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THE DOMINANT MODEL OF UNITED STATES ENERGY POLICY*

JOSEPH P. TOMAIN**

Conventional wisdom has it that the United States has no coherent and comprehensive national energy policy.¹ This notion persists despite the fact that Congress requires the President to submit to it, biannually, a national energy plan.² Like all catechisms, this belief is partially true and partially false, depending upon one's perspective. The better statement about U.S. energy policy is that it is kaleidoscopic. If one concentrates on one portion of a kaleidoscope, shapes, colors and images appear chaotic. So, too, does energy policy if one examines only one segment of the policymaking process, as does an analyst who concentrates on Congressional action, for example.³ However, as one pulls back and looks at the full kaleidoscopic screen, patterns emerge. The theme of this article is that, at a certain level of generality, the United States has developed over the last one hundred years an identifiable pattern of energy decisionmaking and energy policy. This pattern forms what can be properly termed the "Dominant Model of United States Energy Policy."⁴

Section One of this article presents a brief discussion of the historical development of the energy industry in the United States and national energy policy. This discussion demonstrates that over the last 100 years, the United States government has fairly consistently implemented energy policies that are guided by efficiency, that support the market, and that seek to correct market defects. Section Two explains in depth the dominant model that emerges from Section One. It begins by examining the unsuccessful attempts by the Carter and Reagan

* This article is a synthesis of current works. *Energy Policy Advice for the New Administration*, 46 WASH. & LEE L. REV. 63 (1989); *Interest, Ideology and Imagination*, 5 J. MIN. L. & POL. 115 (1989); J. TOMAIN & J. HICKEY, *ENERGY LAW & POLICY* (1989).

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1. See, e.g., J. CHUBB, *INTEREST GROUPS AND THE BUREAUCRACY: THE POLITICS OF ENERGY*, chs. 1 & 7 (1983); B. COMMONER, *THE POLITICS OF ENERGY* (1979); D. DAVIS, *ENERGY POLITICS* (1974); W. ROSENBAUM, *ENERGY, POLITICS, AND PUBLIC POLICY* (1981); Tomain, *Institutionalized Conflicts Between Law and Policy*, 22 HOUSTON L. REV. 661 (1985).

2. See 42 U.S.C. §§ 7321-7375 (1982).

3. See E. USLANER, *SHALE BARREL POLITICS: ENERGY AND LEGISLATIVE LEADERSHIP* (1989).

4. I use the term "model" as an heuristic device rather than as an analytical tool with predictive power. This model more successfully explains past and current trends than foretells the future.

administrations to alter the dominant model. This section also describes how, despite their failures, the lessons of these two presidential administrations are instructive, and how both served, though in different ways, as a transition to what is now, during the initial years of the Bush administration, an energy policy equilibrium. Section Three presents a brief discussion of current federal energy initiatives, contending that these initiatives are consistent with the model.

I. THE HISTORICAL DEVELOPMENT OF ENERGY LAW AND POLICY

It is a mischaracterization to apply the phrase "energy law" to any period prior to the mid-1970s. The flurry of legislative activity that resulted as a reaction to the Arab Oil Embargo in 1973 and the Iranian Revolution in 1979 is generally considered to constitute the primary body of what is now referred to as energy law. This corpus of law, implementing governmental policy preferences, generally concerns federal regulation of the natural resources used for the production of energy and for the structure used to transmit and distribute energy products.⁵

Although energy law has only emerged in recent years, it has identifiable antecedents, and these antecedents must be recognized and understood to fully comprehend recent events. Since the Industrial Revolution, energy regulation has been used to control the production and distribution of the social necessity called energy. It has paralleled—and supported—the growth and development of energy industries and markets. Indeed, perhaps the single most trenchant observation about the history of energy regulation is to note the symbiotic relationship between private energy industries and public energy regulation.⁶

A. 1887-1900

The beginning of modern energy law started in the next to the last decade of the nineteenth century with the Supreme Court's 1887 opinion in *Munn v. Illinois*.⁷ Although *Munn* involved grain elevators, its holding helped to create a major principle in energy law. The Court recognized the existence of "natural monopolies" and ruled that states

5. State energy law, chiefly law surrounding the conservation and retail pricing of gas and electricity, also changed during this period. Still, the primary focus here is on federal regulation.

6. See generally J. CLARK, ENERGY AND THE FEDERAL GOVERNMENT: FOSSIL FUEL POLICIES, 1900-1946 (1987); R. VIETOR, ENERGY POLICY IN AMERICA SINCE 1945: A STUDY OF BUSINESS-GOVERNMENT RELATIONS (1984); ULSANER, *supra* note 3.

7. 94 U.S. 113 (1876).

could regulate such industries.⁸ It established the principle that government would not tolerate the private exercise of market power and that such an exercise could be restrained by the heavy hand of government price-setting. *Munn*, as the first in a series of opinions⁹ allocating ratemaking power, established the government authority for energy decision-making and policy-making power in our political economy.¹⁰

At the end of the nineteenth century, energy was produced on local or regional bases. Consequently, decisions were made and policies developed at the local and then the state levels, tracking the structure of the energy industries themselves. Also, and of notable significance, there was no overarching energy policy coordinating the development and use of natural resources. Instead, specific resources like oil, coal, and natural gas were regulated independently of one another.

Modern energy industries and markets began to take shape during the last quarter of the nineteenth century. During this period the country found itself in two significant transitions: the transition from wood to coal was completed, and the transition from coal to oil and natural gas began. The second transition was also a transition from local and state to regional and national markets, again mirroring industry development. During this period the dominant model can be discerned in its embryonic form. The model defines energy law and policy as that series of rules and regulations that emanate from a fundamental tension between an energy delivery system based on private ownership and public regulation.¹¹ Put another way, energy law and policy are driven by market changes. As the production and distribution of energy moves from local to state to regional to national and, finally, to international markets, industry firms change accordingly. So does government regulation.

8. *Id.* at 127-29.

9. See *Federal Power Comm'n v. Hope Natural Gas Co.*, 320 U.S. 591 (1944); *Missouri ex rel. Southwestern Bell Telephone Co. v. Public Serv. Comm'n*, 262 U.S. 276 (1923); *Smyth v. Ames*, 169 U.S. 466, *modified*, 171 U.S. 361 (1898); *Jersey Cent. Power & Light Co. v. Federal Energy Reg. Comm'n*, 810 F.2d 1168 (D.C. Cir. 1987).

10. See J. TOMAIN & J. HICKEY, *ENERGY LAW AND POLICY* ch. 5 (1989). See also Pierce, *Public Utility Regulatory Takings: Should the Judiciary Attempt to Police the Political Institutions?*, 77 *GEO. L.J.* 2031 (1989).

11. See C. PHILLIPS, *THE REGULATION OF PUBLIC UTILITIES: THEORY AND PRACTICE* (2d ed. 1988). "The combination of private ownership and public control means that some conflicts are inevitable. In the first place, while regulation is essentially a legislative and legal concept, it is also an economic one." *Id.* at 5. "In the second place, there often seems to be a conflict between private and public interests." *Id.* Additional conflicts result from separation of powers and federalism. See also Tomain, *supra* note 1, at 669, 684, 710.

B. 1900-1920

During the first two decades of the twentieth century, modern energy industries, energy markets, and federal energy regulations took shape. The country experienced the end of a low energy society and the beginning of a high energy one dependent on large-scale, capital-intensive, centralized, interstate energy production and distribution, first in oil, then in electricity. The general intent of federal energy regulation was to promote production and industrial stability and, occasionally, to smooth out gross social and economic distortions.

Coal reigned king during the Industrial Revolution. Production increased until 1918, when it peaked at 678 million tons.¹² Throughout this period, however, oil and natural gas markets also expanded, signaling a transition from coal to the other fossil fuels. The oil and natural gas markets were expanding as new end uses such as refined petroleum products and automobiles increased demand. Because of coal's reputation as a dirty burning fuel, the cleaner alternatives of oil and natural gas were preferable. By 1925, oil constituted almost one-fifth of the energy market.¹³ But the federal government never abandoned coal during the transition from the solid to the liquid and gaseous fossil fuels. Instead of allowing the transition to occur in the market unimpeded, it intentionally promoted the use of coal to buoy the industry.

