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# Energy Sectionalism: Economic Origins and Legal Responses

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# ENERGY SECTIONALISM: ECONOMIC ORIGINS AND LEGAL RESPONSES

*by*

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Physically speaking, we cannot separate. We can not remove our respective sections from each other nor build an impassable wall between them. A husband and wife may be divorced and go out of the presence and beyond the reach of each other, but the different parts of our country can not do this. They can not but remain face to face, and intercourse, either amicable or hostile, must continue between them.

Abraham Lincoln[1]

## I. ENERGY SECTIONALISM DEFINED

FREEZE a Yankee![2] Not since the Civil War have citizens of the South wished such ill health on their Northern brethren. In return, Yankees from all walks of life have labelled residents of the petroleum provinces of the Southwest "blue-eyed Arabs."[3] During the Civil War economics and slavery were the foci of the acrimony between the states. Today the South seems stronger economically than the North. The difference results in large measure from the North's dependence on enslaved energy sources.[4] Mineral energy sources, rather than human ones,

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The opinions and conclusions contained in this Article are exclusively those of the author and are not to be attributed necessarily to the NELPI or to the ABA Coordinating Group on Energy Law.

1. INAUGURAL ADDRESSES, 1789-1973, H. DOC. NO. 208, 93D CONG., 1ST SESS. 119, 124 (1974).

2. "Freeze A Yankee," Copyright 1978, BMI Mockingbird Records, written by B. Arnold and B. Sturgeon.

3. R. WILSON, SEVERANCE TAXES, ENERGY RESOURCES, AND BLUE-EYED ARABS: IS THE POWER TO TAX THE POWER TO SURVIVE (1981).

4. The United States Bureau of Census projections released Sept. 7, 1983, indicate that if 1970 population rate and migration trends continue, migration from the northern states to the Sunbelt will cause the South to remain the most populous section of the United States by the year 2000, with 37% of the population. The population shift may make the West the second most populated section of the United States. The north central states are expected to grow slightly in population, while the northeastern states should decline. Tulsa World, Sept. 8, 1983, at A-9, col. 1. *See generally* CONGRESSIONAL RESEARCH SERVICE FOR SENATE COMMITTEE ON APPROPRIATIONS, 95TH CONG., 1ST SESS., PATTERNS OF REGIONAL

have been shackled by the legal contrivances of governments determined to supply them to constituent energy users at the lowest possible cost.

The states are fighting this civil war without bullets. Instead, they are battling in the nation's legislatures, courts, and regulatory agencies, using the most common form of combat in the United States over the last twenty-five years: all-out political-legal warfare. Thus have emerged the intersectional energy conflicts, known collectively as energy sectionalism.

Historically, sectionalism denoted competitive actions, by alignments of contiguous states, that emphasized state sovereignty, autonomy, separatism, and self-sufficiency.[5] This historic concept has been modified for purposes of this study. The contiguousness requirement has been altered to denote an attitudinal rather than a geographic adjacency with respect to energy views. For purposes of identifying competing state alignments, states are grouped together on the basis of their consensus opinions concerning energy. These consensus opinions are then identified by the economic, legal, and political activities of the governmental bodies and private forces operating in each state.

This Article focuses on the energy sectionalism conflicts arising out of the energy crises this nation experienced in the decade beginning with the Arab oil embargo of 1973. The Article identifies the economic origins of major energy sectionalism conflicts, examines the legal responses to these conflicts, and presents the positions of the contending sectionalism align-

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CHANGE—THE CHANGES, THE FEDERAL ROLE AND THE FEDERAL RESPONSE: SELECTED ESSAYS (1977) (comprehensive treatment of factors leading to population shift).

The unprecedented growth in the consumption of energy in the United States, an average annual rate of 4.1% from 1960 to 1972, came to an end in 1973 with the onset of the Arab oil embargo. The effects of the embargo dramatically demonstrated the dependence of our economy on imported oil, and the natural gas shortage of 1976 increased regional tensions relating to the exploitation and consumption of energy reserves that remain in the United States. The effects of both events emphasized the regional differences directly related to the geographical location of our energy resources and reserves and the use of those resources by other regions in the United States. States in the southwest and western mountain regions became even more reluctant to serve as reservoirs for the northeast states with heavy energy needs and limited resources.

Federal programs to regulate prices of oil and natural gas accentuated the regional differences. The federal controls on prices for natural gas kept prices in the interstate market lower than the prices of gas produced and sold in intrastate markets. Under the Emergency Petroleum Allocation Act, 15 U.S.C. §§ 751-760h (1982), crude oil prices were regulated not only to compensate for differences between domestic and imported oil prices in areas dependent on more expensive imports, but also to assure allocation and distribution of scarce supplies so all regions would be treated equitably. Oil and gas producing states charged that such legislation represented sectionalism interests, because their state energy resources were controlled at the national level for the benefit of energy dependent states. *See* H.R. REP. No. 531, 93d Cong., 1st Sess., *reprinted in* 1973 U.S. CODE CONG. & AD. NEWS 2680-87 (minority views).

5. The sectional concept in the United States developed primarily as a geographer's term. In the early nineteenth century the concept took on a popular meaning in Congress, denoting sections of the Union that felt their opinions were abandoned, sacrificed, or not given just weight on the national scale. *See generally* L. HAYES, ENERGY, ECONOMIC GROWTH, AND REGIONALISM IN THE WEST app. (1980) (comparing meanings and development of concepts of sectionalism and regionalism).

ments. Finally, the Article assesses the efficiency and equity consequences of our nation's legal responses to energy sectionalism.

## II. Economic Dimensions

Energy considerations greatly affect the way that policymakers answer the central questions confronting their economies. These questions include: (1) What goods and services should be produced? (2) How should goods and services be produced? (3) For whom and by whom should goods and services be produced? Over the last thirteen years complex energy issues have intertwined with the United States' attempts to find answers to these central economic questions, causing great controversy. Factors that have made energy issues so divisive include:

(1) The high degree to which the nation's economic health is dependent on reliable, available, and reasonably priced energy supplies.
(2) The United States' vulnerability to energy supply disruptions and cartel pricing, which is attributable to a high percentage of the world's oil supplies being located in a few nations in the politically unstable Middle East.
(3) The exhaustible and increasing cost characteristics of the world's conventional energy supplies, which make future economic growth dependent on an orderly introduction of cost-effective, nonconventional energy sources and economic activities involving reduced energy consumption.
(4) The significant externalities and social costs associated with energy production and consumption, which have interjected fear, emotion, and uncertainty into national energy decisionmaking.

### *A. Historical Overview*

#### *1. General Perspective*

Instability in international oil markets has inflicted painful economic shocks on the world economy over the last thirteen years. In the wake of the 1973 Arab-Israeli war the OPEC nations imposed a short, but disruptive, oil embargo on the western economies and followed the embargo with a successful cartel pricing strategy. World oil prices quadrupled in less than a year[6] and plunged the unprepared western economies into an inflationary-recessionary cycle that marked the beginning of a continual economic stagnation.

From 1975 to 1979 OPEC prices went up steadily in nominal terms, but

6. At their meeting in Tehran, Iran, on Dec. 22-23, 1973, the OPEC nations announced a price increase raising OPEC's take to $7.00 per barrel. The take had previously been $1.77 before the 1973 October war. Stobaugh, *After the Peak: The Threat of Imported Oil*, in ENERGY FUTURE: REPORT OF THE ENERGY PROJECT AT THE HARVARD BUSINESS SCHOOL 16, 28 (R. Stobaugh & D. Yergin eds. 1979) [hereinafter cited as *Import Threat*]. *See also* NATIONAL ACADEMY OF SCIENCES, ENERGY IN TRANSITION 1985-2010: FINAL REPORT OF THE COMMITTEE ON NUCLEAR AND ALTERNATIVE ENERGY SYSTEMS—NATIONAL RESEARCH COUNCIL 508 (1979) [hereinafter cited as CONAES STUDY].

failed to keep pace with inflation and devaluations of the U.S. dollar.[7] Nevertheless, recessions followed by inflationary recoveries still plagued the western democracies. Western governments made little progress in developing cooperative strategies for avoiding or reducing the impacts of future oil shocks. Consequently, the 1979 Iranian revolution, with its attendant reduction in Iranian oil production, caused world oil prices to double and produced an economic shock more severe than that experienced in 1973-1974.[8] In the aftermath of the 1979 oil shock the western economies struggled first with incendiary inflation rates and then with the deepest recession since the Great Depression of the 1930s. By the end of 1981 recession, conservation, and the addition of new large oil supplies in the North Sea, Alaska, and Mexico produced an oil glut that weakened OPEC's ability to control world oil prices.[9] Oil prices dropped in both nominal and real terms.[10]

OPEC's price-fixing difficulties have produced a mixture of blessings and shocks. Conventional energy supplies have been available at lower prices, triggering a significant decrease in the United States' annual inflation rates.[11] Lower oil revenues, however, have driven debt-ridden oil producing countries like Mexico and Venezuela to the brink of bankruptcies that could precipitate massive international monetary and banking crises.[12] The lower prices for conventional energy supplies slowed the na-

7. CONAES STUDY, *supra* note 6, at 511; *Import Threat*, *supra* note 6, at 28.

8. The absolute dollar increase in the price of oil was about $21 per barrel in 1979 as compared to $8 per barrel in 1973-1974. Yergin, *Crisis and Adjustment: An Overview*, in GLOBAL INSECURITY: A STRATEGY FOR ENERGY AND ECONOMIC RENEWAL 1, 3 (D. Yergin & R. Stobaugh eds. 1982) [hereinafter cited as *Crisis and Adjustment*]. Moreover, the 1979 price shock increased the United States' oil import bill by about $50 billion, representing about 2% of the GNP. The 1973-1974 oil bill increased $18 billion, or 1.4% of the GNP. E. SHAPIRO, MACROECONOMIC ANALYSIS 540 (5th ed. 1982). Thus, the 1979 price shock was more inflationary than the 1973-1974 price shock. *Id.* The 1979 price shock also had a greater impact on delivered energy prices, which caused a net drag on the economy's aggregate demand of about 3%. Dohner, *The Bedeviled American Economy*, in GLOBAL INSECURITY: A STRATEGY FOR ENERGY AND ECONOMIC RENEWAL 58, 62-63 (D. Yergin & R. Stobaugh eds. 1982) [hereinafter cited as *Bedeviled Economy*]. In the aftermath of the 1979 price shock, the two sharpest recessions of the post-war era buffeted the U.S. economy. *Id.* at 63.

9. *See* E. SHAPIRO, *supra* note 8, at 540-41; *Crisis and Adjustment*, *supra* note 8, at 8-10.

10. The official price of OPEC crude oil dropped from about $35 per barrel in May 1981 to $29 in March 1983. *The Unrigging of Oil Prices*, NEWSWEEK, Mar. 7, 1983, at 62-65; *Oil Price to Hold, Merrill Lynch Says, But Fall to $15 per Barrel Not Impossible*, 11 ENERGY USERS REP. (BNA) 426, 426 (Apr. 21, 1983) [hereinafter cited as *Oil Price*]; N.Y. Times, Mar. 15, 1983, at A1, col. 6, D22, col. 1.

11. For example, the inflation rate was only 3.5% over the 12-month period from February 1982 to February 1983, which was a dramatic break from the high inflation rates the United States experienced throughout the 1970s. The downturn was furthered by a 4.3% decline in fuel oil, coal, and bottled gas prices, a 7.8% fall in fruit and vegetable prices, and a 9.9% drop in gasoline prices. TIME, Apr. 4, 1983, at 58. In April 1983 consumer prices increased at an annual rate of 7.2%. The increase resulted primarily from the change in gasoline prices of about 10¢ per gallon, with 5¢ consisting of increased federal fuel taxes. Consumer prices, however, increased only .1% from August 1982 to March 1983. *Price Surge "No Cause for Alarm,"* U.S. NEWS & WORLD REP., June 6, 1983, at 8.

12. *See* Wall St. J., May 10, 1983, at 40, col. 1 (Mexico); N.Y. Times, Mar. 20, 1983, at E4, col. 3 (Mexico); Wall St. J., Mar. 10, 1983, at 35, col. 2 (Mexico); Wall St. J., Feb. 24, 1983, at 32, col. 2 (Mexico); N.Y. Times, Jan. 28, 1983, at D1, col. 2, D4, col. 1 (Mexico);

tion's investments in energy conservation projects and nonconventional energy development.[13] An economic recovery over the last eighteen months, however, has resulted in a lowering of the unemployment rate to a figure slightly below what it was in 1980.[14]

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N.Y. Times, June 10, 1983, at D11, col. 6 (Venezuela); Wall St. J., Apr. 15, 1983, at 34, col. 1 (Venezuela); *see also* BUS. WK., Mar. 7, 1983, at 92, 93, 95, 96, 99 (discussing impact of Mexico's and Venezuela's financial crises on United States and other industrialized nations).

13. President Reagan's fiscal year 1984 budget proposals include a projected 60% cut in funding for solar, fossil, and other alternative energy research, and signal a wish to end federal involvement in hydroelectric research and energy information-gathering activities. Wall St. J., Jan. 31, 1983, at 5, col. 6. Rep. Ottinger, director of the House Energy Conservation and Power Subcommittee, charged that "[c]onservation and renewable energy programs . . . have been crippled by inadequate staff, removal of qualified personnel, and a severely demoralized work force . . . ." *Conservation, Solar Programs Crippled by Administration at DOE*, 11 ENERGY USERS REP. (BNA) 432 (Apr. 21, 1983). The Reagan administration had proposed only a $22 million fiscal year 1983 budget for conservation research and development programs, which was substantially lower than the $400 million appropriated by Congress in 1982. *Id.*

Stable oil prices have also caused the short and midterm outlook for synthetic fuel development to turn bearish. In 1982 more than 800 thousand b/doe in coal gasification went from "design engineering or planning stages into cancellation or deferral. Ninety percent of all projects firmly planned were cancelled or delayed indefinitely." *Slow Growth Seen for Synthetic Fuels*, 81 OIL & GAS J., May 2, 1983, at 80. In 1982 the Office of Technology Assessment reported that:

> It must be stressed that even the "low" 0.3mmB/D production level may be considered as optimistic in light of current expectations of at least short-term stability in oil prices, as well as remaining technical and environmental uncertainties. In addition, the dismantling of DOE's demonstration program may increase the perceived and actual technological risks of synfuels development. Thus, the goals of the National Synfuels Production Program, created by Congress in 1980—0.5 mmB/D by 1987 and 2 mmB/D by 1992—appear unattainable without a crash program that would involve extraordinary technical and economic risks and extensive Government intervention.

OFFICE OF TECHNOLOGY ASSESSMENT, INCREASED AUTOMOBILE FUEL EFFICIENCY AND SYNTHETIC FUELS: ALTERNATIVES FOR REDUCING OIL IMPORTS 16-17 (1982); *see also* Leonard, *Prospects for Coal-based Transportation Fuels Fading Fast*, 81 OIL & GAS J. 93, 97 (May 30, 1983), in which the author concluded that

> the timing of commercially oriented, large-scale schemes for making substitute transportation fuels from coal remains uncertain both in the U.S. and Western Europe. Their economic justification depends crucially on crude oil price forecasts . . . . However, the current scenario of future supply, demand, and price for crude oil looks considerably different from that of a few short years ago. Although the need for the commercial development of synfuels may still exist, the timing of private investment and ownership in these projects certainly has changed. Thus, the large-scale introduction of synthetic coal-based transportation fuels may well be postponed until after 2000, unless instituted by positive government actions.

*Id.* at 97.

