an oil import tax on economic stability is uncertain. Depriving energy users of low-cost energy would slow domestic real economic growth. Friendly trading partners, such

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*While subsidizing domestic production might reduce dependence on imported energy, it would entail substantial costs.*

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as Mexico and Venezuela, would lose a major market for their oil that might eliminate a major source of their foreign exchange. Demand for U.S. products in these countries would no doubt be reduced. Financial institutions with large loan exposure to these countries might face problems as the quality of their loan portfolios deteriorated.

One kind of tax that is theoretically appropriate for securing energy supplies is a “risk-based” oil import tax. Since oil from some sources is more likely to be embargoed, this “risky” oil could be taxed to reflect its potential for jeopardizing national security. Thus, less oil from risky

sources would be imported because of the signal coming from the higher price.

While theoretically appealing, a risk-based oil import tax entails several practical problems. The amount of the tax—the penalty paid for importing oil from risky sources—is impossible to determine because the value and optimal amount of national security are impossible to determine. Moreover, because oil is a fungible commodity, enforcement of the tax would be complicated by efforts to disguise risky oil by shipping it through countries not subject to the tax or by shipping refined products.

### *Energy subsidies*

Some policymakers have recently favored subsidizing the domestic oil and gas industry to prevent further deterioration in economic activity in energy producing regions of the United States. For instance, support is growing for legislation to protect operators of stripper wells. Though subsidies would be a stabilizing influence on regional economic conditions, they would place additional strain on the federal budget and shut friendly trading partners out of U.S. markets. Such a policy is not a stabilizing influence on the whole U.S. economy.

While subsidizing domestic production might reduce dependence on imported energy, it would entail substantial costs. Subsidies benefit producers and allow consumers to get high-cost domestically produced energy at lower prices. However, if too much oil is extracted now, too little may be available for the future. The price paid for national security today would be expensive energy and potential national security problems in the future.

This “drain the United States first” strategy distorts market price signals by discouraging production from the lowest cost reserves. This strategy is, therefore, inconsistent with the objective of efficient extraction. Instead of obtain-

ing low-cost oil from the Middle East, subsidies would misdirect production to high-cost domestic sources.

Favorable income tax treatment for oil and gas producers with the percentage depletion allowances and the immediate expensing of intangible drilling costs are other forms of subsidies that encourage energy production.<sup>5</sup> Recent changes in the tax law regarding the treatment of ordinary investments in plant and equipment have reduced the relative size of these subsidies. While oil and gas producers will no doubt object to losing these advantages, they have much less to lose than they once did.<sup>6</sup>

In the current environment of tax reform, tax treatment of the oil and gas industry compared with other industries is certain to be reevaluated. Taken together, the three important policy objectives considered in this article do not appear to warrant either a different tax treatment of the energy industry or subsidies in general.

### *The crude oil windfall profits tax*

Policy debates have recently focused on another tax affecting oil and gas producers—the crude oil windfall profits tax. This tax was enacted in 1980 in connection with the decontrol of crude oil prices. The tax is not directly levied on profits. Instead it is an excise tax applied to the difference between the actual sales price and a certain base price for different categories of oil. The tax

<sup>5</sup> The percentage depletion allowance was designed in 1926 to account for the depreciation of oil or gas wells as the wells were depleted. The depletion allowance was set then at 27.5 percent of gross income, with a limit on the deduction equal to 50 percent of taxable income. The allowance was reduced to 22 percent in 1969 and now applies only to independent producers, that can deduct 15 percent of gross income for the first 1,000 barrels of oil production and the first 6 million cubic feet of gas production.

<sup>6</sup> See James W. Wetzler, "Taxation of Energy Producers and Consumers," in S. Fred Singer, ed., *Free Market Energy*, Universe Books, New York, 1984.

discourages production to the extent that it lowers the price producers receive net of the tax.

When oil prices fall below the base prices, the windfall profits tax has no direct effect on current production and generates no revenue. This has been the case so far in 1986. The tax remains an issue, however, for two reasons. It will affect production directly if prices rise again above base levels, and it indirectly influences production through its effect on producers' expectations about future profits.

The national security objective is not served by the crude oil windfall profits tax. In fact, a policy that encourages domestic production or purchases of oil from safe foreign sources might be needed to offset the negative effects of the tax on national security when oil prices are high. Given the problems with policies of this kind, such efforts to offset the windfall profits tax would likely lead to a complex and costly set of policies.

Like other tax policies, the windfall profits tax distorts market incentives. Taken alone, an excise tax results in excessive conservation when prices are high. This result is not likely to be consistent with an efficient rate of energy resource extraction. A policy that discourages production is appropriate only when resources are being used up too fast.

It is difficult to build a case that favors the windfall profits tax on grounds that it contributes to economic stability. The tax exaggerates cyclical swings in oil prices by dampening the response of domestic supplies to rising oil prices. Prices tend to be higher than they might be otherwise. Moreover, revenues generated from the tax are sensitive to energy market conditions. When oil prices are above base levels, windfall profits tax receipts vary directly with changes in oil prices. When prices fall below the base levels, tax receipts drop to zero.

The crude oil windfall profits tax was enacted originally to make decontrol of oil prices politically acceptable. Though the tax is fairly in-

nocuous in the current market environment, it is not consistent with the longer run objectives of energy policy.

## **Summary**

Current and proposed energy policies may not be able to respond adequately to the dramatic changes going on in global energy markets. A basic problem is the past and present failure of policymakers to identify and target certain key policy objectives. These objectives provide a common frame of reference against which existing and proposed policies can be viewed. Approached in this way, energy policies could be more consistent and effective. Three objectives form a desirable guide to energy policy formation: national security, efficient extraction of energy resources, and economic stability. This

list is not exhaustive, but it provides a starting point for evaluating energy policies.

Policymakers should intervene in energy markets only when they can improve the allocation of resources with respect to these objectives. Since it is unlikely that policymakers have more information or better incentives than market participants, little room is left for public policies directed at energy markets. As a general policy, therefore, the deemphasis of energy regulation by the Reagan administration seems appropriate. But a number of specific energy policies remain in effect, and more have been proposed. These should be evaluated in light of a common set of objectives. Though only a few might be appropriate, policies formulated in this way are likely to provide larger benefits at lower costs while improving adjustment over time to new market conditions.