Structurally, the coal, oil, and natural gas industries had similarities and differences which affected government regulation. The basic difference concerned the degree of competition within each industry and the demand for each resource. The basic similarity was that each industry had a transportation bottleneck. In the oil and natural gas industries pipelines were the bottleneck, and in the coal industry railroads were the bottleneck.¹⁴ Of the three industries, coal was and continues to be the most competitive.¹⁵

During the first two decades of the twentieth century, oil became

12. J. CLARK, *supra* note 6, at 9.

13. *Id.* at 13.

14. Coal ownership by railroads contributes to the bottleneck problem because railroads can either sell or consume coal for their own use depending on market conditions. Railroad companies control the price of either transportation or coal when other fuels or other modes of transportation are in short supply, thus affecting the amount of coal that reaches the market. The railroad bottleneck problem exists today, as some electric utilities must rely on railroads to transport coal to their generating units. See UNITED STATES DEPARTMENT OF JUSTICE, *COMPETITION IN THE COAL INDUSTRY* 123 (1978).

15. The coal industry is divided into the bituminous and the anthracite industries. While there were thousands of bituminous producers, (5,060 in 1905 and 9,331 in 1923), J. CLARK, *supra* note 6, at 4, 79% of anthracite production in 1916 was controlled by 13 producers, 11 of which were railroad companies. *Id.* at 6.

the paradigm of big industry. In 1911, Standard Oil and related entities controlled 64% of the market (down from 90% in 1900 due to the federal government's successful antitrust litigation).¹⁶ Still, in 1919, thirty-two firms controlled 60% of production, and, in 1920, the thirty largest oil firms controlled 72% of the country's refining capacity.¹⁷

The natural gas industry was less concentrated during these early years because natural gas was seen as a nuisance by-product of oil exploration and was wasted rather than exploited. Before the turn of the century, small natural gas companies were the rule. By the end of the first third of the century, however, natural gas was seen as a valuable commodity and the transportation network became dominated by a few interstate pipeline companies. This development, like the market power of the oil pipelines, led to federal regulation.¹⁸

During this formative period, energy markets moved from local and state to regional and national levels. Federal intervention into private energy industries was episodic, allowing interindustry and interfuel competition to develop and later flourish. Whenever there were serious blips in energy markets, primarily when production was not flowing smoothly or when distribution was congested, the government would intervene in an attempt to smooth out the blip. In general, pre-war intervention was motivated by a sense of progressivism colored by antitrust sentiment. The Hepburn Act¹⁹ (which curtailed big oil's control of interstate pipelines), the Interstate Commerce Commission, the Federal Trade Commission, and the rise of state public utility commissions were all aimed at curtailing market power.²⁰ Similarly, controls aimed at loosening the railroads' grip on coal hauling were also instituted.²¹

The Great War only slightly shook the country out of its Golden Age complacency. Professor John Clark argues that the war solidified the position of private energy industries. He states, "For business, the war in Europe opened great opportunities for profit through an expanding foreign trade. As many businessmen viewed it, America's entrance into the conflict provided no compelling reasons for a swollen federal economic role."²² Although the federal government did establish the United States Fuel Administration (USFA), the first energy

16. *Standard Oil Co. of N.J. v. United States*, 221 U.S. 1 (1911).

17. J. CLARK, *supra* note 6, at 13.

18. See Pierce, *Reconsidering the Roles of Regulation and Competition in the Natural Gas Industry*, 97 HARV. L. REV. 345, 346 (1983).

19. 34 Stat. 584 (1906) (codified in scattered sections of 49 U.S.C. (1982)).

20. J. CLARK, *supra* note 6, at 49.

21. *Id.* at 45-46.

22. *Id.* at 50.

agency with the power to regulate prices, transportation, and distribution, the USFA did not exercise these powers. The agency was administered locally, and its principal goal was to mobilize natural resources for the war, not to coordinate energy industries.²³

The USFA relied on decentralized administration and the rhetoric of voluntarism, patriotism, and industry-government cooperation, rather than on the heavy hand of federal intervention. As a consequence, coal production did not appreciably increase during the war, pricing policies were a failure, rail carriers moved coal to the highest bidders first, and coal allocation regulations were conducted on an uncoordinated regional zone basis.²⁴ The coal industry paid a price for exercising its grip on the nation's energy markets. At the height of World War I, coal was being replaced by oil and natural gas. Nevertheless, the federal government continued to support the industry.

Not surprisingly, federal oil and natural gas policies followed a pattern similar to coal regulation, also garnering federal favor. During World War I, several restrictions on oil and natural gas were implemented, including fuel-switching, licensing, price and production controls, and rationing. However, these controls were not integrated in an overall energy policy, and they ended with the Armistice. Clark argues that World War I had a profound effect on future energy regulation by positioning major energy industries for years to come. The regulatory experience from 1900-1920 firmly established industry-government relations. To a degree disturbing to many, however, "the evolving regulatory mechanisms masked a system in which implementation of fuel control rested in the hands of individuals with a direct and pecuniary interest in the fuel industries."²⁵

The USFA, symbolic of the first decades of federal energy regulation and not unlike the present Department of Energy, did not use its full power to coordinate and establish a national energy plan. Instead, a muted form of corporatism took hold. Coal successfully kept government out of its industry except to support it. Natural gas was too

23. For example, the largest impediment in the war effort was a coal shortage caused by a railroad car shortage. In response, Congress passed the Lever Act, 40 Stat. 276 (1917), 41 Stat. 297 (1919), giving the President the authority to regulate the price, production, transportation, and allocation of coal. Such potential intervention into the private energy sector was unprecedented and was not widely endorsed by the coal industry. In fear of the specter of widespread government control, two trade associations, the National Coal Association and the National Retail Merchants' Association, were established and injected themselves into and coopted the administration of the USFA. "Both associations anticipated key roles in the operation of the USFA and patriotically pledged their support to the administration. Nonetheless they defined their essential task as defending their members against unnecessary and foolish federal intervention." J. CLARK, *supra* note 6, at 58.

24. *Id.* at 79.

25. *Id.* at 107.

nascent an industry to generate much concern about federal regulation, and the oil industry, with its history of concentration, was expanding into foreign markets and was showing signs of greater industrial concentration.

Thus, in the initial two decades of the twentieth century,²⁶ energy markets were structured by:

- (1) seemingly inexhaustible supplies of oil, natural gas, and coal;
- (2) a shift from local to regional and interstate resource production and distribution;
- (3) continuous growth in markets and in energy efficiency;
- (4) increasing industrial concentration, integration, and large-scale production; and,
- (5) transportation bottlenecks in each industry.²⁷

These aspects and trends generated a pattern of federal energy regulation that persists to this day. Federal energy regulations reacted to market conditions and mirrored the specific industries being regulated. Regulators did not treat energy industries either coordinately or comprehensively. Instead, the coal, oil, natural gas (and electricity) industries have been regulated separately by tracking each resource through its fuel cycle from production and processing through distribution and marketing.

Establishing a regulatory institution parallel to the regulated industry has initial appeal. Regulation can proceed more quickly, and more efficiently, because transaction costs are lowered. Information is easier and less costly to obtain, digest, circulate, and act upon. The downside of this parallel design, however, is that an industry's problems are reproduced in the regulatory scheme. In the oil industry, for example, conflicts between major and independent firms, producers and refiners, and producing and consuming states have been replicated by the regulators. Thus policy development and coordina-

26. Even today, the fossil fuels of oil, natural gas, and coal, together with electricity, constitute the building blocks of our energy economy. The United States consumed 76.01 quads of energy in 1987. The 76.01 quads are divided among the following resources: coal (18.00); natural gas (17.18); oil (32.63) hydropower (3.04); nuclear power (4.92); geothermal (0.23); and, other (wood, waste, wind, photovoltaic, and solar connected to electric utilities) (0.02). ENERGY INFORMATION AGENCY, DOE/EIA-0384 (87), ANNUAL ENERGY REVIEW 1987 (1988). Production figures are similar, though somewhat lower, indicating that the country is a net importer of energy. In 1987 the country produced 64.55 quads of energy divided among the following resources: coal (20.12); natural gas (16.84); oil (17.59); natural gas liquids (2.23); hydropower (2.61); nuclear power (4.92); geothermal (0.23); and other (0.02). *Id.* at 9.