Meanwhile, consumers were returning to some previous wasteful energy consumption patterns. The most dramatic symptom of this backsliding is the increase in U.S. demand for large cars. The increase in the demand for bigger, less fuel efficient cars is so great that GM and Ford expect to fall short of federal fuel efficiency standards for their 1983, 1984, and 1985 sales fleet. In 1983 GM's sales fleet will decrease its fuel efficiency from 24.3 mpg to 24.1 mpg, while Ford's decrease is from 24.6 mpg to 24.3. GM expects 15-20% of its 1985 fleet to have V-8 engines, although it originally had planned for no 1985 models to have V-8 engines. Wall St. J., Feb. 7, 1983, at 8, col. 1.

14. At the end of 1980 the unemployment rate was 7.5%. It rose to 10.8% in November 1982. Since that time the economic recovery has dropped the rate to 7.1%.

*2. Domestic Perspective*

Within the United States the impacts of unstable international oil markets have generated complex energy sectionalism disputes that have hindered the formation of effective policies for reducing the domestic economy's vulnerability to world oil shocks. The energy sectionalism disputes are largely the products of the United States' unique position as both the world's leading energy consumer and a leading energy producer. As the world's leading energy consumer the United States has become a large energy importer, despite its considerable domestic energy production capabilities.[15] Because of the United States' status as a large energy importer, the country's economy is interdependent with and vulnerable to the vagaries of international oil markets.

Blessed with a rich endowment of cheap energy, the United States built an economic base that is more energy-intensive than that of most other countries.[16] Consequently, in many ways the United States has been more vulnerable economically to international oil shocks than have its economic competitors. Moreover, its status as a large energy producer has complicated the United States' efforts to cope with unstable international oil markets. During energy crises nations without energy production capabilities readily reach a consensus that reducing energy consumption is the key to their economic health.[17] By contrast, the United States has a powerful energy production sector, whose interests often conflict with the interests of energy consumers and others who bear the social costs associated with energy production and consumption.[18]

During the last decade the conflicts of interest among United States energy producers and energy consumers reached gigantic proportions as world oil shocks drove official OPEC oil prices up about thirty-three dollars per barrel. World oil prices rose in such dramatic jumps that they could not be assimilated without causing consumers to suffer serious detrimental economic effects. At the same time, the rising world oil prices caused the market values of domestic energy supplies to increase greatly.[19]

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15. CONAES STUDY, *supra* note 6, at 1-4; *Import Threat, supra* note 6, at 16-18.

16. By 1973 the United States consumed 30% of the world's total energy, but contained only 6% of the world's population. FORD FOUNDATION, A TIME TO CHOOSE: AMERICA'S ENERGY FUTURE 5 (1974) [hereinafter cited as FORD ENERGY FUTURE]. At the end of 1973 the per capita energy use of the United States was six times the world average and far ahead of most affluent countries. *Id.* at 6. In 1976 the United States' energy consumption/gross domestic product ratio was significantly higher than its economic competitors. CONAES STUDY, *supra* note 6, at 107-10; Yergin, *Conservation: The Key Energy Source*, in ENERGY FUTURE: REPORT OF THE ENERGY PROJECT AT THE HARVARD BUSINESS SCHOOL 136, 143-44 (R. Stobaugh & D. Yergin eds. 1979) [hereinafter cited as *Conservation Energy Key*].

17. *See Crisis and Adjustment*, *supra* note 8, at 11-12.

18. *Id.*; Yergin, *America in the Strait of Stringency*, in GLOBAL INSECURITY: A STRATEGY FOR ENERGY AND ECONOMIC RENEWAL 94, 101-13 (D. Yergin & R. Stobaugh eds. 1982) [hereinafter cited as *America in Stringency*]; *Conservation Energy Key*, *supra* note 16, at 138-46.

19. Stobaugh & Yergin, *The End of Easy Oil*, in ENERGY FUTURE: REPORT OF THE ENERGY PROJECT AT THE HARVARD BUSINESS SCHOOL 1, 7, 267 n.3 (R. Stobaugh & D. Yergin eds. 1979) [hereinafter cited as *Easy Oil*].

The market value increases initially resulted from political turmoil in the Middle East, have been maintained with varying degrees of success by OPEC supply manipulations, and provided energy producers and mineral owners with opportunities to earn windfall profits.

Despite the contrasting fortunes of energy producers and energy consumers, the United States would not have experienced energy sectionalism if its domestic energy reserves, production, and consumption patterns were uniform from state to state. Unfortunately, only twelve states have enough producible energy resources within their borders to support the exportation of energy to other states.[20] The four states that dominate oil production are Alaska, California, Louisiana, and Texas,[21] but the states most dependent on oil are located primarily in the north central and east coast areas.[22] Louisiana, Oklahoma, and Texas dominate natural gas production[23] and, along with the north central and northeastern industrial states, depend the most on natural gas.[24] Coal production occurs mainly within a few north central and northwestern states.[25] Coal consumption is most

20. West Virginia, Kentucky, Louisiana, Kansas, Oklahoma, Texas, New Mexico, North Dakota, Montana, Wyoming, Utah, and Alaska are energy self-sufficient states. For a more extensive discussion, see Corrigan & Stanfield, *Rising Energy Prices—What's Good for Some States Is Bad for Others*, 12 NAT'L J. 468-74 (1980); Miernyk, *The Differential Effects of Rising Prices on Regional Income and Employment*, in HIGH ENERGY COSTS: ASSESSING THE BURDEN (H. Landsberg ed. 1980).

21. Approximately 83% of the nation's proved oil reserves are located in Alaska, California, Texas, and Louisiana. ENERGY INFORMATION ADMINISTRATION, STATE ENERGY OVERVIEW (Sept. 1982) [hereinafter cited as STATE OVERVIEW], at *U.S. Crude Oil and Lease Condensate Reserves, 1980*. Production from these four states comprises nearly 76% of the nation's total domestic production. *Id.* at *1980 Petroleum Production and Consumption: Ranking by States*; *Id.* at *Energy Production and Consumption—Alaska, California, Louisiana, Texas*.

22. Eight states account for nearly 50% of total crude oil consumption. These states are California, Texas, New York, Florida, Illinois, Pennsylvania, Louisiana, and New Jersey. South Dakota, New Jersey, North Dakota, Connecticut, Rhode Island, and Maine depend on oil for over 50% of their industrial energy consumption. Maine, New Hampshire, Vermont, Connecticut, Massachusetts, Rhode Island, New Jersey, Delaware, and New York rely on crude oil to supply over 25% of their residential energy needs. The District of Columbia, Hawaii, Rhode Island, Massachusetts, Delaware, Connecticut, Florida, New Hampshire, and New York rely most heavily on oil for electric power generation. *See* STATE ENERGY DATA REPORT, STATISTICAL TABLES & TECHNICAL DOCUMENTS (July 1982) [hereinafter cited as STATE ENERGY TABLES].

23. Production from Louisiana, Oklahoma, and Texas equalled about 79% of the nation's total natural gas production. STATE OVERVIEW, *supra* note 21, at *1980 Natural Gas Production and Consumption: Ranking by States*; *Id.* at *Energy Production and Consumption—Louisiana, Oklahoma, Texas*. Producers from Louisiana, Oklahoma, and Texas generated about 77% of the total wellhead value of the nation's natural gas production. *Id.* at *Energy Reserves, Production Value, and Consumption, 1980—Louisiana, Oklahoma, Texas*.

24. Eight states, namely Texas, California, Louisiana, Illinois, Ohio, Michigan, Pennsylvania, and New York, account for over 60% of the nation's natural gas consumption. In Alaska, Louisiana, Oklahoma, Kansas, Texas, New Mexico, and Arkansas natural gas accounts for over one-third of the industrial sector's fuel mix. In Utah, Illinois, Michigan, Colorado, California, Ohio, New Mexico, and Kansas natural gas represents over 45% of the residential sector's energy consumption. Electric power generation is heavily dependent on natural gas as a primary fuel in Louisiana, Oklahoma, Texas, Alaska, and Mississippi. *See* STATE ENERGY TABLES, *supra* note 22.

25. Montana, Wyoming, Illinois, West Virginia, Kentucky, and Pennsylvania contain approximately 75% of the nation's demonstrated reserve base of coal. *See* STATE OVER-

prominent within coal producing states and north central and northeastern industrial states.[26] Four western states, Colorado, New Mexico, Texas, and Wyoming, contain most of the nation's producible uranium,[27] but north central and eastern states are the most reliant on nuclear power.[28]

The inequality among states in energy reserves and energy consumption and production patterns produced uneven economic fortunes as world energy prices and domestic energy profits spiraled upward. Debates about the existence and distribution of energy windfalls became the driving economic force behind energy sectionalism during the last decade. Every strategy considered for coping with unstable international oil markets allocated energy revenues among energy producers and consumers, producing states and consuming states, federal and state taxpayers, beneficiaries of energy tax financed programs, and parties affected by the social costs of energy production and consumption. The difficulty in separating windfalls from economically useful energy profits complicated the controversies concerning the distribution of energy revenues.

### *B. Excess Energy Profits*

"Windfall profits" is a pejorative political label attached to returns persons receive in excess of the value of their contributions to the economy. Economic profits are similar to windfalls in concept, because they are returns in excess of those necessary to induce a factor owner to supply the economy with a specified quality and quantity of his factor.[29] Economists

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VIEW, *supra* note 21, at *U.S. Coal Reserves, 1980*. Kentucky, West Virginia, Wyoming, Pennsylvania, and Illinois account for about 63% of the nation's coal production. *Id.* at *1980 Coal Production and Consumption: Ranking by States*; *Id.* at *Energy Production and Consumption—Illinois, Kentucky, Pennsylvania, West Virginia, Wyoming*.

26. About 52% of the nation's coal consumption occurs in Pennsylvania, Ohio, Indiana, Illinois, West Virginia, Texas, Michigan, and Alabama. The industrial sectors of North Carolina, West Virginia, Indiana, Pennsylvania, Ohio, Alabama, Virginia, Utah, Maryland, and Michigan rely on coal for over 20% of their energy needs. Coal represents over 90% of the primary energy used to generate electric power in the states of West Virginia, Indiana, Ohio, Missouri, Wyoming, and Kentucky. *See* STATE ENERGY TABLES, *supra* note 22.

27. These states contain about 93% of the nation's proved uranium reserves. *See* STATE OVERVIEW, *supra* note 21, at *U.S. Uranium ($U_3O_8$) Reserves, 1980.* New Mexico, Wyoming, and Texas account for 79% of the nation's dollar value of uranium production. *Id.* at *Energy Reserves, Production Value and Consumption, 1980—New Mexico, Texas, Wyoming*.

28. In January 1983, 60 of the nation's 73 operating nuclear power plant reactors were located east of the Mississippi. *See* NUCLEAR REGULATORY COMMISSION, UNITED STATES POWER REACTORS (Dec. 31, 1982) [hereinafter cited as U.S. POWER REACTORS]. Eleven states generate over 10 million megawatthours of electricity annually from nuclear-fired power plants. These states are Illinois, Alabama, New York, South Carolina, Florida, Michigan, Pennsylvania, Connecticut, Virginia, Maryland, and Minnesota. Illinois, Alabama, New York, South Carolina, Florida, and Michigan generate nearly 50% of the nation's nuclear generated electricity. The south Atlantic region, composed of Florida, Georgia, Maryland, the Carolinas, Virginia, and West Virginia, generates more nuclear power than any other region. *See id.*; FEDERAL POWER COMMISSION, ELECTRIC POWER ANNUAL (Nov. 1982); ENERGY INFORMATION ADMINISTRATION, ELECTRIC POWER ANNUAL 43 (*Net Generation by Nuclear Powered Units by Census Region and States 1976-1981*).

29. Economic profits are formally defined as the difference between a producer's total revenues and its total opportunity costs, both explicit and implicit. E. DOLAN, BASIC MICRO ECONOMICS 142 (3d ed. 1983). Opportunity costs are the "the cost(s) of doing something that is measured in terms of the value of the lost opportunity to pursue the best alternative

strongly believe that factor owners must have opportunities to acquire economic profits so enough of them will engage in the risk-taking and innovative activities essential for healthy economic growth.[30] Economists do recognize, however, that some forms of economic profits are not connected with risk-taking and innovation. These nonfunctional economic profits include supracompetitive profits resulting from noncompetitive behavior or market structures, economic rents, production surpluses, and fortuitous windfalls. In theory, these profits could be taken away from factor owners without hurting the economy's performance. Energy profits have often been classified as nonfunctional economic profits by politicians and interest groups to justify various income redistribution schemes.

### *1. Supracompetitive Profits*

Encouraged by an awareness of their leverage within world oil markets, OPEC members have attempted to enforce production quotas and pricing agreements among themselves as a means of preserving and enhancing the crisis-generated world oil price levels. OPEC has succeeded more in sustaining nominal world oil prices than in raising real prices through collective price-fixing agreements.[31] In order to achieve this success, OPEC has allowed a decline in its share of the world oil market.[32]

OPEC's attempts to engage in concerted price fixing and production cutbacks are monopolizing acts that violate United States' antitrust laws. Unfortunately, these antitrust violations, while technically within the United States' antitrust jurisdiction, are extraterritorial acts of sovereigns that are immune from antitrust liability under the act-of-state doctrine.[33] The

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activity with the same time and resources." *Id.* at 23. Explicit costs are the producer's opportunity costs, which take the form of payments to others for the labor, land, raw materials, service, and other items needed to operate the producer's business. Implicit costs are the producer's costs of using its own resources in operating its business and are measured by the income or value the producer could have received by using its resources in the best alternative activity. *Id.* at 142. In a perfect, competitive industry no economic profits exist because producers hire out their factors if they can get more rewards than receipts from their business activities, and the producer's suppliers enter the producer's business if they can earn more that way. P. SAMUELSON, ECONOMICS: AN INTRODUCTORY ANALYSIS 602 (6th ed. 1964).

30. E. DOLAN, *supra* note 29, at 316-20.

31. *See supra* note 6. For an alternative explanation of the causes of the dramatic increase in the world prices of oil, see Johany, *OPEC and the Price of Oil: Cartelization or Alteration of Property Rights*, 5 J. ENERGY & DEV. 72 (1979) (alteration in property rights between OPEC nations and oil companies provided natural market incentives for reducing production).

32. At the time of the oil glut crisis of February 1983, 13 OPEC members were producing only 14 million bpd, down from the 31 mbpd rate of 1979. Moreover, over the last four years non-OPEC producers increased their collective share of the western oil market from 40% to 57%. *The Collapse of World Oil Prices*, BUS. WK., Mar. 7, 1983, at 93.

33. Under the act-of-state doctrine, courts defer to the executive branch and refuse to hear cases involving direct and substantial participation of foreign sovereign nations. Banco Nacional de Cuba v. Sabbatino, 376 U.S. 398, 444 (1964) (White, J., dissenting). This restraint is deemed necessary to avoid interference with the nation's foreign policy objectives and to preserve the dignity of foreign nations by according comity to their acts. *Id.* at 427-37. For examples of courts applying the act-of-state doctrine to antitrust cases, see American Banana Co. v. United Fruit Co., 213 U.S. 347, 357 (1909); Timberlane Lumber Co. v.

United States, therefore, cannot directly act to prevent OPEC from continuing its anticompetitive behavior.