27. See J. CLARK, *supra* note 6, at 25-26.

tion became difficult and at times stymied, evidencing the limits of regulation designed to parallel the market.

C. 1920-1933

The Roaring Twenties were important years for energy regulation. Coal reached the end of its prominence as the nation's energy supplier, yielding this position to oil. This shift did not come without stark socio-economic difficulties, most notably those suffered by coal miners. Mine operators, naturally, were interested in maintaining their market shares. However, since the coal market was shrinking, the most logical, most simple way for the industry to maintain profitability was to reduce wages. With the industry in decline due to excess capacity and reduced demand, cutthroat competition, pressure for wage reduction, and miners' strikes resulted. Coal's shrinking market and consumers' growing preference for oil and natural gas underscored the significance of fuel substitution.

To encourage the development of oil, the common law developed the rule of capture: oil belongs to the person who captures it.²⁸ The rule of capture promotes production, but it also promotes waste, as producers will capture as much as they can before their neighbors do. In order to reduce such waste, the states enacted gas and oil conservation statutes.²⁹

At the federal level, the Federal Oil Conservation Board (FOCB), a regulatory agency, was instituted to look into the perceived weaknesses of the oil industry. The primary weaknesses were waste, declining reserve estimates, and price instability due in part to the occasional flush field. Instead of curbing production, the FOCB responded by promoting the oil depletion allowance and by opening up the public domain under the Mineral Land Leasing Act of 1920.³⁰ Both responses favored industry. In short, FOCB pressed for government controls in order to stop waste and stabilize prices as a form of oil industry protectionism. FOCB also allowed large firms to control production and reduce the amount of oil on the market, which allowed these firms to capture economic rents. Thus FOCB regulatory efforts worked to the great benefit of the major oil companies.

28. See H. WILLIAMS, R. MAXWELL & C. MEYERS, *CASES AND MATERIALS ON THE LAW OF OIL AND GAS* 13 n.1 (4th ed. 1979).

29. See generally N. ELY, *THE OIL AND GAS CONSERVATION STATUTES* (ann. ed. 1933). See, e.g., Ely, *The Conservation of Oil*, 51 *HARV. L. REV.* 1209 (1938); Pierce, *Reconciling State Oil and Gas Conservation Regulation with the Natural Gas Act: New Statutory Revelations*, 1989 *B.Y.U. L. REV.* 9 (1989).

30. See Mineral Lands Leasing Act of 1920, Pub. L. No. 99-64, 99 Stat. 156 (codified as amended in 30 U.S.C. (1982)).

By the end of the decade the fossil fuel industries (oil, natural gas, and coal) were well entrenched. Energy markets, with the exception of coal, were expanding. In addition, interfuel competition and concentration were increasing. By 1929 the split in the oil industry between the majors and the independents was deep. Twenty-one majors controlled 60% of oil production, ten firms controlled 60% of the refining, and fourteen firms controlled 70% of the pipelines. In the natural gas industry, eight holding companies controlled 85% of production. Similarly, twenty-two electricity holding companies generated 61% of the country's electricity.³¹ The coal industry was less concentrated. Seventeen bituminous companies controlled only 20% of the mines, but eight anthracite companies controlled 70% of the mines.³² Indeed, in the coal industry, the major problem was not concentration; it was survival. The primary conflict was not between major and independent firms; it was between labor and capital.

The 1930s brought with them a peculiar test of the nation's energy policies. Not only did the country experience a national economic depression that put a downward pressure on prices, but rich oil fields were discovered in the oil producing states, most notably in eastern Texas. These discoveries flooded the market with remarkably cheap oil, with prices dropping below ten cents per barrel. As a result, the majors pushed for firm production controls to keep prices up. In addition, global oil markets were developing, giving the east coast refiners the option to buy cheap foreign oil. Here again, the majors sought government intervention in the form of import tariffs to protect their markets.

On the eve of the New Deal, the nation's energy industries, markets, and regulation had developed a pattern which continues to dominate energy planning. Oil replaced coal as the dominant fuel, and large, integrated domestic firms continued to prosper. The New Deal did little to alter this pattern, with the notable exception of federalizing the regulatory structure. Federalization came predominantly in the form of the regulation of interstate energy sales.³³ It was not, however, an alternative form of energy planning. Rather, it was an adaptation to the nationalization of energy markets. The objective of promoting the hard path had not changed even though an economic crisis threatened the country.

31. In effect, electricity was and is a fossil fuel industry insofar as fossil fuels are used predominantly in the generation of electricity.

32. J. CLARK, *supra* note 6, at 184-85.

33. See Natural Gas Act of 1938, Pub. L. No. 95-617, 92 Stat. 3173 (codified as amended in 15 U.S.C. (1982)); Federal Power Act, Pub. L. No. 97-375, 96 Stat. 1826 (codified as amended in 16 U.S.C. (1982)).

D. The New Deal Era to World War II

The New Deal experiment introduced federal regulation into nearly every sector of the national economy. Roosevelt's economic philosophy was industrial revitalization through market stabilization and business support. Although energy industries were looked upon with some skepticism, their prior development ensured their survival and growth.

Federal oil policies during this period resulted in the Connolly Hot Oil Act, interstate compacts, Harold Ickes's Petroleum Allocation Board and his Plan and Coordination Committee.³⁴ The primary objective was to regulate production, but efforts failed as new oil production flooded the market in 1937-1938. Big oil was again the big winner of New Deal regulation. In 1937, twenty companies controlled 70% of the proven reserves and 76% of the refining capacity.³⁵ In 1941, the Temporary National Economic Committee (TNEC) reported the findings of its investigation into the oil industry and concluded that the "major integrated oil companies markedly increased their pre-depression control of reserves and crude production and maintained a great supremacy in refining capacity, refining output, pipeline ownership, and marketing."³⁶

Coal's troubles continued during the New Deal. The bituminous industry was plagued by productive overcapacity, underemployment of miners, poor working conditions, and chaotic pricing. Instead of recognizing and accepting the declining fortunes of the coal industry, New Deal coal policies attempted to increase wages and promote job security. The result was a labor-sensitive coal policy that did not address the real capital problems facing the industry nor the need to reduce production to reflect market demand. The coal codes of the National Recovery Administration, like the oil codes before them, were administered by the industry in the fields and were not centralized in Washington. In a declining coal industry, government could not keep mines open and increase miners' wages, even though these were the goals of the New Deal. Nevertheless, the government attempted to pull off the impossible by trying to coordinate prices to the satisfaction of mine operators, mine workers, and consumers. To this end, two National Bituminous Coal Commissions were created to promulgate minimum prices and enforce codes of unfair trade practices.

Coal improved its position slightly during the war. Production increased and, more importantly, coal found the market that would

34. See J. CLARK, *supra* note 6, at 249.

35. *Id.*

36. *Id.* at 245-46.

serve as its largest customers until the present day, electric utilities.³⁷ Although utility consumption of coal did not completely offset coal losses in the railroad, commercial, and residential sectors, electric utilities maintained a market for coal. After the war, though, coal's recurrent ills—poor labor-management relations, deteriorating working conditions, resistance to federal regulation, competitive producers, and government reluctance to fix prices—continued to threaten the industry.³⁸

If the New Deal was not up to the challenge of coordinating energy policy in the 1930s, would World War II stimulate such a movement? Not really. The basic regulatory agencies, the Petroleum Administration for War and the Solid Fuels Administration for War, were divided between oil and coal and continued the old pattern of being guided by the industries themselves. Obviously, energy resources, particularly oil, needed to be mobilized, and, as during the Great War, energy policies were greatly influenced by the industries themselves. Worse, industrial concentration continued and war policies favored the larger firms as major oil companies received the bulk of federal largess being dispensed to build \$1 billion of new refineries.³⁹

The New Deal response⁴⁰ to economic problems was to encourage and support industry by stimulating the market. Regulatory objectives consisted of encouraging production, stimulating growth, and providing economic stability for energy industries as a means of supporting the economy as a whole. By limiting objectives to energy production and industrial stability—both in the name of efficiency—there was little room for either energy planning or redistribution of wealth from producers to consumers.