OPEC's anticompetitive behavior does produce consequences within the United States domestic economy that the U.S. government can regulate. To the extent that OPEC's price fixing and production cutbacks reinforced the crisis-generated world oil price increases, the market values of domestic energy supplies have risen above competitive levels. By selling their products at OPEC monitored prices, domestic oil producers receive higher profits than they would earn without OPEC's manipulations of world oil supplies. The higher profits represent huge income transfers from energy consumers to energy producers. These transfers have been deeply resented and have instigated fears that some domestic energy producers could increase their market power in present industries and expand into new industries by investing profits in alternative energy development and acquisitions of other firms. Such acquisitive behavior is feared because it could reduce competition in some industries below acceptable levels, thereby creating an unhealthy concentration of economic power. OPEC's supply cutbacks also imposed supply pressures on domestic energy markets. Competition within domestic energy markets could be reduced below acceptable levels if integrated energy firms refused to share their supplies of crude oil and petroleum products with independent refiners and marketers. Domestic independent refiners and marketers cannot survive without assured supplies.

Congress responded to the political resentment and economic dangers created by producers' acquisitions of extra profits from OPEC's price-fixing activities by enacting energy price and profit controls to redistribute some of the domestic producers' profits.[34] In addition, Congress, the antitrust courts, and regulatory agencies acted to protect competition and to prevent an unhealthy concentration of economic power by limiting the rights of domestic energy firms to expand operations and to refuse to deal with competing independents.[35]

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Bank of America, 549 F.2d 597, 606 (9th Cir. 1976); Occidental Petroleum Corp. v. Buttes Gas & Oil Co., 331 F. Supp. 92, 108 (C.D. Cal. 1971), *aff'd*, 461 F.2d 1261 (9th Cir. 1972), *cert. denied*, 409 U.S. 950 (1972). Mere approval, acceptance, or some participation in the alleged antitrust violation by a foreign sovereign that does not rise to the dignity of sovereign compulsion, however, does not constitute an exemption from the antitrust laws under the act-of-state doctrine. Continental Ore Co. v. Union Carbide & Carbon Corp., 370 U.S. 690, 704 (1962); United States v. Sisal Sales Corp., 274 U.S. 268, 276 (1927).

34. The controls emerged in two separate acts. The comprehensive price controls placed on domestically produced crude oil and petroleum products were embodied in the Emergency Petroleum Allocation Act of 1973, 15 U.S.C. §§ 751-760 (1982). After the price controls began their phased decontrol, Congress enacted the Crude Oil Windfall Profits Tax Act of 1980, Pub. L. No. 96-223, 94 Stat. 229. The Act serves as as means of distributing a part of domestic oil producers' oil sale revenues to federal taxpayers and beneficiaries of federal programs.

35. Examples of legislative, regulatory, and judicial antitrust activities taken in the 1970s against energy companies include:

(a) The Federal Coal Leasing Amendments Act of 1975, Pub. L. No. 94-377, 90 Stat. 1083 (codified as amended in scattered sections of 30 U.S.C.), which contained provisions directed at reducing the concentration of federal and Indian acreage leased by coal oper-

*2. Energy Rents*

Economists characterize the returns received by mineral owners as economic rents.[36] Each mineral deposit contains a finite quantity of minerals that will neither expand nor contract in response to price fluctuations. Although capital and labor must be invested to extract minerals, these investments will be made if the investors are rewarded adequately. Theoretically, the difference between the market prices of minerals and the capital and labor costs of their extraction represent mineral owner rents, which can be taxed away without affecting energy production rates.

In practice, however, it is difficult to tax mineral owner rents without producing energy production inefficiencies. Some mineral owners are also energy producers who make the capital and labor investments needed for mineral extraction. It is difficult, if not impossible, to separate the rewards of producer risk-taking from total mineral sales revenues in order to tax only the mineral owner rents contained therein. Furthermore, many mineral owners also own property rights in the land surfaces above their mineral deposits. Taxing mineral owner rents without taxing other land uses on an equal basis could make uses other than mineral production more economically attractive to the surface owner. Payments to mineral owners who are neither producers nor surface owners establish some basis of iden-

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ators. Federal Coal Leasing Amendments Act of 1975, §§ 2, 11, 30 U.S.C. §§ 184(a), 201(a)(1) (1976 & Supp. V 1981); *see* H.R. REP. NO. 681, 94th Cong., 2d Sess. 15-17, 21-22, 25-26, *reprinted in* 1976 U.S. CODE CONG. & AD. NEWS 1943, 1951-53, 1957-58, 1961-62.

(b) Congress investigated energy company merger activities and considered proposals to restrict energy company horizontal mergers. *See* SENATE COMM. ON JUDICIARY, OIL WINDFALL ACQUISITION ACT OF 1979, S. REP. NO. 444, 96th Cong., 1st Sess. 36-43 (1979); STAFF OF SUBCOMM. ON OVERSIGHT AND INVESTIGATIONS OF HOUSE COMM. ON ENERGY AND COMMERCE, 97TH CONG., 2D SESS., MERGERS AND ACQUISITIONS OF THE TOP 20 OIL COMPANIES 1978-81 (Comm. Print 1982); STAFF OF SUBCOMM. ON MONOPOLIES AND COMMERCIAL LAW OF HOUSE COMM. ON JUDICIARY, 95TH CONG., 2D SESS., COMPETITIVE ASPECTS OF OIL COMPANY EXPANSION INTO OTHER ENERGY SOURCES (Comm. Print 1978); *Mobil-Marathon and Similar Oil Company Mergers: Hearings on H.R. 4930 Before Subcomm. on Fossil and Synthetic Fuels of House Comm. on Energy & Commerce*, 97th Cong., 1st Sess. 30-37 (1981) (statement of Salem M. Katsch, partner Weil, Gotshal, Manges); *The Public Energy Competition Act: Hearings on H.R. 8 Before Subcomm. on Energy & the Environment of House Comm. on Interior and Insular Affairs*, 96th Cong., 1st Sess. 49-72 (1979) (statement of Alfred F. Dougherty, Jr., Director, Bureau of Competition, Federal Trade Comm.); *Id.* at 82-101 (statement of John H. Shenefield, Assistant Att'y Gen., Antitrust Division, Dept. of Justice).

(c) Regulatory and judicial actions commenced to prevent major oil companies from consummating mergers with other oil companies. *See* Marathon Oil Co. v. Mobil Corp., 530 F. Supp. 315 (N.D. Ohio), *aff'd*, 669 F.2d 378 (6th Cir. 1981), *cert. denied*, 455 U.S. 982 (1982); *Federal Trade Commission Seeks to Halt Gulf Oil's Acquisition of Cities Service*, 10 ENERGY USERS REP. (BNA) 805 (Aug. 5, 1982).

(d) Congress enacted laws to protect nonintegrated refiners and marketers and major oil company franchisees from losing critical supplies of oil or petroleum products because of anticompetitive actions of integrated oil companies. Emergency Petroleum Allocation Act, 15 U.S.C. §§ 751-760 (1982); Petroleum Marketing Practices Act, 15 U.S.C. §§ 2801-2806 (1982). *See also* Condor Operator Co. v. Sawhill, 514 F.2d 351 (Temp. Emer. Ct. App. 1975) (construing Emergency Petroleum Allocation Act of 1973, 15 U.S.C. §§ 751-760 (1982)).

36. *See* R. DORFMAN, PRICES AND MARKETS 68-72 (3d ed. 1978).

tifying mineral owners' economic rents for taxation purposes. Rents of a mineral owner/producer could be imputed from the payments the company would have received if another party had produced its minerals.

The legal system, however, recognizes royalty ownership as a form of property entitled to due process protection;[37] therefore, royalty rights cannot be confiscated for a public purpose. While royalty owners have been affected by governmental attempts to redistribute energy profits,[38] they have been accorded more favorable treatment than many energy producers.[39]

### *3. Producer Surpluses*

The energy sector is an increasing cost industry comprised of discrete units of production.[40] The latest developed supplies are more costly to produce than earlier developed supplies. When a common price is paid for energy production, regardless of source, producers of the earlier developed supplies receive economic profits, and producers of the latest developed supplies barely cover their economic costs. The economic profits obtained by producers of the earlier developed supplies in increasing cost industries are known as producer surpluses. Federal price controls on natural gas and federal price controls and profits taxes on crude oil are political manifestations of the economic theory that producer surpluses can be redistributed without creating production distortions.[41]

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37. Royalty interests in oil and gas are recognized as either personal or real property by state law. *See* H. WILLIAMS & C. MEYERS, OIL AND GAS LAW §§ 212-215 (1983). Governments may not deprive individuals of vested property rights unless they accord the property owner full due process protection. U.S. CONST. amends. V & XIV, § 1. *See* Board of Regents v. Roth, 408 U.S. 564, 576-78 (1972).

38. *See* Lewis v. Reagan, 516 F. Supp. 548, 552 (D.D.C. 1981) (holding that Congress can constitutionally apply crude oil windfall profits tax to royalty interests).

39. *See* I.R.C. § 6429 (1982) (giving qualified royalty owners $2500 credit against crude oil windfall profits tax liability on oil revenues attributable to royalty ownership in oil production). *See also* I.R.C. § 4994(f) (1982) (providing qualified royalty owners with two barrels a day exception from crude oil windfall profits tax; exemption increasing to 3 barrels a day after Dec. 31, 1984).

Congress was motivated by distributional concerns when it enacted these royalty owner benefits. Specifically, Congress was concerned that the "imposition of the windfall profit tax on small amounts of royalty oil income may impose a hardship on many low and middle income taxpayers who are not the recipients of the lease oil company profits which led, in part, to the windfall profit tax." SEN. REP. NO. 144, 97th Cong., 1st Sess. 93, *reprinted in* 1981 U.S. CODE CONG. & AD. NEWS 197.

40. S. BREYER & P. MACAVOY, ENERGY REGULATION BY THE FEDERAL POWER COMMISSION 64-68 (1974).

41. Under the Natural Gas Act of 1938 the Federal Power Commission adopted the producer surplus theory by establishing different price ceilings for natural gas of different vintages. Permian Basin Area Rate Cases, 390 U.S. 747, 795-99 (1968). The Natural Gas Policy Act of 1978 also adopted a vintaged pricing system by specifying lower price ceilings for older flowing gas categories, while establishing higher price ceiling and deregulation schedules for newer high-cost gas categories. Compare price ceilings on flowing gas, 15 U.S.C. §§ 3312, 3313, 3317 and 3319 (1982), with price ceilings on newer high-cost gas categories, *id.* §§ 3312, 3313, and 3317. *See also id.* § 3331 (deregulation schedule covering mostly new and high-cost gas categories).

The Cost of Living Council created a two-tier price centered system for domestic crude oil sales pursuant to its regulatory powers under the Economic Stabilization Act of 1970. 12

*4. Fortuitous Windfalls*

Fortuitous windfalls arise from unforeseen changes in economic circumstances that increase the market values of selected production factors.[42] Because they occur by chance, fortuitous windfalls cannot be prevented. In theory, they can be redistributed without distorting the market if the initial recipients still receive after-tax returns for their current economic activities that are equal to returns received before the windfall and returns they could receive from other economic activity.[43]

The oil shocks of the 1970s resulted in changed circumstances creating fortuitous windfalls. In the absence of price and profit controls, inframarginal energy producers were able to obtain much higher prices for their products immediately after the 1973 Arab oil embargo and the 1979 Iranian revolution than they could have received beforehand. Most inframarginal energy producers had not invested in energy production in anticipation of filling the oil supply void created by cutbacks in OPEC production. The desire to prevent such producers from receiving a benefit from the 1973-1974 energy crisis was a political factor motivating Congress to maintain price controls on domestic oil producers after price controls were removed from the rest of the economy.[44]

### *C. Profit Allocation Systems*

Supracompetitive profits, economic rents, producer surpluses, and fortuitous windfalls have been identified as economic profits that in theory can be redistributed without creating market inefficiencies. Before a decision is made to redistribute these income sources, however, two questions should be answered affirmatively. First, is the redistribution equitable or desirable? Second, can the redistribution be made with nondistortive redistribution mechanisms?

Economic theories offer few tools for judging the equities of alternative income distributions. If the values people attach to their marginal income could be measured, aggregate welfare could be improved through involuntary transfers of marginal income from those who value income the least to those who value it the most until all marginal values were equal.[45] Unfortunately, consumption theories have yet to provide any solid bases for determining who values marginal income the most.[46] The equities of income

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U.S.C. § 1904 note (1982); *see* 6 C.F.R. § 150.353, 38 Fed. Reg. 22538 (Aug. 22, 1973). This system imposed price controls over old oil, but exempted new oil and like quantities of old oil to provide production incentives. Subsequent regulatory modifications created multiple price categories, but retained the vintaging concept. The Crude Oil Windfall Profits Tax Act has continued the vintaging concept by specifying lower tax rates for older low-cost oil supplies than for newer high-cost oil supplies. *See* I.R.C. §§ 4987, 4989, 4991-4994 (1982).

42. E. DOLAN, *supra* note 29, at 319-20.

43. *Id.*

44. *See* H. REP. NO. 531, 93d Cong., 1st Sess., *reprinted in* 1973 U.S. CODE CONG. & AD. NEWS 2582, 2596; CONF. REP. NO. 628, 93d Cong., 1st Sess., *reprinted in* 1973 U.S. CODE CONG. & AD. NEWS 2688, 2701-03.

45. *See* R. DORFMAN, *supra* note 36, at 252-55; P. SAMUELSON, *supra* note 29, at 42-43.

46. R. DORFMAN, *supra* note 36, at 252-55; P. SAMUELSON, *supra* note 29, at 42-43.

distributions therefore usually are judged on the basis of noneconomic criteria, such as the comparative political strengths of competing parties.

Economists can identify market inefficiencies that can possibly be reduced by redistributing windfalls. The imperfections include market entry barriers, information gaps, market organization defects, investment myopia, and public goods supply problems. Economists also can determine the winners, losers, and transaction costs involved for each redistribution program being considered.

### *1. Redistribution Motivations*

The impacts of sharply rising energy prices produced several major concerns that influenced executive and legislative actions affecting the distribution of energy revenues. These concerns included: (1) the imbalance in the fortunes among various domestic regions and income classes; (2) the desire to control inflation; (3) the need to adjust the economy to a high-cost energy future; and (4) the desire to mitigate the political and economic instability inherent in a world political environment that can produce sudden energy shocks. Only the distributional concern was explicitly sectionalistic in content. The responses to the other three concerns, however, produced distributional consequences affecting the nation's various sections. These potential consequences added fuel to the heated energy policy debates of the 1970s.

*a. Distributional Concerns.* As energy prices rise relative to the prices of other goods and services, income is transferred from energy consumers and their factor suppliers to energy producers and their factor suppliers. The greater the percentage of income a household must spend on energy purchases, the greater the decline in real income it suffers as relative energy prices increase.[47] Low income households tend to spend much higher percentages of their disposable incomes on energy than do high income households.[48] Relative increases in energy prices, therefore, produce regressive impacts on household income.[49] The regressive effect is compounded by the greater likelihood that high income households, rather than low income households, will own energy stocks and mineral interests.[50]

In times of increasing relative energy prices, the only way that business consumers with energy-intensive production facilities and products can remain competitive with businesses having production facilities and products with low energy demands is to increase energy efficiency or make tradeoffs in the employment of, and payments to, nonenergy factors of production.[51] During the 1970s the profit, employment, and wage per-

47. L. THUROW, THE ZERO SUM SOCIETY 29-30 (1980).
48. *Id.*
49. *Id.*
50. *Id.* at 31.
51. *See* Kalt, Lee & Leone, *Natural Gas Decontrol: A Northeast Industrial Perspective* 4-1 to -10 (1982) (Discussion paper series #E-82-09, Energy & Environmental Policy Center,

formances of United States industries least vulnerable to rising energy costs outpaced the performances of the most vulnerable industries.[52] The magnitude of the negative impacts that rising energy costs have inflicted on energy vulnerable industries is hard to measure since many of these industries also have suffered from other economic factors.[53] A decided shift in the United States' economic output mix away from goods production and toward services provision, however, can be observed as the twenty-first century approaches.[54] This shift will make the United States' economy less energy-intensive in the future.

Rising energy costs also have produced varying impacts among regional economies. The midwestern and northeastern states, on the average, pay substantially higher energy costs than do other states because of their colder climates, larger population densities, older building stocks, heavier reliances on oil, and greater distances from oil and gas production sites.[55] Lower energy costs, in combination with warmer climates, lower labor costs, and lower tax rates, allowed the sunbelt states to experience much higher growth rates in population, employment, investment, and per capita income throughout the 1970s than the midwestern and northeastern states experienced. Until OPEC oil prices and domestic demands for oil and gas fell during the 1981-1983 recession, energy producing sunbelt states fared better economically than did all other states.[56]

The differing economic fortunes among income classes and geographic regions stimulated intersectional conflicts over energy pricing, allocation, and taxation policies. Political representatives of the midwestern and northeastern states generally favored federal energy price controls, federal allocations programs for equalizing regional energy costs, and federal energy profits taxes for financing the subsidization of their constituents' adjustments to a high-cost energy environment.[57] The producing states'

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JFK School of Government, Harvard University); P. SAMUELSON, *supra* note 29, at 514-15, 524-25, 534-35.

52. *See* D. DEVAUL, REGIONAL ENERGY ECONOMICS: THE IMPACT OF THE PRICE INCREASES OF THE 1970'S 25-27 (1982); *Bedeviled Economy*, *supra* note 8, at 73-75. Directly vulnerable activities are energy intensive and include the production and processing of food and kindred products, textile, lumber and wood, paper and allied products, chemicals and allied products, petroleum and coal, stone, clay and glass, fabricated metals, and machinery, except for electrical and electric and electronic equipment.

53. *See Bedeviled Economy*, *supra* note 8, at 74-75; Reich, *Beyond Free Trade*, 61 FOREIGN AFF. 773, 773-804 (1983).

54. *See* J. NAISBITT, MEGATRENDS: TEN NEW DIRECTIONS TRANSFORMING OUR LIVES 11-38 (1982); D. DEVAUL, *supra* note 52, at 8.

55. D. DEVAUL, *supra* note 52, at 1, 13-30.

56. *Id.* at 25-27; *Bedeviled Economy*, *supra* note 8, at 74.

57. In 1973 the Energy Petroleum Allocation Act, Pub. L. No. 93-159, 87 Stat. 627 (1973) (codified as amended in scattered sections of 15 U.S.C.), which established mandatory allocation controls and extended price controls over supplies of crude oil and petroleum products, passed Congress by an overwhelming 348 to 46 vote in the House and an 83 to 3 vote in the Senate. Six of the 255 congressional members of eighteen states commonly thought of as midwestern and northeastern states cast negative votes. The 255 members represented Connecticut, Delaware, Illinois, Indiana, Iowa, Maine, Maryland, Massachusetts, Michigan, Minnesota, New Hampshire, New Jersey, New York, Ohio, Pennsylvania, Rhode Island, Vermont, and Wisconsin. By contrast, the 97 congressional mem-

political representatives generally resisted federal energy programs.[58] Interregional energy conflicts have been exacerbated by the inability of most states to export energy and by the producing states' imposition of severance taxes on their energy production. Severance taxes have generated large tax revenues for producing states, primarily at the expense of energy users in consuming states.[59] Producing states defend their severance taxes as methods for collecting from energy consumers a fair share of the costs of environmental restoration and infrastructure expansion necessitated by increased energy production activities.[60] Consuming states generally characterize state energy severance taxes as economic blackmail equivalent to OPEC's cartel oil pricing.[61]

*b. Inflation Control.* Energy supply shocks contributed greatly to the high inflation rates the United States experienced during the 1970s.[62] Energy purchases represented up to ten percent of total United States' consumption expenditures, and, thereby, fueled dramatic inflationary shocks in 1973-1974 and 1979, as world oil prices experienced increases in excess of 100 percent. The inflation induced by the energy supply shocks of the 1970s was an extreme form of cost-push inflation.[63] Cost-push inflation not only affects the inflation rates, but also asserts upward pressures on unemployment.[64] The economy can absorb the impacts of cost-push inflationary shocks over time, since the impacts result from nonrecurring

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bers of the nation's top 7 oil and gas producers cast 34 negative votes. Alaska, California, Kansas, Louisiana, New Mexico, Oklahoma, and Texas were represented by these members.

In 1980 the Crude Oil Windfall Profits Tax Act, Pub. L. No. 96-223, 94 Stat. 229 (1980), which imposed an ad valorem tax on domestic crude oil production and enhanced energy conservation, consumption, and research subsidies, passed Congress with a substantial majority. The midwestern and northeastern states' 249 congressional members cast 27 of the 138 negative votes. The top oil and gas producing states, with 103 congressional members, cast 66 of the 138 negative votes.

The Energy Security Act, Pub. L. No. 96-294, 94 Stat. 611 (1980), enacted in 1980, established an ambitious synthetic fuel program and authorized funding of other alternative energy research programs. The Act passed Congress handily by a vote of 317 to 93 in the House and 78 to 12 in the Senate. Of the 105 negative votes, the midwestern and northeastern states cast 39 votes and the top oil and gas producing states cast 39 votes.

58. *See supra* note 57 and accompanying text.

59. Total severance tax collections were 124% greater in fiscal year 1981 than in fiscal year 1979 and 770% greater in fiscal year 1981 than in fiscal year 1971. In 1981 eight states obtained 20% or more of their total tax collections from energy-related severance taxes. ADVISORY COMMISSION ON INTERGOVERNMENTAL RELATIONS, STATE TAXATION OF ENERGY RESOURCES 3-7, -10 (Preliminary Draft, Jan. 1983) [hereinafter cited as STATE TAXATION].

60. *See* Commonwealth Edison Co. v. State, 615 P.2d 847, 850 (Mont. 1980).

61. STATE TAXATION, *supra* note 59, at 2.

62. Rising energy prices directly and indirectly caused the consumer price index to increase 1.9-2.5% annually during the 1970s. D. DEVAUL, *supra* note 52, at 7.

63. *See* E. SHAPIRO, *supra* note 8, at 497-512. Cost-push inflation occurs whenever the costs of important production factors increase faster than the economy can assimilate them through changes in the employment of or prices of other production factors, reductions in the use of the production factors experiencing increasing costs, or increases in productivity. *Id.*

64. *Id.* at 511.

events.[65] The United States, unfortunately, has reacted to energy induced cost-push inflation by implementing traditional monetary and fiscal restraints and by creating cost of living allowance mechanisms (COLAs) to insulate selected groups from the impacts of energy price shocks.[66] Monetary and fiscal restraints attack inflation by dampening consumer demands. This form of attack, when applied to cost-push inflation, could produce increases in unemployment greater than the decreases in inflation.[67] COLAs institutionalize inflationary shocks into multiyear labor contracts and government income transfer programs. Price indices and consumer demands are thereby forced upward and the temporary effects of discrete price shocks extend past the time when they woud have faded away through normal economic market adjustments.[68]

In theory, wage and price controls can be effective in controlling cost-push inflation without driving up unemployment, since controls operate directly on supply costs and not consumer demands.[69] In the 1970s economic debates resulted in the imposition of wage and price controls,[70] followed by the removal of controls from all sectors except the domestic petroleum industry.[71] This industry remained subject to oil and petroleum products price controls until January 1981.[72]

Toward the end of the 1970s, political leaders attacked energy price controls as inhibitors of the adjustments necessary for the reduction of the economy's vulnerability to energy price shocks.[73] The leaders believed that confronting consumers with world energy prices was an essential adjustment stimulus.[74] To ease the transition, controls on energy prices were allowed to begin a gradual phase-out, but some energy prices were allowed

65. *Id.*; *See* M. FRIEDMAN & R. FRIEDMAN, FREE TO CHOOSE 253-54 (1980) [hereinafter cited as M. & R. FRIEDMAN].

66. M. & R. FRIEDMAN, *supra* note 65, at 277-78.

67. E. SHAPIRO, *supra* note 8, at 504-05.

68. L. THUROW, *supra* note 47, at 59-61.

69. E. SHAPIRO, *supra* note 8, at 504-05, 507.

70. Pursuant to authority granted him under the Economic Stabilization Act of 1970, Pub. L. No. 91-379, 84 Stat. 799 (codified at 12 U.S.C. § 1904n (1982)), President Nixon reversed his previous stances on wage and price controls and invoked controls across the board in Aug. 1971. Exec. Order No. 11615, 36 Fed. Reg. 15727 (1971).

71. Exec. Order No. 11788, 39 Fed. Reg. 22113 (1974), terminated the Economic Stabilization Program. By that time, however, price and allocation controls had been imposed on the domestic petroleum industry by the Emergency Petroleum Allocation Act of 1973, Pub. L. No. 93-159, 87 Stat. 627 (codified at 15 U.S.C. §§ 751-760h (1982)).

72. The Energy Policy and Conservation Act, Pub. L. No. 94-163, § 18, 89 Stat. 871, 955 (1975) extended the EPAA's mandatory oil and petroleum price controls for forty months beginning Dec. 22, 1975, and extended the EPAA's discretionary controls until Sept. 30, 1981. As the EPAA's mandatory price controls approached expiration, President Carter extended the control period under his discretionary authority to provide for a gradual decontrol of all oil and petroleum products from June 1, 1979, to Oct. 1, 1981. President Carter's Address to the Nation, 15 WEEKLY COMP. PRES. DOC. 609-14 (Apr. 5, 1979). President Reagan removed price and allocation controls from the petroleum industry on Jan. 28, 1981. Exec. Order No. 12287, 46 Fed. Reg. 9909 (1981).

73. *See* President Carter's Address to the Nation, 15 WEEKLY COMP. PRES. DOC. 609-14 (Apr. 9, 1979).

74. *Id.*

to rise faster than the annual inflation rate.[75] Energy profits taxes were instituted to collect funds to provide low income households with energy consumption subsidies and to provide the economy with subsidies for accelerating its adjustment to the high energy cost environment.[76] While it softened the immediate impact of the energy supply shocks, the phased decontrol of energy prices stretched out the inflationary impacts of the energy supply shocks beyond the time when they otherwise would have ceased.

Energy supply shocks, however, were not the only contributors to the inflation of the 1970s. The United States' monetary growth continually exceeded its productivity growth, and federal budgets were in chronic deficit.[77] The United States also was buffeted with some agricultural supply shocks, which caused food prices to increase dramatically.[78] Health care costs also contributed to the high inflation rate by rising continually at rates above the general inflation rate since the mid 1960s.[79]

United States' inflation influences energy production and energy efficiency adjustments even as it is influenced by energy costs. Many energy projects are capital-intensive and have long development periods. Inflation discourages savings and, thereby, reduces funds available for investment. The relative costs of capital-intensive energy projects are, therefore, increased. Nuclear power plants are particularly vulnerable to capital cost increases caused by inflation.[80] Inflation causes investors to demand higher after-tax returns on investments than the returns they can receive on their investments in energy efficiency.[81] Inflation-laden interest rates discourage the retrofitting of old structures and the construction of new structures, thus discouraging the improvement of the energy efficiency of the nation's building stocks.[82]

*c. Adjustment Requirements.* The United States can improve its aggregate welfare by reducing its reliance on unstable and cartel-priced foreign energy supplies and conventional energy sources. Purchases of foreign energy transfer income away from the domestic economy; much of this in-

75. Under the graduated phase-out scheme, Congress permitted lower-tier oil to convert into upper-tier oil by Oct. 1, 1981. 44 Fed. Reg. 25160 (1979), and removed price controls on upper-tier oil at a rate that would have removed them entirely over a period from Jan. 1980 to Sept. 30, 1981. 44 Fed. Reg. 66186 (1979). As of Nov. 9, 1978, gas ceiling prices on certain categories of gas were permitted to rise at rates faster than the inflation rate. The Natural Gas Policy Act, 15 U.S.C. §§ 3311, 3312(b)(2)(B), 3315(b)(1)(B)(2), 3317(a), 3318(a)(2) (1982).

76. Crude Oil Windfall Profits Tax Act of 1980, Pub. L. No. 96-223, 94 Stat. 229.

77. E. SHAPIRO, *supra* note 8, at 505-08, 538-41; L. THUROW, *supra* note 47, at 43-46.

78. E. SHAPIRO, *supra* note 8, at 505-08, 538-41.

79. *Id.* The general Consumer Price Index (CPI) rose to 293.500 at the end of 1982, but the medical care services portion of the CPI was 373.800. (1967 general CPI = 100). Beginning in July 1967, medical costs have increased at a rate consistently higher than the increase in the general CPI. Bureau of Labor Statistics Consumer Price Index, Citibank Economic Data Base: Citibank files PU, PU852.

80. *See* CONAES STUDY, *supra* note 6, at 263-64.

81. *Bedeviled Economy*, *supra* note 8, at 88-91.

82. *Id.*

come never returns. Not only does the economy lose the nonreturning income, it also loses the multiplier effects the nonreturning income could have on the nation's aggregate income. To avoid income losses the United States must increase its domestic energy production and its domestic energy consumption efficiency. Conventional energy sources are depletable and have increasing cost characteristics. Consequently, the use of conventional energy sources imposes uncertainty and energy cost inflation on the economy. Uncertainty and inflation can be avoided only as rapidly as the United States can make a cost-effective transition from the use of conventional energy sources to the use of near-renewable and renewable energy sources. This transition period may be quite lengthy.[83] Energy consumption efficiency, the emergence of low energy use industries, and the provision of adequate supplies of conventional energy will be important factors determining the United States' growth rate during the transition period.[84]

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83. The CONAES Study, for instance, states:

> The problem is in effecting a socially acceptable and smooth transition from gradually depleting resources of oil and natural gas to technologies whose potentials are now not fully developed or assessed and whose costs are generally unpredictable. This transition involves time for planning and development on a scale of half a century.

CONAES STUDY, *supra* note 6, at 72. *But see* A. LOVINS, SOFT ENERGY PATHS: TOWARD A DURABLE PEACE 45 (1977): "[G]iven aggressive support, the useful output from [soft] technologies would overtake, starting in the 1990's, the output of nuclear electricity shown in even the most sanguine federal estimates . . . ." The term "soft technologies" refers to a combination of wind, geophysical, bioconversion, and solar heat systems. *Id.* A less polar view can be found in Maidigue, *Solar America*, in HARVARD BUSINESS SCHOOL ENERGY PROJECT AT THE HARVARD BUSINESS SCHOOL 183, 213 (R. Stobaugh & D. Yergin eds. 1979) [hereinafter cited as *Solar America*], in which the author claims that with adequate government support, equalling roughly half of what is spent on nuclear power research and development, solar energy can meet about 20% of our energy needs by the year 2000.