E. Post-World War II to 1973

There were four notable events in energy development between World War II and the energy cataclysm of the 1970s. First, although the coal industry had long lost its prominence, it found a new stable market in the electricity industry. Second, the natural gas industry was destabilized and, beginning in 1954, entered a period of confusion

37. Electricity utilities consume 86% of coal production. ENERGY INFORMATION AGENCY, DOE/EIA-0384(87), ANNUAL ENERGY REVIEW 1987, 168 (1988).

38. J. CLARK, *supra* note 6, at 349.

39. The eighteen majors "received 85% of the \$805 million channeled into aviation gas production" *Id.* at 331-33, 347.

40. See B. ACKERMAN & W. HASSLER, CLEAN COAL/DIRTY AIR (1981). The New Deal model had the following characteristics: expertise, centralization, hierarchy, scientific objectivism, and rationality. See also Frug, *The Ideology of Bureaucracy in American Law*, 97 HARV. L. REV. 1276 (1984). It is also a model I have used. See J. TOMAIN, ENERGY LAW (1983); J. TOMAIN & J. HICKEY, ENERGY LAW AND POLICY (1989).

from which it has yet to emerge. Third, the oil industry went from surplus to shortage as the government attempted to rationalize domestic production and foreign imports. Fourth, the entire country jumped headlong into the commercial nuclear market, a market that today is stagnant.

The curious result of this period of fits and starts in these several industries is that the country emerged relatively unharmed. Although the energy market generally was transformed from a market of cheap abundant resources to one of more costly energy and conservation efforts, brownouts, gas lines, and curtailments were short-lived. The ability of the country to recover from significant market changes attests to the strength of the dominant model of energy policy.

While coal production remained relatively stable during the period at about 500 tons per year,⁴¹ production shifted from eastern coal, which was mined from deep pits, to western coal, which was surface mined. Although coal prices were not directly set by government, government health and safety regulations made the coal business more expensive. Regulations protecting miner health and safety⁴² and the environment⁴³ raised the cost of doing business. These increased costs raised industry concerns about its ability to maintain its market share when nuclear generated electricity was being touted as "too cheap to meter."

The natural gas story is a favorite of pro-market advocates because government intervention has been judged such a gross failure.⁴⁴ There is fairly straightforward language in the Natural Gas Act exempting producers from federal regulations⁴⁵ while regulating interstate pipelines. The clarity of this language notwithstanding, the reality of the industry and the Congressional intent of the Act was to protect consumers from the market power of interstate pipelines. The structure of the industry is such that pipelines constitute a transportation bottleneck. Pipelines purchase and transport gas from producer to distributor or end user. Consequently, without producer price regulation, any prices charged by the producer to the pipeline is fully

41. ENERGY INFORMATION AGENCY, DOE/EIA-0384(87), ANNUAL ENERGY REVIEW 1987, 117 (1988).

42. Black Lung Benefits Act of 1977, Pub. L. No. 97-119, 95 Stat. 1638 (codified as amended in scattered sections of 26, 29, and 30 U.S.C. (1982)).

43. Surface Mining Control and Reclamation Act, Pub. L. No. 95-87, 91 Stat. 445 (codified as amended in scattered sections of 18 and 30 U.S.C. (1982)).

44. See A. TUSSING & C. BARLOW, *THE NATURAL GAS INDUSTRY: EVOLUTION, STRUCTURE, AND ECONOMICS* (1984); J. KALT & F. SCHULLER, *DRAWING THE LINE ON NATURAL GAS REGULATIONS* (1987); M. SANDERS, *THE REGULATION OF NATURAL GAS: POLICY & POLITICS, 1938-1978* (1981).

45. Natural Gas Act, 15 U.S.C. § 717(b) (1982).

passed through to consumers. Because of this automatic pass through, consumer pressure was brought to regulate producer prices. First, the Supreme Court ruled that producers that were affiliated with interstate pipelines could be federally regulated.⁴⁶ Once that camel's nose was in the tent, producer regulation was not far off. In 1954, the Court justified federal price setting for producer prices in *Phillips Petroleum Co. v. Wisconsin*.⁴⁷

Phillips set the natural gas industry into convulsions from which it has yet to recover. The decision spurred regulatory efforts that caused significant market distortions. The direct effect of the *Phillips* ruling was to subject thousands of individual producers to trial-type ratemaking hearings before the Federal Power Commission (FPC). However, the FPC was unable to administer the increase in its docket. Natural gas ratemaking was transferred from individual adjudications to area ratemaking⁴⁸ to national ratemaking⁴⁹ through rulemaking.⁵⁰ Area and national ratemaking were based on the concept of vintaging or two-tier pricing in which "old" gas prices were based on historic or embedded costs and "new" gas prices were allowed to float to market levels. The effect of two-tier pricing and cost-based ratemaking kept federally regulated natural gas prices down while intrastate prices increased. A dual natural gas market was thus created.

The dual market was further aggravated by strict abandonment rules that prevented federally regulated producers of gas dedicated to the interstate market from switching to the more lucrative intrastate market.⁵¹ Depressed federal pricing naturally reduced domestic production and caused an artificial natural gas shortage. This regulatory structure hamstrung the industry and had to be dismantled. The first governmental response was not deregulation, however, but rather the Natural Gas Policy Act of 1978 (NGPA).⁵² The intent of the NGPA was to unify the dual markets and to deregulate prices. Today, although most gas is now deregulated,⁵³ pipelines continue to present regulatory problems.⁵⁴

46. *Interstate Natural Gas Co., Inc. v. Federal Power Comm'n*, 331 U.S. 682 (1947).

47. 347 U.S. 672 (1954).

48. *Permian Basin Area Rate Cases*, 390 U.S. 747 (1968).

49. *Shell Oil Co. v. Federal Power Comm'n*, 520 F.2d 1061 (5th Cir. 1975), *reh'g denied*, 525 F.2d 1261 (5th Cir. 1976), *cert. denied*, 426 U.S. 941 (1976).

50. See Pierce, *The Choice Between Adjudicating and Rulemaking for Formulating and Implementing Energy Policy*, 31 HASTINGS L.J. 1 (1979); Shapiro, *The Choice of Rulemaking or Adjudication in the Development of Administrative Policy*, 78 HARV. L. REV. 921 (1965).

51. See *California v. Southland Royalty Co.*, 436 U.S. 519 (1978); *United Gas Pipe Line Co. v. McCombs*, 442 U.S. 529 (1979).

52. Pub. L. 95-6621, 92 Stat. 3350 (codified at 15 U.S.C. §§ 3301-3432, 42 U.S.C. § 7255 (1982)).

53. See Natural Gas Wellhead Decontrol Act of 1989, Pub. L. No. 101-60, 103 Stat. 157 (1989).

54. See *infra* § III B.

World War II marked the emergence of oil as the dominant energy resource, largely a result of oil's dominance in fueling the country's transportation sector. Shortly after the war, however, imports exceeded exports, causing concern among domestic producers. In order to shore up the domestic industry, government was importuned to place quotas on imports. Consistent with past practices, government first relied on the market to limit imports.⁵⁵ Not surprisingly, voluntarism did not prove an effective way to cut imports because imported oil was cheaper than domestically produced oil. During the 1950s, various political and rhetorical arguments were made to reduce imports for national security reasons, but the economic reality tilted in favor of cheap oil. At the end of the 1950s, oil import quotas were made mandatory, and they continued until the early 1970s when domestic production peaked, making them superfluous.

The 1970s also caught oil in an unfamiliar setting—price regulation. Oil prices were set as part of President Nixon's wage and price controls. These regulations took on a life of their own after the Nixon economic stabilization program ended. They required an elaborate bureaucratic machine for their administration. Like natural gas price regulation before them, oil price controls were assessed as having distorted the market rather than having stimulated it,⁵⁶ and they were ultimately dismantled.⁵⁷

The single most notable event in the post-World War II period was the overwhelming commitment of capital to commercial nuclear power. The several hundred billion dollar industry began at the end of World War II as a way to channel the destructive force of nuclear power into more benign and beneficial uses. In 1946 the Atomic Energy Act⁵⁸ was passed for the purpose of moving nuclear power away from the military and into civilian hands. The Act, however, still allowed the government a monopoly on controlling uranium. That monopoly existed until the Act was significantly amended in 1954⁵⁹ to permit private ownership of uranium. This control was crucial for private sector investment. Investment became substantial in 1957 with

55. R. VIETOR, *supra* note 6, at 94-99.

56. See J. KALT, *THE ECONOMICS AND POLITICS OF OIL PRICE REGULATION: FEDERAL POLICY IN THE POST-EMBARGO ERA* (1981); D. GLASNER, *POLITICS, PRICES AND PETROLEUM: THE POLITICAL ECONOMY OF ENERGY* (1985).

57. Exec. Order No. 12,287, 3 C.F.R. 124 (1982), *reprinted in* 15 U.S.C. 757 note (1982).

58. Atomic Energy Act of 1946, Pub. L. No. 79-585, 60 Stat. 755 (1946).

59. Atomic Energy Act of 1954, Pub. L. No. 83-703, 68 Stat. 919 (codified as amended at 42 U.S.C. §§ 2011-2296 (1982)).

the passage of the Price-Anderson Act,⁶⁰ which limited the liability of nuclear facilities in the case of an accident.

After the passage of the Price-Anderson Act thousands of megawatts of generating capacity were ordered by private firms. The expansion of commercial nuclear energy continued throughout the 1960s and into the early 1970s, spurred by a pro-nuclear consensus. Private producers had a new, modern, "safe and clean" technology; consumers were pleased to receive a cheap product; and, the government was happy to find beneficial civilian uses for this technology of the future.

Towards the end of the 1960s and into the 1970s, however, the promises that had built the pro-nuclear consensus showed signs of failing. Instead of being safe, clean, cheap, and abundant, the nuclear enterprise contained large social costs involving enormous environmental, health, safety, and financial risks. Today the industry is moribund. No new nuclear plants have been ordered since 1978 and all plants ordered since 1974 have been cancelled. Although there are approximately 125 plants in operation, nuclear power, particularly large scale plants of 1000 megawatts and more, seems destined for no future.

II. PRESIDENTS CARTER AND REAGAN TEST THE DOMINANT MODEL

The history of energy law and policy until 1973 demonstrates the development of a dominant model of energy policy. That model is more fully discussed at the end of this section. The decade following 1973 tested that model as world energy markets experienced cataclysmic changes. In response to those changes, President Carter attempted to centralize energy policymaking and decisionmaking but failed. In reaction to these centralization efforts, President Reagan attempted to dismantle the historic system of energy policymaking and decisionmaking. He failed as well. In short, neither administration was effective in radically altering energy regulation, which continued to hew closely to the model policy that had developed over the previous century. The inability of the two presidential administrations to control energy policy despite strong efforts to do so demonstrates the tenacity of the model described here.

A. President Carter and Centralization

The Carter Administration generated a cascade of energy regula-

60. Atomic Energy Damages Act (Price-Anderson), Pub. L. No. 85-256, 71 Stat. 576 (codified in scattered sections of 42 U.S.C. (1982)).

tions. During his four years in office, President Carter delivered several major energy addresses, each of which resulted in significant legislation. The creation of the DOE, together with sweeping energy policies directed at both conventional fuels and renewable resources, was the most significant attempt at national and comprehensive energy planning the country has yet experienced.

There were four significant energy events during the Carter Administration. First, Carter centralized energy administration in the cabinet level Department of Energy (DOE). The DOE was unable, however, to design a comprehensive national energy plan because energy decisionmaking and policymaking responsibilities were scattered over several branches of the federal government, and even within the DOE itself authority was fragmented.⁶¹

Second, Carter's "moral equivalent of war" speech on April 18, 1977,⁶² outlined the substantive principles of his energy policy. Although the principles were not explicitly clear,⁶³ the speech did lead to the passage of the National Energy Act in October of the following year.⁶⁴ The Act addressed conventional fuels as it tried to move the country away from a dependence on foreign oil, promote the use of coal, increase energy efficiency, modernize utility ratemaking, stimulate conservation, encourage the creation of a new market in electricity, and restructure a distorted market in natural gas.

The third major event was President Carter's energy address on April 5, 1979,⁶⁵ which stressed the need to decontrol oil prices as a means of increasing domestic oil production. The address led to the passage of the Crude Oil Windfall Profits Tax⁶⁶ designed to capture the economic rents realized by domestic oil producers as a result of the rise in world oil prices.

61. See J. TOMAIN, *supra* note 10. See also Aman, *Institutionalizing the Energy Crisis: Some Structural and Procedural Lessons*, 65 CORNELL L. REV. 491 (1980); Byse, *The Department of Energy Organization Act: Structure and Procedure*, 30 ADMIN. L. REV. 193 (1978).

62. President's Address to the Nation, PUB. PAPERS 656 (April 11, 1977).

63. J. TOMAIN, *supra* note 10, at 672-76.

64. The National Energy Act consists of five pieces of major legislation: the National Energy Conservation Policy Act, Pub. L. No. 95-619, 29 Stat. 3206 (codified as amended in scattered sections of 12, 15, 26, 31, and 42 U.S.C. (1982)); the Powerplant and Industrial Fuel Use Act of 1978, Pub. L. No. 95-620, 92 Stat. 3289 (codified as amended in scattered sections of 15 and 42 U.S.C. (1982)); the Natural Gas Policy Act of 1978, Pub. L. No. 95-621, 92 Stat. 3350 (codified at 15 U.S.C. §§ 3301-3432 & 42 U.S.C. § 7255 (1982)); the Public Utilities Regulatory Policies Act of 1978, Pub. L. No. 95-617, 92 Stat. 3117 (codified as amended in scattered sections of 15, 16, 26, 42, and 43 U.S.C. (1982)); and, the Energy Tax Act of 1978, Pub. L. No. 95-618, 92 Stat. 3174 (codified as amended in scattered sections of 26 and 42 U.S.C. (1982)).

65. President's Address to the Nation, PUB. PAPERS 609 (April 5, 1979).

66. Pub. L. No. 96-223, 94 Stat. 229 (codified as amended in scattered sections of 7, 12, 15, 19, 26, 31, 42, and 43 U.S.C. (1982)).

Finally, on July 15, 1979,⁶⁷ the President delivered another major energy address, returning to his moral equivalent of war rhetoric. Again, Congress responded, this time with the passage of the Energy Security Act of 1980.⁶⁸ The Energy Security Act was a dramatically conceived package of legislation that turned energy policy away from conventional resources and toward the development and promotion of synthetic fuels like oil and natural gas from coal, oil shale, and tar sands. The act also attempted to stimulate a third energy transition⁶⁹ from fossil fuels to renewable resources such as solar, biomass, alcohol, and geothermal steam while making conservation a larger part of the country's energy planning.

Together, the legislation that emerged during the Carter Administration did not achieve the intended result of coordinating national energy policy. Nor did it stimulate the so-called third energy transition from fossil fuels to renewable resources and conservation. Superficially, these failures may be explained either by the fact that Carter had only one term in office or by inadequate federal research and development. The actual reasons, however, run deeper. Stated simply, Carter's energy program went contrary to the country's entrenched model of energy policy. The attempted coordination failed because of the model's resistance to centralization; the transition also failed because of the model's reliance on the market to signal a move into other resources.

B. President Reagan and Deregulation

If President Carter's highly centralized, pro-government energy policy failed, it would seem to follow that President Reagan's private sector, supply-side, anti-government deregulation efforts surely would

67. President's Address to the Nation, PUB. PAPERS 1235 (July 15, 1979). See also President's Remarks at the Annual Convention of Countries, PUB. PAPERS 1241 (July 16, 1979).