84. A wide range of studies has nominated energy efficiency (conservation) as the United States' most important source of energy during the transition from a nonrenewable to a renewable energy economy. CONAES STUDY, *supra* note 6, at 68, states that: "[A]s energy prices rise, the nation will face important losses in economic growth if we do not significantly increase the economy's energy efficiency. *Reducing the growth of energy demand should be accorded the highest priority in national energy policy.*" *Id.* (emphasis added). The final report by the Energy Project of the Ford Foundation stated that: "It is this Project's conclusion that the size and shape of most energy problems are determined in large part by how fast energy consumption grows. . . . [S]lower growth makes many energy-related problems less formidable." FORD ENERGY FUTURE, *supra* note 16, at 11. In K. ARROW, F. BUTOR, K. DAN, R. FRI, E. FRIED, R. GARWIN, S. GOUSE, W. HOGAN, H. LANDSBERG, H. PERRY, G. RUTHJENS, L. RUFF, J. SAWHILL, T. SHELLING, R. STOUBAUGH, T. TAYLOR, G. THOMPSON, J. WHITTENBERGER & M. WOLMAN, ENERGY: THE NEXT TWENTY YEARS 32-33 (1979) [hereinafter cited as TWENTY YEARS] the authors state:

> Over a period of years or decades, energy conservation can become quantitatively the most important energy source of all. . . . [M]ost forecasters expected the United States to be consuming over 90 quads of energy by 1980. It now looks as if 1980 energy consumption will be only about 80 quads, partly because forecasts of economic activity have been lowered and partly because energy is being used more efficiently. But on any reasonable definition, well over half of the difference of 10 quads should be attributed to energy conservation; of the other domestic energy sources, only coal and nuclear have increased significantly since 1971, by about 2 quads each.
>
> Even more dramatically, before the changed perceptions about energy, forecasts of U.S. energy consumption in the year 2000 were generally in the range of 130 to 175 quads, compared to more recent forecasts of 90 to 120

Throughout the energy crises of the 1970s debates raged within the United States concerning the roles that government regulation, taxation, and subsidization should play in conforming the economy to the realities of a high energy cost environment. Until 1978 the debates favored increased government involvement in the marketplace.[85] Since 1978 the nation has been willing to rely more on the marketplace to provide the needed energy adjustments.[86] Throughout this period of controversy energy producing states generally opposed most forms of government interferences in the marketplace, while energy consuming states placed more reliance on market regulation to protect their interests.

The United States' experience with its oil price controls of the 1970s demonstrated that energy price controls are antithetical to the production and consumption adjustments needed for maximizing aggregate welfare. Under the United States' oil price control system price ceilings below world oil prices were imposed on all domestic production. Domestic consumers purchased oil imports at the world price because imports were beyond the United States' regulatory jurisdiction. An oil allocations program was instituted to insulate those most dependent on imported oil

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> quads. . . . [I]f most of the difference of about 30-40 quads is interpreted as the energy "supplied" by conservation, then the increase in conservation over the next twenty years becomes an energy source of the same quantitative importance as coal, petroleum (domestic and imported), or nuclear by the year 2000.

85. This interference is reflected in the energy legislation adopted prior to 1978. This legislation featured (1) price and allocation controls on domestic crude oil and petroleum products, Economic Stabilization Act of 1970, Pub. L. No. 91-379, 84 Stat. 799, *reprinted in* 12 U.S.C. § 1904 note (1982); Emergency Petroleum Allocation Act of 1973, Pub. L. No. 93-159, 87 Stat. 627; Energy Policy and Conservation Act, Pub. L. No. 94-163, § 401(a), 80 Stat. 871, 941 (1975); (2) the creation of energy regulatory agencies, Federal Energy Administration Act of 1974, Pub. L. No. 93-275, 88 Stat. 96; Department of Energy Organization Act, Pub. L. No. 95-91, 91 Stat. 565 (1977); (3) mandatory and discretionary energy conservation standards, Energy Conservation and Production Act, Pub. L. No. 94-385, 90 Stat. 1125, 1144-49, 1150-69 (1976); and (4) forced conversions from oil to coal, Energy Supply and Environmental Coordination Act of 1974, Pub. L. No. 93-319, 88 Stat. 246.

86. The Natural Gas Policy Act of 1978, 15 U.S.C. §§ 3301-3432, 42 U.S.C. § 7255 (1982) began the process of gradually deregulating well-head prices of domestically produced natural gas. On Apr. 5, 1979, President Carter initiated a gradual decontrol of price controls on domestically produced crude oil and petroleum products. *See supra* notes 68-70. President Reagan ended all price controls on domestically produced oil on Jan. 28, 1981. Exec. Order No. 12287, Jan. 28, 1981, 46 Fed. Reg. 9909. The Public Utility Regulatory Policies Act of 1978, Pub. L. No. 95-617, 92 Stat. 3117, encouraged public utilities and utility regulators to set rates more compatible with market oriented cost-of-service pricing.

Mandatory energy conversion and conservation programs and subsidies for energy consumption, conservation, and alternative energy conversion were extended, however. Powerplant and Industrial Fuel Use Act of 1978, Pub. L. No. 95-620, 92 Stat. 3289 (mandatory conversion of large oil and natural gas users to coal or nuclear power); National Energy Conservation Policy Act of 1978, Pub. L. No. 95-619, 92 Stat. 3206 (energy conservation standards and grants); Energy Tax Act of 1978, Pub. L. No. 95-618, 92 Stat. 3174 (tax incentives for energy conservation); Crude Oil Windfall Profits Tax Act of 1980, Pub. L. 96-223, 94 Stat. 229 (redistribution of profits on domestic crude oil production from producers to taxpayers, alternative energy researchers and developers, and low income energy consumers); Energy Security Act of 1980, Pub. L. No. 96-294, 94 Stat. 611 (expanded funding by grants, subsidies, loan guarantees, and purchase guarantees for research, development, and use of alternative energy sources including synthetic fuels, biomass energy, alcohol fuels, solar energy, conservation, and geothermal energy).

from the world oil price.[87] The program equalized domestic consumer prices at a price significantly below the world price by averaging the weighted costs of oil imports and price controlled domestic production.

In an increasing cost industry, where marginal costs are greater than average costs, the adoption of average cost pricing sends price signals that inhibit welfare maximizing production and consumption adjustments. With prices set below marginal costs by the oil allocations program, United States' consumers demanded more oil than they would have demanded had they faced marginal cost prices.[88] This excess demand continually asserted upward cost and supply pressures on oil markets, which fueled energy cost inflation and made oil shortages hard to avoid.[89] The lower average price also discouraged the development of cost-effective alternatives to conventional energy sources. Average cost-pricing kept oil more attractive than other energy alternatives longer than it would have been if it had been priced at its marginal cost.[90]

Average cost pricing also combined with low price ceilings on marginal domestic oil production to exacerbate the nation's oil import income transfer losses. The low price ceilings made the production of new domestic oil supplies, which were needed to replace the depleting domestic supplies of price controlled oil and to cover the excess demands generated by average cost pricing, unprofitable.[91] United States' consumers purchased greater quantities of imported oil to avoid shortages, thereby driving world oil prices upward and transferring more U.S. income to foreign nations.[92]

Energy price deregulation would avoid the problems inherent in average cost pricing. An agreement to deregulate energy prices, however, does not necessarily include an agreement as to the beneficiary of the higher profits deregulated energy prices generate. Some commentators contend that energy subsidies, financed by energy windfall profits taxes, are needed to promote a timely introduction of cost-effective alternatives to conventional energy sources and to induce energy consumers to make efficient investments in energy and use alternative energy sources.[93] The tax and subsidy proponents fear that energy producers and mineral owners will not use their profits to develop new energy supplies from conventional or renewable energy sources. Other commentators fear that energy producers and mineral owners will not use their profits for any kind of energy develop-

87. For a detailed discussion of the U.S. Crude Oil Entitlements Program, see Burt & Watts-FitzGerald, *The Crude Oil Entitlements Program*, in THE PETROLEUM REGULATION HANDBOOK 146 (J. Bell ed. 1980) [hereinafter cited as *Entitlements Program*].

88. E. DOLAN, *supra* note 29, at 367-69.

89. M. & R. FRIEDMAN, *supra* note 65, at 218-20.

90. A. LOVINS, *supra* note 83, 19-20; Roberts & Stewart, *Energy and the Environment*, in SETTING NATIONAL PRIORITIES: THE NEXT TEN YEARS 411, 430-32 (H. Owen & C. Schultze eds. 1976).

91. E. DOLAN, *supra* note 29, at 367-69.

92. L. THUROW, *supra* note 47, at 31-33; *Twenty Years*, *supra* note 84, at 22-23.

93. CONAES STUDY, supra note 5, at 21, 43-45; *Conservation Energy Key*, *supra* note 16, at 141, 162, 172-73; *Solar America*, *supra* note 83, at 212-15; TWENTY YEARS, *supra* note 84, at 117-19, 139-42.

ment, but will invest them in a variety of nonenergy ventures instead.[94] Some parties believe that large energy companies will engage in alternative energy development, but will delay the introduction of new energy sources until their stocks of conventional energy sources have been sold at high scarcity prices.[95] Finally, pointing to the bias of United States' business managers, corporate stockholders, and capital markets against capital-intensive projects with long development times, others are afraid that even if large energy companies undertake alternative energy development in good faith, they will do so too late for the nation to make an orderly transition from conventional energy supplies to the energy sources of the future.[96]

Energy consumption subsidies have been proposed and defended on grounds that market imperfections are preventing energy consumers from making efficient energy consumption decisions. Many good consumer investments in alternative energy sources and energy conservation require more upfront capital and longer payback times than energy users are used to confronting.[97] Energy consumers, especially small business and residential consumers, have less access to capital and energy investment information and shorter investment time horizons than do energy producers.[98] In addition, investments in alternative energy sources and energy conservation appear riskier than other types of energy related purchases because the markets providing such products and services have not yet established suppliers with the size, name recognition, and service creditability required to inspire consumer confidence.[99] Proponents say that energy consumption subsidies are needed to overcome energy consumers' reluctance to invest in alternative energy sources and energy conservation. Subsidies provide access to needed capital, shorten payback periods, and encourage the undertaking of investments that appear to be associated with higher than usual performance risks.[100] Subsidy proponents contend that the markets for alternative energy sources and energy conservation mechanisms will become organized and strong enough to achieve an efficient level of consumer sales without the aid of subsidies as the alternatives gain popularity with consumers.[101]

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94. S. REP. No. 444, 96th Cong., 1st Sess. 36-43 (1979); STAFF OF SENATE SUBCOMM. ON OVERSIGHT AND INVESTIGATIONS OF SENATE COMM. ON ENERGY AND COMMERCE, MERGERS AND ACQUISITIONS OF THE TOP 20 OIL COMPANIES 1978-81, 97TH CONG., 2D SESS. 1-19 (Comm. Print 1982).

95. *The Public Energy Competition Act: Hearings on H.R. 8 Before the Subcomm. on Energy and the Environment of the House Comm. on Interior and Insular Affairs*, 96th Cong., 1st Sess. 49, 57-63 (1979) (statement of Alfred F. Dougherty, Jr., Director of Bureau of Competition, FTC).

96. H.R. REP. No. 165, 96th Cong., 1st Sess 3-11 (1979), *reprinted in* 1980 U.S CODE CONG. & AD. NEWS 2021, 2023-31.

97. CONAES STUDY, *supra* note 6, at 353-54; *Conservation Energy Key*, *supra* note 16, at 172-74; *Solar America*, *supra* note 83, at 191-93.

98. *Solar America*, *supra* note 83, at 191-93.

99. *Id.* at 194.

100. *Id.* at 191-97, 212-13.

101. *Id.* at 196.

Opponents of energy windfall profits taxes fear that the government will use the energy tax revenues for nonenergy related purposes, such as bail-outs of endangered entitlements programs and financing of runaway defense spending.[102] Oil producers claim that they can make better use of energy profits than can the government because producers will use the profits to defer the high capital costs of energy development and to revitalize other industries that need new capital infusions to withstand changing economic conditions.[103] To the extent that the windfall profits tax applies to marginal energy sources, it reduces domestic production that could substitute for imported oil.[104] Conventional energy producers think that it is unfair for the government to tax their revenues at rates higher than those applicable to other industries in order to subsidize their prospective competitors.[105] The unfairness is increased if the subsidies cause consumers to purchase energy alternatives or to pursue conservation options with true costs in excess of the costs of conventional energy supplies.[106] Finally, subsidy opponents believe that, even with all its imperfections, the free market works better than a regulated or subsidized market in helping the nation realize its energy goals.[107] In support of their free market beliefs, subsidy opponents can claim that the adjustment progress since the initiation of deregulation in many ways has been more impressive than the adjustments achieved from 1973 to 1978 as a result of government taxes, subsidies, price controls, and usage regulations.[108]

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102. Indeed, the Crude Oil Windfall Profits Tax Act reserves only 15% of its revenues for energy and transportation spending programs. The remaining 85% of the revenues is reserved for transfer payments to lower income energy consumers (25%) and to provide general taxpayers relief (60%) from the expense of other government programs. Crude Oil Windfall Profits Tax Act, § 102(b)(1), 31 U.S.C. § 555(b)(1) (Supp. V 1981); *see* S. REP. NO. 394, 96th Cong., 1st Sess. 135 (1979) (views of Sens. Ribicoff, Nelson, Moynihan, Baucus, Bradley, Packwood, Roth, Danforth, Chafee, Heinz & Durenberger); *Id.* at 166 (views of Sen. Dole); *Id.* at 171 (views of Sen. Roth); H.R. REP. NO. 304, 96th Cong., 1st Sess. 78 (1979) (minority views of Reps. Conable, Duncan, Archer, Vander Jagt, P. Crane, Frenzel, Martin, Bafalis, Schulze, Gradison, Rousselot & Moore).

103. *See* S. REP. NO. 394, 96th Cong., 1st Sess. 150-52 (1979) (views of Sen. Gravel); *Id.* at 138 (views of Sen. Bentsen); H.R. REP. NO. 304, 96th Cong., 1st Sess. 73 (1979) (views of Reps. J. Jones & Moore); *see also* Horwitch, *Coal: Constrained Abundance*, in ENERGY FUTURE: REPORT OF THE ENERGY PROJECT AT THE HARVARD BUSINESS SCHOOL 79, 99 (R. Stobaugh & D. Yergin eds. 1979) [hereinafter cited as *Constrained Coal*] (reporting that coal industry has been made stronger and more competitive by entry of oil companies).

104. S. REP. NO. 394, 96th Cong., 1st Sess. 154-55 (1979) (views of Sen. Gravel); *Id.* at 175-76 (views of Sens. Boren & Wallop); *Id.* at 167-68 (views of Sen. Dole).

105. *See* S. REP. NO. 394, 96th Cong., 1st Sess. 156, 158 (1975) (views of Sen. Gravel); *Id.* at 169 (views of Sen. Dole).

106. *Id.* at 158 (views of Sen. Gravel); *Id.* at 169 (views of Sen. Dole).

107. U.S. DEP'T OF ENERGY, PUB. NO. DOE/S-0008, SERVING AMERICA'S ENERGY FUTURE: THE NATIONAL ENERGY POLICY PLAN—A REPORT TO CONGRESS REQUIRED BY TITLE VIII OF THE DEPARTMENT OF ENERGY ORGANIZATION ACT (PUBLIC LAW 95-91) 2, 8, 9 (1981) [hereinafter cited as REAGAN ENERGY PLAN]; S. REP. NO. 394, 96th Cong., 1st Sess. 169 (1979) (views of Sen. Dole).