68. The Energy Security Act, Pub. L. No. 96-294, 94 Stat. 611 (1980), also consists of several pieces of legislation including: the Defense Production Act Amendments of 1980, 94 Stat. 617 (codified in 50 U.S.C. §§ 2061-2166 (1982)); the United States Synthetic Fuels Corporation Act of 1980, Pub. L. No. 96-294, 94 Stat. 633 (codified as amended in scattered sections of 42 U.S.C. (1982)); the Biomass Energy and Alcohol Fuels Act of 1980, Pub. L. No. 96-294, 94 Stat. 683 (codified as amended in scattered sections of 7, 15, 16, and 42 U.S.C. (1982)); the Renewable Energy Resources Act of 1980, Pub. L. No. 96-294, 94 Stat. 715 (codified as amended in scattered sections of 16 and 42 U.S.C. (1982)); the Solar Energy and Energy Conservation Act of 1980, Pub. L. No. 96-294, 94 Stat. 719 (codified as amended in scattered sections of 12 and 42 U.S.C. (1982)); the Geothermal Energy Act of 1980, Pub. L. No. 96-294, 94 Stat. 763 (codified in scattered sections of 16 U.S.C. (1982)); and the Acid Precipitation Act of 1980, Pub. L. No. 96-294, 94 Stat. 770 (codified in 42 U.S.C. §§ 8901-8905, 8911-8912 (1982)).

69. The first transition, from wood to coal, occurred in the middle of the nineteenth century and the second transition from coal to oil and natural gas started at the beginning of this century and was completed by the end of World War II. See generally ENERGY IN THE AMERICAN ECONOMY, 1850-1975: AN ECONOMIC STUDY OF ITS HISTORY AND PROSPECTS ch. 3 (S. Schurr & B. Netschert eds. 1960).

succeed and that the DOE would be dismantled. This scenario did not come to pass, though there clearly has been greater federal reliance on the market and less on centralized planning since Reagan reversed some of Carter's energy policies. Indeed, President Reagan made his energy intentions clear in one of his first acts in office by decontrolling oil prices on January 28, 1981.⁷⁰ The oil price decontrol was largely symbolic, however, because they were scheduled to terminate on October 1st of that year.

The Reagan deregulation program did not spring from whole cloth.⁷¹ Natural gas deregulation, like oil deregulation, was scheduled to occur under a phased deregulation by the Natural Gas Policy Act of 1978 (NGPA).⁷² Similarly, although President Reagan campaigned to dismantle the United States Synthetic Fuels Corporation, the synfuels program failed because the market was unable to support it.⁷³ Synfuels producers were not able to process coal into natural gas or reap oil from tar sands or oil shale at costs competitive with oil and natural gas on the market.⁷⁴

In President Reagan's campaign against big government, the Department of Energy was to be abolished as part of Reagan's supply-side economic deregulation program. The DOE's continued existence and Reagan's failure to deregulate energy in substantial ways may be explained by the general intransigence of bureaucracies. That explanation is, however, too superficial. A more refined explanation, like the explanation for Carter's failure to centralize national energy planning, can be found in the dominant model. The model demonstrates that government regulation of energy is well embedded in the country's political economy. By violating that model through overreliance on the market and underreliance on government support of conven-

70. Exec. Order No. 12,287, 3 C.F.R. 124, reprinted in 15 U.S.C. § 757 note (1982).

71. Coal conversion legislation, the Powerplant and Industrial Fuel Use Act of 1978, Pub. L. No. 95-620, 92 Stat. 3289 (codified as amended in scattered sections of 15 and 42 U.S.C. (1982)), was largely repealed during the Reagan Administration. However, the Administration cannot be credited with a major deregulatory victory because coal conversion legislation dating back to President Nixon has been judged to be ineffective. According to a DOE report, for example, between January 1, 1983, and December 31, 1985, the DOE granted all requests for exemptions to the Fuel Use Act. See *Natural Gas Legislation; Hearing Before the Subcomm. on Energy Regulation and Conservation of the Senate Comm. on Energy and Natural Resources*, 99th Cong., 2d Sess. 208 (1986); Robertson, *The Powerplant and Industrial Fuel Use Act of 1978: Fuel Replacement*, 3 HARV. ENVTL. L. REV. 214 (1979).

72. Pub. L. No. 95-621, 92 Stat. 3350 (codified at 15 U.S.C. §§ 3301-3432 and 42 U.S.C. § 7255 (1982)).

73. See also R. VIETOR, *supra* note 6, at chs. 3, 8, and 13.

74. See, e.g., U.S. GENERAL ACCOUNTING OFFICE, GAO/RCED-88-53FS, SYNTHETIC FUELS: STATUS OF THE GREAT PLAINS COAL GASIFICATION PROJECT (1987) (concluding that the project was not financially feasible).

tional fuels and producers, Reagan's initiatives at deregulation were destined to fail.

C. *The Rough Equilibrium of Energy Policy*

The energy policies of the Carter and Reagan administrations did not last much beyond their immediate causes. President Carter's centralization policy was a continuation of the responses by Presidents Nixon and Ford to the Arab Oil Embargo, its negative economic effects on our domestic economy, and the threat it posed to national security. As the threat of OPEC receded and the country responded to market dislocations caused by the 1973 and 1979 embargoes, extraordinary government oil controls became unnecessary. Once consumers adjusted to the price of gasoline at the pump and oil producers received accurate price signals, oil price controls lost their immediacy. Indeed, their continuation adversely affected the economy.⁷⁵ Similarly, once artificial regulatory constraints were removed from natural gas markets, prices lowered and supplies increased, more closely reflecting market allocations.⁷⁶

President Reagan's energy prescriptions were motivated by his belief in supply-side economics. Although oil has undergone successful price and allocation deregulation and prices for most natural gas have been deregulated, these events resulted primarily from OPEC's loss of power to control supplies, giving rise to the call for oil import quotas by domestic producers. Also, the key transportation segments of the natural gas and electricity industries continue to possess market power, making deregulation unlikely and undesirable.⁷⁷

The Carter and Reagan policies were similar in that both were inconsistent with the dominant energy policy model and with the prevailing market. The dominant model requires supporting conventional resources and recognition that some segments of the energy industries possess market power requiring regulation. The prevailing market is one where OPEC exercises moderate controls, where the NGPA opened up natural gas supplies, and where demand for elec-

75. See J. KALT, *THE ECONOMICS AND POLITICS OF OIL PRICE REGULATION: FEDERAL POLICY IN THE POST-EMBARGO ERA* ch.7 (1981); see generally D. GLASNER, *POLITICS, PRICES, AND PETROLEUM: THE POLITICAL ECONOMY OF ENERGY* (1985).

76. See S. BREYER, *REGULATION AND ITS REFORM* ch. 13 (1982); M. SANDERS, *THE REGULATION OF NATURAL GAS: POLICY AND POLITICS, 1938-1978* ch. 7 (1981); A. TUSSING & C. BARLOW, *THE NATURAL GAS INDUSTRY: EVOLUTION, STRUCTURE, AND ECONOMICS* ch. 9 (1984).

77. See, e.g., Broadman, *Deregulating Entry and Access to Pipelines* in *DRAWING THE LINE ON NATURAL GAS REGULATION: THE HARVARD STUDY ON THE FUTURE OF NATURAL GAS* 125 (J. Kalt & F. Schuller eds. 1987) (natural gas pipelines have market power); P. JOSKOW & R. SCHMALNSEE, *MARKETS FOR POWER: AN ANALYSIS OF ELECTRIC UTILITY DEREGULATION* (1983) (market power exhibited in the transmission sector of the electricity industry).

tricity is more elastic than analysts previously thought. Therefore, oil, natural gas, and electricity supplies are more abundant than many dire predictions in the mid-1970s anticipated. This abundance can be traced to market forces that were stabilized by government oversight and was no more a product of Reagan's deregulation politics than it was a result of Carter's central planning. Rather, stable energy production, distribution, and consumption occurred as a consequence of the interplay of government and industry within the boundaries of our mixed-market political economy.⁷⁸

The key to understanding the political economy of energy is recognizing the symbiotic relationship between government and industry, which is manifest by four characteristics. First, in some segments of the industry energy resources are complementary, so the regulation of one does not necessarily adversely affect the other. Oil and electricity, for example, divide the energy pie into two more or less equal shares. Electricity does not occupy much of the transportation sector, and oil is an uneconomic means of producing electricity. Therefore, federal energy policy can support both oil and electricity production. Second, energy resources are susceptible to inter-fuel competition. A federal policy that promotes the use of coal to generate electricity simultaneously discourages the use of nuclear power for the same purpose, thus promoting competition. Third, industry and government depend on each other for the distribution and allocation of benefits and burdens. The federal government, for example, controls most of the new oil reserves but depends on private industry for their development. Finally, both business and government are stimulated to act by market disequilibria. Oil price controls were responses to the embargoes, and increased exploration for natural gas was the reaction to a loosening of federally established prices. This interplay between government and industry has created the dominant model herein described.

Domestic energy policy from the late nineteenth century to the present is based on the fundamental assumption that a link exists between the level of energy production and the gross national product.⁷⁹

78. See generally C. LINDBLOM, *POLITICS AND MARKETS: THE WORLD'S POLITICAL-ECONOMIC SYSTEMS* (1977).

79. Generally, energy analysts agree that there is a direct relationship between energy production and GNP. A more specific consensus is that there is no "iron law" mandating a direct one-to-one ratio between GNP and energy use. Rather, it is believed that the relationship is not static but varies with such variables as composition of GNP, energy efficiencies, energy mix, and energy prices. More specifically, as industrialized countries shift from heavy manufacturing to more service-oriented economies the ratio between GNP and energy use widens. See R. STobaugh & D. Yergin, *ENERGY FUTURE: REPORT OF THE ENERGY PROJECT AT THE HARVARD BUSINESS SCHOOL* 141-44 (1979); S. Schurr, I. Darmstadter, H. Perry, W. Ramsay & M. Russel, *ENERGY IN AMERICA'S FUTURE: THE CHOICES BEFORE US: A STUDY* 84-124 (1979); S. Schurr & B. Netschert, *ENERGY IN THE AMERI-*

Consistent with this assumption is the hope that economies of scale in energy production can still be realized. Simply, as more energy is produced, prices will remain stable or relatively low and the GNP will grow. Implicit in this simple formula is that the general welfare increases in direct proportion to the GNP. Energy policy continues to rely on this fundamental assumption and continues its faith in the market.

As a consequence, domestic energy policy favors large-scale, high-technology, capital-intensive, integrated, and centralized producers of energy from fossil fuels.⁸⁰ These archetype energy firms are favored over alternatives such as small solar or wind firms because energy policymakers believe that the larger firms can continue to realize economies of scale. Policymakers gamble that greater energy efficiencies can be achieved by archetype firms, rather than by alternative firms, through technological innovation, discovery of new reserves, and discovery of new energy sources. This belief may or may not be true. Nevertheless, it persists, and the favoritism will continue as alternative firms carry the burden of persuading policymakers otherwise. Put another way, as long as energy production, consumption, and prices remain stable, the embedded policy will continue. Thus, the dominant energy policy has the following general goals:

- (1) to assure abundant supplies;⁸¹
- (2) to maintain reasonable prices;⁸²
- (3) to limit the market power of archetype firms;⁸³

CAN ECONOMY, 1850-1975: AN ECONOMIC STUDY OF ITS HISTORY AND PROSPECTS 144-90 (1960); G. BARNEY, 1 THE GLOBAL 2000 REPORT TO THE PRESIDENT OF THE U.S., ENTERING THE 21ST CENTURY 175-76 (1980); Simon, *Introduction*, in THE RESOURCEFUL EARTH: A RESPONSE TO GLOBAL 2000 46-47 (J. Simon & H. Kahn eds. 1984); Singer, *World Demand for Oil*, in *id.* at 342; Yergin, *Crisis and Adjustment: An Overview*, in GLOBAL INSECURITY: A STRATEGY FOR ENERGY AND ECONOMIC RENEWAL 7-12 (D. Yergin & M. Hillenbrand eds. 1982); Dohner, *The Bedeviled American Economy*, in *id.* at 58-137.

80. For a discussion of the type of energy producers favored, see A. LOVINS, *SOFT ENERGY PATHS: TOWARD A DURABLE PEACE* 1-31 (1977).

81. Today, a healthy availability of energy resources means that the lights go on when the switch is flipped; the car starts when the key is turned; and, the air conditioning works. See R. STOBAUGH & D. YERGIN, *supra* note 79, at 144-48.

82. A corollary of the energy-GNP link is stability in energy prices. As long as the real price of energy is stable, productivity is stable because a larger portion of income is not expended on energy. With the exception of the decade approximately between 1973-1983, energy prices have been stable since the beginning of the century. See BUREAU OF THE CENSUS, *HISTORICAL STATISTICS OF THE UNITED STATES, COLONIAL TIMES TO 1957* (1960) (series G 244-330 & 353-426); U.S. DEP'T OF COMMERCE, *STATISTICAL ABSTRACT OF THE UNITED STATES 1984*, Table 985 (1983); *STATISTICAL ABSTRACT OF THE UNITED STATES 1987*, Table 941 (1986); ENERGY INFORMATION AGENCY, DOE/EIA-0384(87); *ANNUAL ENERGY REVIEW 1987*, Table 22 (1988).

83. "Market power" can be variously defined: "[T]he ability of a firm (or a group of firms, acting jointly) to raise price above the competitive level without losing so many sales so rapidly that the price increase is unprofitable and must be rescinded." Landes & Posner, *Market Power in Antitrust Cases*, 94

- (4) to promote inter- and intrafuel competition;⁸⁴
- (5) to support a limited number of conventional fuels (oil, natural gas, coal, hydropower, and nuclear power);⁸⁵ and,
- (6) to allow energy decisionmaking and policymaking to develop within an active federal-state regulatory system.

This policy, developed over the last 100 years, has served the country well by providing long periods of reliable energy and respectable degrees of economic stability. In light of this historical intransigence, we can project the policy into the future.

III. FUTURE DIRECTION

Although the model described herein cannot claim to have great predictive power, it does serve to explain and assess new energy initiatives. As the Carter and Reagan energy plans demonstrate, energy policies widely inconsistent with the model will likely fail. Currently, the Federal Energy Regulatory Commission (FERC) has begun to initiate major reforms in the natural gas and electricity industries. Though innovative, these reforms are consistent with the dominant model. Their innovation and consistency is demonstrated in this section.

As discussed, the Reagan Administration advocated a dramatic change in federal regulation, particularly distinct from the Carter Administration.⁸⁶ The Reagan program was driven by the desire for increased private sector involvement in the economy along a wide front. To accomplish the transition from a regulated economy to a free market economy, the program contained vigorous supply-side economic

HARV. L. REV. 937 (1981); see also Comment, *Landes and Posner on Market Power: Four Responses*, 95 HARV. L. REV. 1787 (1982); "Monopoly power is the power to control prices or exclude competition." *United States v. E.I. du Pont de Nemours & Co.*, 351 U.S. 377, 391 (1956); It is characterized by "the abilities of firms to influence the prices of their products either through independent actions or through actions coordinated with others." W. BALDWIN, MARKET POWER, COMPETITION, AND ANTITRUST POLICY 3 (1987).

Today, market power is threatened by natural gas pipelines and electric transmission facilities. See Pierce, *A Proposal to Deregulate the Market for Bulk Power*, 72 VA. L. REV. 1183 (1986) (electricity transmission retains market power); Pierce, *Reconstituting the Natural Gas Industry from Wellhead to Burnertip*, 9 ENERGY L.J. 1, 16-18 (1988) (natural gas transmission retains market power).

84. See generally J. CLARK, *supra* note 6; R. VIETOR, *supra* note 6.

85. Most of the fuels produced and consumed domestically consist of fossil fuels like coal, natural gas, and oil. See *supra* note 26.