108. For example, U.S. energy consumption at the end of 1981 was the same as it was in 1973, 35.1 mb/doe. Energy consumption, however, rose from 35.1 in 1973 to 37.2 in 1979. Energy consumption declined to 35.1 after 1979. Energy use as a ratio of mm Btu to GNP declined from 59.5 to 49.3 from 1973 to 1981. The decline from 1973 to 1978 was 59.5 to 54.4, and from 1979 to 1981 the ratio declined 54.4 to 49.3. Petroleum as a percentage of

*d. Stability Concerns*. World oil markets have suffered greatly from the instability caused by the OPEC cartel and the political turmoil in the Middle East. Some energy commentators contend that this instability retards the energy supply and demand adjustments the United States must make to prosper in a high-cost energy future.[109] The supply side concern is that domestic energy supplies, conventional and alternative, may not expand rapidly enough to accommodate a desired level of economic growth unless the United States develops conservation mechanisms and energy supplies that may not be profitable if OPEC cannot maintain its monopoly oil prices.[110] The demand side concern involves United States' energy consumers, who slow their energy efficiency and alternative energy conversion efforts whenever OPEC moderates its oil price increases.[111]

The impacts of the recent drop in world oil prices illustrate these concerns. The lower world oil prices made the near-term development of marginal United States' oil and gas supplies unprofitable, thereby creating economic chaos in the domestic petroleum industry and causing cutbacks in domestic exploration and production activities.[112] The Reagan administration made cuts in alternative energy research and development programs and proposed the elimination of energy conservation and conversion subsidies and tax credits.[113] There has been a considerable structural change in United States' energy consumption patterns since 1973, but U.S. energy consumers are becoming less concerned with energy conservation. This phenomenon is illustrated by the recent increase in sales of larger and less fuel-efficient automobiles.[114]

Those concerned about the instability of the world oil market contend that the use of imported oil imposes uncertainty and political and national defense costs on the nation. These costs have been borne by the general public, rather than by the specific oil users whose energy consumption habits create the nation's need for oil imports.[115] Potential energy supply

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total energy consumption rose from 46% to 48.6% from 1974 to 1978. This percentage declined to 44.9% in 1980 and 43.2% in 1981. The phased decontrol of oil did not start until June 1, 1979, while the phased decontrol of natural gas was initiated in Nov. 1978. TWENTY YEARS, *supra* note 84, at 32-33; *Bedeviled Economy*, *supra* note 8, at 69.

109. *See Crisis and Adjustment*, *supra* note 8, at 26-28; *infra* note 115 and accompanying text.

110. *See* FORD ENERGY FUTURE, *supra* note 16, at 7; *Crisis and Adjustment*, *supra* note 8, at 16-17; Roberts & Stewart, *supra* note 90, at 419.

111. *Crisis and Adjustment*, *supra* note 8, at 16-17.

112. Domestic rotary rig count dropped from an all-time high of 4520 in Dec. 1981, to 1,842 at the end of the 1st quarter of 1983. In fact, throughout the first quarter of 1983, rig counts were down over 40% from the same month the previous year. Other statistics were more favorable in 1982. Wells drilled reached an all-time high of 85,855. Oil completions were up 7.1%, and gas well completions increased 6.1%. Footage drilled increased by 9.7%. These statistics, however, were on the decline in 1983. ENERGY INFORMATION ADMINISTRATION, MONTHLY ENERGY REVIEW, PT. 5: OIL AND GAS RESOURCE DEVELOPMENT (Feb. 1982); *Id.* (Feb.-Apr. 1983).

113. REAGAN ENERGY PLAN, *supra* note 107, at 2, 8, 9, 12; *America in Stringency*, *supra* note 18, at 111-13; *see supra* note 13.

114. *See* Wall St. J., Feb. 7, 1983, at 8, col. 1.

115. The costs include increased inflation, balance of payments deficits, future increases in oil import prices, costs of oil supply interruptions, costs of reducing oil supply interrup-

shocks inherent in the Middle East political turmoil make business investment significantly more risky now than it was before the nation developed its oil import dependency.[116] The previous oil shocks, with their negative effects on employment, inflation, and economic growth, contributed to political and social dislocation in the western democracies most dependent on stable supplies of reasonably priced oil and natural gas.[117] To balance domestic responses to world oil market instability, to reduce the nation's vulnerability to energy price shocks in the shortest possible time, and to collect compensation from oil users for the costs their oil consumption imposes on the economy, some energy commentators advocate putting a surcharge on all oil imports.[118] They further recommend increasing federal outlays and tax credits that support energy research, alternative energy conversion, and energy conservation.[119] Adding a variable surcharge to the price of imported oil presents domestic oil users with price signals consistent with long-term oil cost trends.

In the last decade the real cost of oil rose steeply, but not smoothly.[120] Most of the increase came in two huge discrete price shocks.[121] Future oil price trends may follow a similarly jagged path. Commentators argue, therefore, that an oil import surcharge based on long-term oil consumption cost trends could moderate consumer reactions to world oil price fluctuations by confronting them with a smoother oil consumption cost curve

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tions, oil stockpiling, reductions in the GNP attributable to nonrecycled petro-dollars paid to foreign oil exporting countries, and risks of social and political turmoil. Hogan, *Import Management and Oil Emergencies*, in ENERGY AND SECURITY: A REPORT OF HARVARD'S ENERGY AND SECURITY RESEARCH PROJECT 264-279 (D. Deese & J. Nye eds. 1981); *see* CONAES STUDY, *supra* note 6, at 524; TWENTY YEARS, *supra* note 84, at 16-17; *America in Stringency*, *supra* note 18, at 123; *Import Threat*, *supra* note 6, at 47-54; Roberts & Stewart, *supra* note 90, at 431-32.

116. *See America in Stringency*, *supra* note 18, at 136; *Bedeviled Economy*, *supra* note 8, at 66-68, 90-91; *Crisis and Adjustment*, *supra* note 8, at 16.

117. *America in Stringency*, *supra* note 18, at 131; *Crisis and Adjustment*, *supra* note 8, at 18-19. Indeed, the United States has declared the Arabian-Persian Gulf area vital to its national security. This declaration, known as the Carter Doctrine, states:

> Let our position be absolutely clear: An attempt by any outside force to gain control of the Persian Gulf region will be regarded as an assault on the vital interests of the United States of America, and such an assault will be repelled by any means necessary, including military force.

President Carter's State of the Union Address, 16 WEEKLY COMP. PRES. DOC. 194, 197 (Jan. 23, 1980). The United States is backing the Carter Doctrine by spending billions of dollars to develop the capacity for fighting a defensive war in the Middle East and to provide massive amounts of foreign military aid to our Middle East allies. In President Reagan's 1983 budget request, submitted to Congress in Jan. 1982, $4 billion dollars were requested to support the Rapid Development Force, a military unit comprised of personnel from all the armed services and charged with the responsibility of holding a defensive line in the Middle East if an outside force invades that area. *America in Stringency*, *supra* note 18, at 112.

118. *See Import Management*, *supra* note 115, at 274-77; *Import Threat*, *supra* note 6, at 54.

119. *See Import Management*, *supra* note 115, at 270; *Import Threat*, *supra* note 6, at 54.

120. *Crisis and Adjustment*, *supra* note 8, at 15, 26; *Bedeviled Economy*, *supra* note 8, at 84-85, 91.

121. *Crisis and Adjustment*, *supra* note 8, at 15, 26.

than the one they confronted in the 1970s.[122] The surcharge advocates further argue that a smoother domestic oil consumption cost curve would: (1) reduce much of the uncertainty inhibiting the investment plans of United States' energy consumers and business investors; and (2) provide the domestic marginal energy projects the nation needs to reduce its vulnerability to future energy supply shocks with economic protection from temporary downturns in world oil prices caused by OPEC's difficulty in maintaining its cartel price.[123]

Consumers most reliant on oil to meet their energy needs resist the oil import surcharge. The surcharge could increase the energy costs of dependent oil consumers significantly over the costs to consumers able to use other energy sources.[124] The heaviest users of imported oil, consumers in the northeastern states, strongly oppose the surcharge because it will further increase the gap between their energy costs and those of regions with good alternatives to oil.[125] Some economists also view the surcharge as an unjust subsidy of domestic energy producers that could further improve the economic fortunes of energy producing states at the expense of nonproducing states.[126]

The advocates of increased federal support for energy research, alternative energy conversions, and energy conservation believe future oil shocks inevitable. Furthermore, unless current market forces are strengthened by enhanced federal energy programs, the shocks will occur before the United States' economy develops cost-effective alternatives to imported oil and realizes its maximum energy conservation potential.[127] Enhanced federal energy programs, when viewed in this manner, are public goods vital to the nation's economic and security interests.[128] Enhanced federal energy subsidy programs may not be beneficial, however, if political and eco-

122. *See Import Management*, *supra* note 115, at 274-77; *Import Threat*, *supra* note 6, at 54.

123. *See Import Management*, *supra* note 115, at 274-77; *Import Threat*, *supra* note 6, at 54.

124. *Oil Import Fee: Its Energy Policy Implications and Consumer Impacts, Hearings before a Subcomm. of the House Comm. on Gov't Operations*, 97th Cong., 2d Sess. 2 (1982) (statement of Rep. Moffet); *Id.* at 7 (interchange between Rep. Gregg and Rep. Conte); *Id.* at 8-9 (statement of Rep. Kennelly); *Id.* at 69 (statement of Steve Sweeney, Senior Vice President, Boston Edison Co.); *Id.* at 94 (statement of H. Field, Policy Analyst, Office of Competition, United States Department of Energy).

125. *Id.* at 2 (statement of Rep. Moffett).

126. *Id.*; *Id.* at 11 (statement of Dr. M. Cooper, Director of Research, Consumer Energy Council). A summary of the pros and cons of an oil import fee is provided in Field, *An Exegesis on New Oil Taxes*, in *Oil Import Fee: Its Energy Policy Implications and Consumer Impacts, Hearings Before a Subcomm. of the House Comm. on Gov't Operations*, 97th Cong., 2d Sess. 79, 92-94 (1982).

127. *See America in Stringency*, *supra* note 17, at 109-13; *Bedeviled Economy*, *supra* note 8, at 50-51; *Crisis and Adjustment*, *supra* note 8, at 15-17.

128. Public goods and services have special properties in that they cannot be provided to one citizen without being provided to that person's neighbors. Once goods and services are provided to one citizen they can be provided to others at little or no additional costs. These properties make it difficult for private firms to supply public goods and services at a profit because people have the incentive to become free riders and hold out paying their shares of the costs in hopes that others will make up the difference, thereby allowing them to enjoy public benefits at zero costs. E. DOLAN, *supra* note 29, at 105.

nomic changes have stabilized world oil markets by ending OPEC's ability to maintain cartel prices.[129] Under these conditions the world oil market may remain stable long enough for the United States to make an adequate adjustment to future energy realities without the need for market enhancing federal energy programs.[130]

*2. Redistribution Methods*

Once politicians decide to redistribute energy profits, they must choose a method to carry out the redistribution. The choice of a redistribution method determines how consistent the redistribution will be with national energy policies and distributional goals. The most common redistribution mechanisms in the energy industry have been price controls and windfall profits taxes.

*a. Price Controls*. Price controls are usually adopted when the goal is to give all energy revenue transfers to energy consumers.[131] Price controls accomplish distributional goals by establishing price ceilings that are lower for low-cost inframarginal production than for high-cost marginal production. The controls prevent any source of the price controlled product from commanding a price high enough to generate windfall profits and provide energy consumers with an average cost price below the long-run market clearing price.[132] Price controls are especially compelling in times of crises, which put extraordinary upward pressures on the prices of important resources. During such times, price controls prevent profiteering and give consumers a fair chance to make the adjustments essential to their long-run survival.

Price controls reduce aggregate welfare, however. At prices below the market clearing price, consumer demands are consistently higher than the quantities producers are willing to supply.[133] This gap between demand

129. For instance, John Lichtblau, President, Petroleum Industry Research Foundation Inc., stated:

> World demand for OPEC oil won't be close to the organization's productive capacity because of structural changes brought about by two previous OPEC price shocks and the shift away from energy intensive industry.
>
> It is therefore time to revise the view, still widely held that the present situation is but a brief hiatus in the trend of rapidly rising real oil prices which began in 1973 . . . .
>
> The 1980's are likely to be quite different from the 1970's.

*Lichtblau: Market Won't Justify Higher Oil Prices*, 81 OIL & GAS J. 42, 42 (1983).

130. REAGAN ENERGY PLAN, *supra* note 107, at 2, 11-12.

131. H.R. REP. NO. 340, 94th Cong., 1st Sess. 1, 5-9, 38-39, 316, *reprinted in* 1975 U.S. CODE CONG. & AD. NEWS 1762-63, 1767-71, 1800-01, 1953 (supplemental views of Reps. Adams, Eckhardt, Maguire, Moffett & Ottinger).

132. The long-run market clearing price is the price at which consumer demand equals producer supply in a free market. *Id.* at 40-41, 186, *reprinted in* U.S. CODE CONG. & AD. NEWS 1802-03, 1917; H. CONF. REP. NO. 628, 93d Cong., 1st Sess. 26, *reprinted in* U.S. CODE CONG. & AD. NEWS 2702-03 (1973); *see* Consumers Union of the U.S., Inc. v. Sawhill, 512 F.2d 1112, 1120-28 (Temp. Emer. Ct. App. 1975) (Tamm, C.J., dissenting in part, concurring in part).

133. *See* E. DOLAN, *supra* note 29, at 367-68.

and supply produces shortages, unless the price controls set price ceilings on marginal energy sources at high enough levels to make profitable the production of some energy supplies that could not be produced profitably at either the average consumer price or the free market long-run market clearing price.[134] When price controls do not create shortages they may produce energy supplies with production costs in excess of market values. Shortages tend to produce rationing systems that allocate some energy supplies to consumers who value them less than their production costs at the expense of others who value them more and would willing pay a greater price than their production costs.

If price controls do not apply to all sources of the price controlled product and its close substitutes, they may: (1) subject consumers to consumption costs higher than those that would prevail in the absence of price controls; and (2) redistribute revenues from the inframarginal producers of the price controlled products to the inframarginal producers of the exempt products who get their products to market before the average consumption price equals the market clearing price. In such cases the price controls do not protect any consumers unless they encompass a cross-subsidy scheme that charges some consumers higher-than-average prices in order to provide favored consumers with below-average prices.

Unintended results may occur if price controls are applied to different sources of the same product. Natural gas controls illustrate an unequally applied price control system. Price controls are currently most severe on old gas supplies and have been removed from new high-cost gas supplies. Meanwhile, consumers purchase gas at a delivered price that represents the weighted average of all gas purchased by natural gas pipelines. Producers have devoted most of their production capital to the development of high-cost gas supplies since these supplies are exempt from price controls.[135] Lower cost, price controlled supplies, therefore, have not been as extensively developed as they otherwise would have been.[136] Consequently, gas pipelines have been forced to purchase high-cost gas as a hedge against future gas shortages. With their delivered prices calculated on a weighted average basis and cushioned by inventories of previously acquired, price controlled gas, pipelines have bid for high-cost supplies at prices significantly above the price at which consumers would switch from natural gas to alternative fuels.[137] The end result has been that delivered consumer prices have shot up to levels above what they might be in a totally deregulated market. Consumers have lost their price control protec-

134. *Id.*; FOSTER ASSOCIATES, INC., TRANSITION TO DECONTROL: AN ANALYSIS OF "FLY UP" 5 (1980) [hereinafter cited as FLY UP ANALYSIS]; M. & R. FRIEDMAN, *supra* note 65, at 219; M. MEANS, A PRELIMINARY ANALYSIS OF THE NATURAL GAS MARKET-ORDERING PROBLEM 2, 3, 39-45 (1981) (Policy Study 15, Center for Energy Studies, University of Texas—Austin).

135. M. MEANS, *supra* note 134, at 36; *see also* H.R. REP. NO. 340, 94th Cong., 1st Sess. 319, *reprinted in* 1975 U.S. CODE CONG. & AD. NEWS 1762, 1955 (arguing against price rollbacks on new domestic oil).

136. M. MEANS, *supra* note 134, at 36.

137. *See* FLY UP ANALYSIS, *supra* note 134, at 5, 6; M. MEANS, *supra* note 134, at 38-41.

tion because its advantages have been shifted to producers of high-cost gas supplies.[138]

When a product is subjected to price controls its single, market-determined, marginal cost price is replaced by a multitiered price schedule reflecting the variance of production costs among the product's producers and sources of supply. Unless an administrative allocation system is created to produce a single average consumer price for the price controlled product, consumers will be confronted with multiple prices for the same product and the lack of a system for allocating the benefits of the low-priced supplies and the burdens of the high-priced supplies. Each consumer, organized group, state, and region, therefore, will attempt to use political power to acquire more than a pro rata share of the low-priced supplies. The political confrontation of competing consumers eventually will provoke the establishment of an administrative allocation system. That system may serve the purpose of equalizing consumer costs, as did the oil entitlements program,[139] or it may serve the purpose of benefitting politically favored consumers through cross-subsidy pricing schemes and rationing programs. Such programs forbid specified consumers from using the price controlled products. The natural gas allocation system, established by the combined effects of the Natural Gas Act, the Natural Gas Policy Act, and the Powerplant and Industrial Fuel Use Act is an example of such a program.[140] An allocation system adds another layer of bureau-

138. M. MEANS, *supra* note 134, at 38-41.

139. The entitlements program established a cost equalization program that required refineries and marketers with access to larger-than-average quantities of low-cost crude oil or petroleum products to purchase entitlements from refineries and marketers who had access to less-than-average quantities of low-cost crude oil and petroleum products. The desired result was to produce an allocation of refining and marketing costs similar to the cost structure that would arise if all refiners and marketers had equal access to low-cost crude oil and petroleum products. *See Entitlements Program*, *supra* note 87, *passim*.

140. Allocations of natural gas are determined initially by contracts between producers and pipelines and by contracts between pipelines, distributors, and end users. End users served by gas flowing in interstate commerce are subject to different pricing and allocation policies than are end users of intrastate gas. Furthermore, within the interstate pipeline system an individual user's delivered price and risks of curtailment are largely a function of the contracting ability of individual pipeline companies. End users of interstate gas are subject to incremental pricing rules of the Natural Gas Policy Act §§ 201-207, 15 U.S.C. §§ 3341-3347 (1982). The NGPA incremental pricing rules require large industrial boiler fuel end users to bear a greater than pro rata share of the higher gas acquisition costs arising from the NGPA's gradual well-head price deregulation system. When they work as intended the NGPA incremental pricing rules effectively allocate a larger than average share of the NGPA high-cost gas to large industrial boiler fuel end users.

Interstate natural gas end users are also subject to NGPA curtailment policies that favor certain end users over others. The NGPA curtailment policy basically requires curtailment of lower priority uses before cutbacks can be made to higher priority users. A pipeline experiencing shortages will not be able to receive involuntary allocations of gas from other pipelines until it has curtailed all lower priority users and still cannot meet the needs of its highest priority users. Natural Gas Policy Act §§ 303, 401, 402, 15 U.S.C. §§ 3363, 3391, 3392 (1982).

Finally, the Powerplant and Industrial Fuel Use Act has severely limited certain users' access to natural gas supplies. New electric power plant and major fuel-burning installations are prohibited from using natural gas, unless they are exempted for environmental, technical, or economic reasons. Powerplant and Industrial Fuel Use Act §§ 103(a)(7)-(8),

cracy and transaction costs to the costs already inflicted on the market by price controls.

*b. Windfall Profits Tax.* When energy profits are redistributed by windfall profits taxes, the beneficiaries of the redistribution are the beneficiaries of the government's use of the windfall profits tax revenues. The beneficiaries may not be confined to energy consumers and energy producers, as is the case when windfall profits are redistributed by price controls.

Windfall profits taxes do not distort energy markets if: (1) they are accurate; (2) they apply equally to all competitive energy sources; and (3) they produce benefits that enhance the beneficiary's income generally, or subsidize the production or consumption of a specific energy source as part of a plan to help the energy market overcome imperfections that reduce its efficiency. Accurate windfall profits taxes tax away only nonfunctional economic profits and leave producers with after-tax revenues sufficient to give them the incentive to produce any marginal unit of energy for which there is a consumer demand. An accurate windfall profits tax, therefore, does not affect the industry's aggregate supply curve.

A windfall profits tax that applies unequally to competitive energy sources gives only producers of exempt energy products opportunities to earn economic profits. Unequal tax treatment stimulates more production of the exempt energy products and less production of the taxed energy products, than would occur if all energy sources competed equally. When faced with reductions in the supplies of the taxed energy products, some energy consumers will purchase lower-valued exempt products, thereby reducing aggregate welfare. In attempting to purchase exempt energy products, however, energy consumers will be unable to make the ultracompetitive bids they would make under a noncomprehensive price control system. Since consumers will face marginal cost energy prices, they will not have cost cushions provided by inventories of low-cost, price controlled products with which to subsidize ultracompetitive bids.[141]

Using windfall profits taxes to redistribute profits merely transfers income from a group of taxpayers to a group of government beneficiaries. The transfers alone do not impose measurable welfare losses on the economy, except the transaction costs of the taxation and distribution mechanisms. No one can determine whether the taxpayers or the tax beneficiaries value the transferred income more.[142]

If the tax benefits increase the beneficiaries' personal incomes without attaching strings to their expenditures, the beneficiaries will purchase only

(10)-(11), 201, 202, 211-214, 42 U.S.C. §§ 8302(a)(7)-(8), (10)-(11), 8311, 8312, 8321-8324 (Supp. V 1981). Existing electric power plants and major fuel-burning installations may be prohibited from using natural gas if it is environmentally, technically, and economically feasible for them to use alternative fuels. *Id.* §§ 301, 302, 311-314, 42 U.S.C. §§ 8341-8342, 8351-8354 (Supp. V 1981).

141. M. MEANS, *supra* note 134, at 38-41.

142. *See supra* notes 45 & 46 and accompanying text.

products with consumer values at least equal to costs of production.[143] These purchases improve the nation's aggregate welfare. Aggregate welfare may be lessened, however, if the government beneficiaries receive their benefits in the form of energy production and consumption subsidies. Energy production and consumption subsidies open a gap between consumer values and producer costs. Production subsidies open the gap by enabling their recipients to offer consumer products at prices below their true costs of production. Consumption subsidies enable consumers to acquire products at prices below their production costs. In either case the gap between value and cost may diminish aggregate welfare by causing the economy to produce products with lower consumer values than production costs.

If the government applies subsidies unequally among competitive products, the competitive balance will change and favor the more heavily subsidized products over the less heavily subsidized products. This change in competitive balance may reduce aggregate welfare by causing consumers to demand less-valued products than the lower cost products they purchase in the absence of subsidies. When there are imperfections in the market supplying the subsidized products, production and consumption subsidies may promote efficiency through alteration of an inefficient competitive balance. This alteration may enable all products to compete on the basis of their merits and not on the favors and handicaps conferred by a flawed market.[144] Windfall profits tax revenues may also stimulate the rapid introduction of new energy supplies that might be needed to forestall economic dislocations in times of international energy crises.

### *3. Summary*

Price controls and windfall profits taxes redistribute profits to different beneficiaries. Consumers are the intended beneficiaries of price controls, but sometimes producers of exempt products that are substitutes for the price controlled products may benefit more than consumers. Windfall profits taxes benefit the beneficiaries of the government programs that are financed by windfall profits tax revenues.

Price controls are a more distortive redistribution mechanism than the windfall profits tax mechanism. Price controls replace market-determined prices with administratively determined prices, which reduce aggregate welfare by setting consumer prices below producers' marginal costs. This intentional gap between prices and marginal costs causes the production of some units at costs in excess of the units' value to consumers. Administratively determined prices also abrogate the allocation function performed by the single marginal cost price the market establishes for each product

143. *See* S. REP. NO. 394, 96th Cong., 1st Sess. 172, *reprinted in* 1980 U.S. CODE CONG. & AD. NEWS 574 (additional views of Sen. Danforth).

144. *See supra* notes 97-101 and accompanying text.

and thereby creates the need for a companion administrative allocation system.

Windfall profits taxes allow the market to set a single marginal cost price for every product. By preserving the market's price-fixing function, windfall profits taxes avoid the need for a companion administrative allocation system and, unless they are used to finance production and consumption subsidies, the creation of the consumer value/production cost gap, which reduces aggregate welfare. Windfall profits taxes are more compatible than price controls with the nation's long-term energy adjustment requirements. Price controls are useful instruments of national energy adjustment goals in the short run only. The controls can temporarily insulate consumers from energy price shocks when more time is needed to adjust to high-cost energy realities. By leaving the market's price setting function intact, windfall profits taxes preserve the confrontation between consumers and the marginal costs of consumers' energy consumption that is so vital to the nation's long-run energy adjustment goals. Windfall profits taxes also generate revenues that can be used to cushion short-term energy shocks and speed up long-run energy adjustments through government research and development programs, production subsidies, and consumption subsidies.

### *D. Allocating Externalities*

Economists define externalities as the costs or benefits generated by market transactions that the market fails to allocate to the direct participants in the activity.[145] The classic example of external costs is the pollution damage suffered by other parties than the participants in pollution-creating activities. An example of external benefits is the view enjoyed by persons other than the cultivators of beautiful gardens in front yards. Economic events that produce large externalities inflict inefficiencies on the market. When external costs arise from production and consumption decision-making, producers and consumers do not face the full marginal social costs that their activities create. More than an efficient amount of externality creating goods and services will be produced and consumed.[146] Conversely, when producers and consumers do not receive all the benefits their activities generate, they will fail to produce and consume an efficient amount of goods and services.[147]

#### *1. Causation Factors*

Externalities are created whenever direct participants in market activities proceed without adequately considering the impacts their decisions

145. S. LITTLECHILD, THE FALLACY OF THE MIXED ECONOMY: AN "AUSTRIAN" CRITIQUE OF CONVENTIONAL ECONOMICS AND GOVERNMENT POLICY 57 (1979); R. POSNER, ECONOMIC ANALYSIS OF LAW 52 (2d ed. 1978); P. SAMUELSON, *supra* note 29, at 465-66; Russell, *Externality, Conflict and Decision*, 70 RESOURCES FOR THE FUTURE 11-13 (1982).

146. P. SAMUELSON, *supra* note 29, at 469.

147. *Id.*

will have on nonparticipants. Society tolerates externality creation when the transaction costs of identifying affected nonparticipants, establishing rights of participation, providing notice of the rights and need to participate, providing for exercising participatory rights, computing costs or benefits, and providing compensation or extracting payments are prohibitive.[148] Transaction costs can be prohibitive when (1) the causative links between market activities and social costs or benefits are difficult to establish,[149] (2) the affected parties are numerous or widely dispersed,[150] (3) individual or societal costs and benefits are hard to calculate accurately,[151] or (4) the political power of affected nonparticipants is weak in comparison with the power of market participants.[152]

### 2. *Allocation Factors*

Virtually all economists regard externality creation as a market failure that, in theory, justifies government intervention in market activities.[153] The purpose of the intervention is to force consideration of all the social costs and benefits into production and consumption decisionmaking. This consideration assures the undertaking of production and consumption activities that generate as many social benefits as social costs.

In practice, government efforts to internalize externalities into market activities can produce more inefficiencies than would occur without government intervention. Economists call this phenomenon regulatory fail-

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148. *Id.* at 465.

149. For many years asbestos manufacturers and consumers were not required to consider the costs of treating or preventing the illnesses asbestos exposure creates, because medical science had not discovered a causal link between illness and asbestos exposure. L. THUROW, *supra* note 47, at 124. In the recent case of Metropolitan Edison Co. v. People Against Nuclear Energy, 103 S. Ct. 1556, 75 L. Ed. 2d 534 (1983), the court held that the Nuclear Regulatory Commission is not required under the National Environmental Policy Act to consider psychological health damage that might occur to residents near Three Mile Island nuclear plants upon the restarting of one of the plants. The residents' concerns about the risks of another nuclear accident did not enter into the decision. In reaching this result Justice Rehnquist stated for a unanimous Court:

> [A] *risk* of an accident is not an effect on the physical environment. A risk is, by definition, unrealized in the physical world. In a causal chain from renewed operation of [the plant] to psychological health damage, the element of risk and its perception by PANE's members are necessary middle links. We believe that the element of risk lengthens the causal chain beyond the reach of NEPA.

*Id.* at 1561-62, 75 L. Ed. 2d at 543 (emphasis in original).

150. When affected parties are numerous and widely dispersed it is difficult to negotiate settlements with them all, and the costs each party suffers are often too small to provide the incentive to seek compensation or abatement of the externality creating activity. R. POSNER, *supra* note 145, at 44-48; *see* S. LITTLECHILD, *supra* note 145, at 58.

151. Whether external costs and benefits can ever be calculated accurately is questionable, especially since many costs and benefits concern questions of life, health, and aesthetics, which cannot be reduced to market prices for comparative or compensatory purposes. E. DOLAN, *supra* note 29, at 349-50; Tribe, *Policy Science: Analysis or Ideology*, 2 PHIL. & PUB. AFF. 66, 96-97 (1972).

152. *See* L. THUROW, *supra* note 47, at 105; Russell, *supra* note 145, at 11-13.

153. M. & R. FRIEDMAN, *supra* note 65, at 31-32, 214; S. LITTLECHILD, *supra* note 145, at 57-64; L. THUROW, *supra* note 47, at 124-25.

ure.[154] Regulatory failure occurs whenever the social benefits of a market activity are greater than its social costs, but less than the sum of its social costs and the transaction costs of the government's internalization process.[155] The incidence of regulatory failure can be quite high because the transaction costs of the government internalization process may be as high, if not higher, than the costs producers and consumers bear in considering the impacts their market activities may impose on others.[156]

The government must take great care in calculating social costs so it will avoid regulatory failure. The calculation should be the lesser of the costs of the project's social impacts or the costs of avoiding those impacts.[157] Regulators should examine the avoidance costs of both nonparticipants and participants in selecting the lowest possible avoidance costs for comparative purposes.[158]

Regulatory failure can occur when large projects that will affect multiple geographical areas are subjected to evaluations within each area affected. Multiple evaluations subject projects to increased transaction costs and may cause a project that is meritorious as a whole to be vetoed if it creates more costs than benefits within one of its areas of operation.[159] Vetoes can be prevented only to the extent that parochial evaluations are subordinated to expedited general evaluations,[160] or that systems are de-

154. *See* M. & R. FRIEDMAN, *supra* note 65, at 31-32.

155. *See id.* at 31-32, 214; L. THUROW, *supra* note 47, at 122-54; Coase, *The Problem of Social Cost*, 3 J. LAW & ECON. 1, 15-19, 44 (1960).

156. *See* M. & R. FRIEDMAN, *supra* note 65, at 214.

157. Coase, *supra* note 155, at 41-44.

158. *Id.*

159. The proposed Sohio pipeline project (PACTEX) is a classic case in which segmented regulatory proceedings caused a worthwhile energy project to be cancelled. Proposed in early 1975, PACTEX was planned to begin in 1977 to carry 500,000 barrels of crude oil per day from the west coast to Texas and on to eastern points through southwest-to-east pipeline systems. Most people perceived the project as necessary for carrying Alaskan crude oil from the west coast, where it was not in demand, to points east, where it could be put to good use.

From the beginning, until its abandonment on Mar. 13, 1979, PACTEX was entangled in a maze of federal, state, and local regulatory proceedings. PACTEX faced segmented proceedings on a geographic basis and also faced proceedings segmented by subject matter and government level. Pactex required more than 700 permits, including 85 from 10 federal agencies. Permits for easements were required in Arizona, New Mexico, and Texas. Nine California agencies had to issue permits and 29 California communities were involved. With several regulatory hurdles left to clear and pending litigation concerning the validity of the permits already received, Sohio cancelled PACTEX because it could not be put into operation in time to be economical and the estimated costs of the project had doubled. Copeland, *A Case Study of the Sohio Oil Pipeline Project (PACTEX): 1975-1979*, in ENERGY DEVELOPMENT PROJECT DELAYS: SIX CASE STUDIES—A REPORT TO THE SUBCOMM. ON ENVIRONMENTAL POLLUTION OF THE SENATE COMM. ON ENVIRONMENT AND PUBLIC WORKS, 96TH CONG., 1ST SESS. 105-31 (Comm. Print 1979) [hereinafter cited as SOHIO STUDY].

160. Federal legislation has been introduced on a project-specific basis several times to help expedite priority energy projects through a myriad of regulatory proceedings. *See* Alaska Natural Gas Transportation Act, 15 U.S.C. §§ 719-719o (1982); Trans-Alaska Pipeline Authorization Act, 43 U.S.C. §§ 1651-1655, 1651 note (1976 & Supp. V 1981); National Crude Oil Supply and Transportation Act, 43 U.S.C. §§ 2201-2212 (Supp. V 1981). In 1979 President Carter proposed the creation of an Energy Mobilization Board (EMB) that would be charged with the responsibility of certifying qualified energy projects as priority projects

vised to compensate effectively areas that large multistate projects adversely affect.[161]

### 3. *Energy Externalities*

Most energy projects, whether they are production, transportation, consumption, or waste-storage facilities, produce byproducts that may be harmful to the environment. Consequently, the United States' energy policy goals often collided with its environmental goals during the 1970s. The 1970s were the United States' most environmentally conscious years, and this cognizance is reflected in the important federal environmental legislation enacted during and after that decade.[162]

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for expedited regulatory treatment, including the coordination or waiver of federal, state, and local laws and regulations and limited judicial review of relevant regulatory decisions.

The EMB proposal became embodied in the Priority Energy Project Act (PEPA). The House version of PEPA, H.R. 4985, 96th Cong., 1st Sess., 125 CONG. REC. 21,052 (1979), was approved by the House 299-107 on Nov. 1, 1979. 125 CONG. REC. 30,547 (1979). The Senate version, S. 1308, 96th Cong., 1st Sess., 125 CONG. REC. 14,164 (1979), had passed previously, 68-25, on Oct. 4, 1979. *Id.* After seven months the conference committee struggled to a compromise, only to have it defeated in the House on a vote of recommital, 232-121, on June 27, 1980. 125 CONG. REC. 17,371-72 (1980). Reasons cited for PEPA's defeat included: (1) concerns over states' rights, (2) opposition to the weakening of environmental restrictions, (3) fears that PEPA might itself be an additional regulatory layer, (4) fears that PEPA would provide project opponents with additional issues to litigate, and (5) the reluctance of the Republican members of Congress to support a major plank in the President's energy program during an election year. SEN. COMM. ON ENERGY AND NATURAL RESOURCES, 97TH CONG., 2D SESS., ENERGY INITIATIVES OF THE 96TH CONGRESS 244-50 (Comm. Print 1982).

161. The PACTEX project contained compensatory measures for encouraging the State of California and project opponents to assent to the pipeline's timely construction. The Long Beach area, where PACTEX's terminal was to be located, was a designated "nonattainment area" under the Clean Air Act, which technically prohibited new and modified construction that might add to the pollution problem. By 1976 EPA had relaxed the prohibition against construction of new polluting sources in nonattainment areas by allowing new projects to be undertaken if their sponsors secured emission reductions from existing pollution sources. The reductions ensured that the overall level of pollution would be reduced when the projects began operation. In response to the EPA's new offset procedure Sohio negotiated an offset package with Socal Edison that would have resulted in Sohio's installing an $83 million sulfur dioxide/nitrogen oxide removal system on Socal's facilities. SOHIO STUDY, *supra* note 159, at 117-21.

162. Since 1970 numerous environmental protection laws have been enacted, including Coastal Zone Management Act of 1972, Pub. L. No. 92-583, 86 Stat. 1280 (codified as amended at 16 U.S.C. §§ 1451-1464 (1982)); Endangered Species Conservation Act of 1969, Pub. L. No. 91-315, 83 Stat. 275, *repealed by* Endangered Species Act of 1973, Pub. L. No. 93-205, 87 Stat. 884, 903 (recodified as amended at 16 U.S.C. §§ 1531-1543 (1982)); Amendments to the Clean Air Act, Pub. L. No. 88-206, 77 Stat. 392 (codified as amended in scattered sections of 42 U.S.C.); Federal Water Pollution Control Act (codified in scattered sections of 33 U.S.C.); National Environmental Policy Act, 42 U.S.C. §§ 4321, 4331-4335, 4341-4347 (Supp. V 1981); Nuclear Waste Policy Act of 1982, Pub. L. No. 97-425, 96 Stat. 2201 (codified in scattered sections of 42 U.S.C.); Oil Pollution Act Amendments of 1973, 33 U.S.C. §§ 1001-1010, *repealed by* Pub. L. No. 96-478, 94 Stat. 2303 (1980); Safe Drinking Water Amendments of 1977 (codified in scattered sections of 5 U.S.C.); Surface Mining Control and Reclamation Act of 1977 (codified as amended in scattered sections of 30 U.S.C.; and at 18 U.S.C. § 1114 (1982)); Toxic Substances Control Act, 15 U.S.C. §§ 2601-2629 (1982); Uranium Mill Tailings Radiation Control Act of 1978 (codified as amended in scattered sections of 42 U.S.C.); Used Oil Recycling Act of 1980, Pub. L. No. 96-463, 94 Stat. 2055 (codified in scattered sections of 42 U.S.C.).

Environmentally harmful byproducts are classic externalities that can distort economic performance unless steps are taken to internalize the costs they inflict on society into the decisionmaking process that leads to their creation. Environmental legislation and litigation in the 1970s focused on forcing participants in activities that create environmentally harmful byproducts to internalize the costs of avoiding the creation of the byproducts. Energy production and consumption activities were often the subjects of environmental cost internalization laws, regulations, and proceedings.[163] Energy and environmental tradeoff conflicts became sectionalized in nature. Environmentally harmful byproducts of energy production, transportation, consumption, or waste disposal often migrate from geographic areas in which the energy activity provides net social benefits to areas where the same project produces net social costs. This transboundary pollution migration creates inefficiency if an energy activity creates more social costs than benefits in the aggregate, but the areas bearing the social costs have no power to influence whether the energy activity is initiated or cancelled, operated or curtailed, or modified.[164]

The effects that economic competition among the states have on pollution control efforts are related to the transboundary migration problem. States with stricter pollution control enforcement drive up the costs of polluting activities within their borders, thereby increasing the risk that businesses will locate in states with more relaxed pollution control standards. The fear that economic competition among the states will cause an interstate competition in relaxing environmental quality standards to the lowest common denominator has been a driving force behind the creation and enforcement of national environmental quality control systems.[165] Interstate economic competition affected the design of the national environmental quality control systems so that the most heavily polluted states do not face too much economic disadvantage vis-à-vis states with relatively clean environments.[166]

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163. Of the Acts listed *supra* note 162, seven relate directly to energy production, transportation, or consumption: Acid Rain Precipitation Act of 1980, Clean Air Act, Nuclear Waste Policy Act of 1982, Oil Pollution Act Amendments of 1973, Surface Mining Control and Reclamation Act, Uranium Mill Tailings Radiation Control Act of 1978, and the Used Oil Recycling Act of 1980. In addition, the National Environmental Policy Act, the Federal Water Pollution Control Act, the Safe Drinking Water Acts, the Coastal Zone Management Act, the Toxic Substances Control Act, and the Endangered Species Acts have had significant impacts on energy development and consumption during the last 10 years.

164. When parties suffering from the impacts of physical externalities imposed by activities in which they did not participate lack a forum for seeking relief, they are also suffering from political externalities. *See* Russell, *supra* note 145, at 11. The United States Supreme Court was in part concerned with providing Illinois a forum for seeking relief from water pollution arising from actions in Wisconsin when the Court ruled that Illinois could seek abatement of the Wisconsin water pollution activity through a federal common law nuisance action. Illinois v. City of Milwaukee, 406 U.S. 91, 104-08 (1972). *But see* Milwaukee v. Illinois, 451 U.S. 304, 325-26 (1981) (with respect to interstate water pollution cases, the Federal Water Pollution Control Act Amendments of 1972 preempt federal common law nuisance actions by providing pollution victims with adequate and complete remedies).

165. *See* Russell, *supra* note 145, at 11-12.

166. For example, the Clean Air Act Amendments of 1977 established a congressionally mandated program for prevention of significant deterioration of air quality in areas where

Large energy projects operate in many states and are subject to many segmented environmental and economic evaluation proceedings. The segmentation of the projects' evaluations causes each project to be evaluated in pieces rather than as a unit. If any agency finds that the particular piece of the project within its geographic and subject matter jurisdiction will produce net social costs, the project may be vetoed even though as a whole it would provide net social benefits. Moreover, segmented procedures can increase the transaction costs of interstate energy projects to the point that the projects become uneconomic. The Northern Tier and Sohio pipeline projects are two outstanding examples of energy projects that have been lost in interstate regulatory jungles.[167]

## III. CONCLUSION

Energy sectionalism is the label attached to the energy policy conflicts that have arisen among governments, organizations, businesses, and individuals and that represent the predominate energy policy views within diverse geographic areas. Energy sectionalism disputes have been

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the air is cleaner than the national ambient air quality standards (NAAQS). The enactment of this program was influenced in part by the desire to help areas that were over or close to the NAAQS avoid losing industries to the clean air areas. This concern is reflected in REPORT OF THE HOUSE INTERSTATE AND FOREIGN COMMERCE COMMITTEE, H.R. REP. NO. 294, 95th Cong., 1st Sess. 13-35 (1977), which states:

> Only with nationally applicable guidelines on prevention of significant deterioration will emissions from each new source and their impact on limited air resources be minimized regardless of where the source locates. And only such an approach will help prevent the flight of industry and jobs from heavily polluted areas of the Nation. It will render impotent threats of "economic-environmental blackmail." In short, it will "protect and enhance the quality of the Nation's air resources" while safeguarding the economic and tax bases of all regions of the Nation.

*Id.* at 135.

The Clean Air Act Amendments also prescribed new source performance standards requiring the use of the best available control technology on all new stationary pollution sources. The standards were enacted, in part, because of concern that performance standards for new coal-fired power plants, which could be met by using either untreated low-sulfur coal or scrubbers, would: (1) give states with cheaper low-sulfur coal a competitive advantage and create a disadvantage for midwestern and eastern states with predominantly higher sulfur coals available; (2) not provide for a practicable maximum emission reduction using locally available fuels, and therefore not maximize potential for long-term growth; (3) not facilitate the expansion of higher sulfur coal resources that could be burned in compliance with emission limits; (4) aggravate compliance problems for existing coal-burning stationary sources that cannot retrofit and that must compete with larger, new sources for low-sulfur coal; (5) increase the risk of early shutdowns of existing plants, thereby increasing the risk of unemployment; and (6) operate as a disincentive to the improvement of new energy source technologies, because existing plants could continue to burn untreated fuels instead of employing new, more effective technology. CLARIFYING STATEMENT OF HOUSE-SENATE CONFEREES, *reprinted in* 1977 U.S. CODE CONG. & AD. NEWS 1570, 1575.

167. *See supra* note 159. On Apr. 20, 1983, the Northern Tier Pipeline Co. abandoned its $50 million effort to construct an oil pipeline from Puget Sound in the State of Washington to the midwest. This decision came after the pipeline had received about 1400 permits and approval from the federal government and the States of Idaho, Montana, North Dakota, and Minnesota. The pipeline could not get permission from the State of Washington however, because that state was concerned that the pipeline provided it with few jobs, but subjected it to numerous environmental risks. Wall St. J., Apr. 21, 1983, at 8, col. 2.

particularly virulent since 1970, as reflected in the voluminous records of energy debates conducted in the nation's legislatures, courts, and administrative tribunals. The origins of energy sectionalism conflicts are geographic and economic.

Energy resources are produced and consumed in uneven patterns within the United States. Oil and gas production is largely a southwestern and western activity. Coal production is becoming more westernized, despite the great amount of coal resources and production capacity located in the north central states. Uranium production is overwhelmingly a western phenomenon. Although the energy producing states of Texas, California, and Louisiana are among the nation's top energy consuming states, the northeastern and north central states are among the heaviest energy consumers in terms of absolute volumes consumed and percentages of reliance on traditional energy sources.

The turbulent events of the 1970s emphasized the economic origins of energy sectionalism. The world's reliance on nonrenewable energy sources, the production of which entails increasing cost activities, combined with the political crises of the Middle East to produce traumatic energy supply shocks in 1973-1974 and in 1979. Energy supplies became very tight relative to demand, causing dramatic increases in energy prices and the values of energy reserves. Geographic areas that were net energy consumers experienced great outflows of revenues to the benefit of geographic areas that were net energy producers. This outflow of energy revenues further exacerbated the economic difficulties many energy consuming states were experiencing apart from difficulties caused by higher energy prices. The decline of their industrial bases due to import competition and the onset of a new economic order favoring service production over goods production had already weakened these states' economies. The economic growth of energy producing areas was, therefore, significantly higher than the growth in energy consuming areas over the last decade.

Until 1978 the imbalance of economic fortunes between energy producing areas and energy consuming areas produced energy conflicts dominated by distributional concerns. The United States was preoccupied with identifying windfall profits among energy producers' revenues that could be redistributed to taxpayers, government beneficiaries, and energy consumers. U.S. energy policy conflicts still have distributional overtones, but they now reflect more of an emphasis on adjusting the country to the realities of a high-cost energy environment and on reducing our vulnerability to future energy supply shocks. This shift is attributable in part to an increased awareness of the inefficiencies government redistribution programs can impose on the economy. The shift is also attributable to the fact that the energy producing states did not escape the ravages of the most recent recession, contrary to the predictions and fears of the net consuming states. Energy producing states are now facing recessionary conditions and may be rediscovering their economic interdependence with the net energy consuming states. Moreover, the leading producing states appear to be gain-

ing insight about the problems of energy consumers in a high cost energy environment because they are among the states most reliant on conventional energy sources.

Environmental externalities have also generated important energy sectionalism disputes. The world energy crisis arrived during the United States' most environmentally conscious decade. Most energy production, transportation, consumption, and waste-storage facilities impose costs on the environment. Thus, throughout the 1970s many conflicts arose between the perceived need to increase domestic energy production and to substitute coal and nuclear power for oil and gas on the one hand, and the equally felt need to avoid imposing unacceptable social costs on the environment on the other hand.

Conflicts over energy and environmental tradeoffs assumed a sectionalism posture as energy projects were proposed that on the whole might have provided the United States with net social gains, but that would also have burdened discrete geographic areas with net social losses. Energy projects requiring siting or operational authority from geographic areas that would have experienced net social losses from the projects' development or operation were subjected to environmental vetoes. Transboundary disputes arose as energy projects produced net social benefits for the areas in which they operated and also produced environmentally harmful byproducts that migrated to geographic areas not benefitting from their operation. Interstate economic competition prevented the development of environmental quality control systems based solely on a desire to determine efficient levels of polution production for each state and for the nation as a whole.