86. In *Energy Advice for the New Administration*, 46 WASH. & LEE L. REV. 63 (1989), I argue that Presidents Carter and Reagan both were mistaken in their energy policy design because both policies ran counter to a basic model of energy policy that has existed for about a century. President Carter's energy policy was too centralized and depended too much on central planning and coordination. President Reagan's energy policy was too decentralized and ignored the important role that government plays in stabilizing energy industries, especially in unstable markets.

incentives and broad-based deregulation proposals. As has been stated, at least in regard to the energy markets, the Reagan Revolution has not come to pass completely. The Department of Energy still functions, supply-side economics has not displaced government support, and deregulation has not taken hold to the extent of eliminating a great number of energy statutes, regulations, and agencies.⁸⁷ Still, it would be a mistake to say that the Reagan Administration had no effect on federal energy regulation. Reagan energy initiatives have the potential for significantly transforming the natural gas and electricity industries and have affected the way energy industries are analyzed. The legacy of the Reagan years is that energy proposals are being measured against a market standard. If an unfettered free market will not work for a particular energy industry or segment of an industry, then the government proposes to create hybrid (contestable) markets⁸⁸ to avoid market imperfections.

The story of energy in the 1980s was marked by more than a touch of irony. Oil prices were decontrolled, and OPEC lost its death grip on the global oil market with the ironic consequence that domestic oil prices fell to what many believe to be dangerously low levels.⁸⁹ Natural gas prices were largely deregulated, and although the market was clearing as more natural gas was available and as prices began to drop, many customers were unable to purchase lower priced gas because they were locked into long-term contracts with onerous take-or-pay penalties.⁹⁰ Demand for electricity levelled off, and growth steadied at between 2% and 3% per year,⁹¹ as most electric utilities were able to weather the storm of nuclear plant cancellations. Yet the electricity industry enters the 1990s confronting potentially large needs for power after what some analysts see as a period of financial austerity

87. Deregulation of oil prices and natural gas prices are significant, yet the genesis for these deregulatory activities was established by the Carter Administration. Similarly, while the Reagan Administration witnessed the repeal of the Fuel Use Act, Pub. L. No. 100-42, 101 Stat. 310 (1987), and the dismantling of the U.S. Synthetic Fuels Corporation, neither regulatory scheme got off the ground and their mutual demise can better be attributed to market forces.

88. See generally Bailey & Baumol, *Deregulation and the Theory of Contestable Markets*, 1 YALE J. ON REG. 111 (1984); W. BAUMOL, J. PANZAR, & R. WILLIG, *CONTESTABLE MARKETS AND THE THEORY OF INDUSTRY STRUCTURE* (1982).

89. See, e.g., W. HOGAN & B. MOSSAVAR-RAHMANI, *ENERGY SECURITY REVISITED* (1987) (proposing an oil tariff as high as \$10 a barrel); U.S. DEPT. OF ENERGY, DOE/S-0057, *ENERGY SECURITY: A REPORT TO THE PRESIDENT OF THE UNITED STATES* ch. 2 (1987) (does not propose a tariff but notes the threats to the domestic oil industry due to low oil prices); *Domestic and International Petroleum Situation and the Implications of Fees on Imported Oil: Hearings Before Senate Comm. on Energy and Natural Resources*, 99th Cong., 2d Sess. (1986) (discussing oil import fees).

90. J. TOMAIN & J. HICKEY, *ENERGY LAW AND POLICY* ch. 7 (1989).

91. L. HYMAN, *AMERICA'S ELECTRIC UTILITIES: PAST, PRESENT AND FUTURE* Table 3-1, at 22 (3d ed. 1988).

regarding investment in new generation.⁹² Adding another twist to the tale, nuclear power's primary competitor, coal, comes with problems of plenty. Although coal is the most abundant domestic resource for the production of electricity, threats to the environment and to human health raise the private and social costs of its use. Finally, though energy industries (with the exceptions of the nuclear industry⁹³ and some domestic oil producers) have generally enjoyed increasing economic stability, these industries are not functioning at efficient levels.⁹⁴

The federal regulatory scheme has seen a series of "unintended [economic] consequences" that demand government attention for the 1990s and for sound energy policies well into the twenty-first century.⁹⁵ It may be the final irony in the energy story that energy markets are becoming more competitive, yet government regulation is needed to move these emerging markets into that more competitive environment.⁹⁶ Indeed, contemporary energy initiatives, particularly

92. See P. NAVARRO, *THE DIMMING OF AMERICA: THE REAL COST OF ELECTRIC UTILITY REGULATORY FAILURE* (1985) (discusses the "cost minimization" strategy of electric utility managers).

93. J. TOMAIN, *NUCLEAR POWER TRANSFORMATION* 174 (1987).

94. See, e.g., J. KALT, *THE ECONOMICS AND POLITICS OF OIL PRICE REGULATION: FEDERAL POLICY IN THE POST-EMBARGO ERA* (1981) (critical of federal oil price controls); D. GLASNER, *POLITICS, PRICES, AND PETROLEUM: THE POLITICAL ECONOMY OF ENERGY* (1985) (same); Broadman, *supra* note 77 (critical of federal natural gas regulation); A. TUSSING & C. BARLOW, *supra* note 44 (same); P. NAVARRO, *supra* note 92 (critical of electricity regulation); Huber, *Electricity and the Environment: In Search of Regulatory Authority*, 100 HARV. L. REV. 1002 (1987) (same); Pierce, *A Proposal to Deregulate the Market for Bulk Power*, 72 VA. L. REV. 1183 (1986) (same); J. TOMAIN, *NUCLEAR POWER TRANSFORMATION* (1987) (critical of nuclear regulation); J. CAMPBELL, *COLLAPSE OF AN INDUSTRY: NUCLEAR POWER AND THE CONTRADICTIONS OF U.S. POLICY* (1988) (same). Regulatory critics have pointed out the adverse economic consequences of direct government price and allocation regulations. Government price and allocation controls, they argue, send wrong price signals to consumers thus resulting in over- or under-consumption of goods. In this way, government regulations create inefficiencies by creating surpluses or shortages.

95. I borrowed the phrase "unintended consequences" of federal energy regulation from Chubb, *U.S. Energy Policy: A Problem of Delegation*, in *CAN THE GOVERNMENT GOVERN?* 47-99 (J. Chubb & P. Peterson eds. 1989). Chubb argues that the unintended and adverse economic consequences of federal energy regulation can be at least partially remedied by more particularized congressional delegation of authority to agencies. While I believe that Chubb is correct in recognizing a discontinuity between energy economics and energy policies, I do not think that the delegation doctrine has much to offer in the way of remedies. I suspect we are quibbling over terminology and emphasis and that we most likely agree that the discontinuity is one between politics and markets and that the discontinuity needs to be reconciled.

96. See C. PHILLIPS, *THE REGULATION OF PUBLIC UTILITIES* (2d ed. 1988); J. BONBRIGHT, *PRINCIPLES OF PUBLIC UTILITY REGULATION* (2d ed. 1988); A. KAHN, *THE ECONOMICS OF REGULATION: PRINCIPLES AND INSTITUTIONS* (2 vols.) (2d ed. 1988). Indeed, the Reagan-Bush transition was accompanied by a series of General Accounting Office reports pointing out the areas needing continued government regulation. Regarding the Department of Energy, the Comptroller General listed several areas requiring government oversight:

This Report on the Department of Energy describes our concerns about the following is-

in the natural gas and electricity industries, propose to create a new form of market, here called "government markets," for the pricing and distribution of these energy sources. These government markets are consistent with the dominant model because government and industry work together to promote economic stability and reliable and reasonably priced energy from a limited number of resources. Below, government markets will be described and then applied to FERC electricity and natural gas initiatives.

A. "Government Markets"

William Baumol's theory of contestable markets⁹⁷ is the basis of this discussion of "government markets." He and his colleagues argue that something in between the model of perfect competition and the theory of natural monopoly more accurately represents how firms operate, particularly in a regulated environment. Once this hybrid is understood, policymakers can regulate accordingly to improve efficiency.

Microeconomic analysis starts with a model of perfect competition. Introductory economics texts describe perfect competition as

an economic model of a market possessing the following characteristics: each economic agent acts as if prices are given, that is, each acts as a price-taker; the product is homogeneous; there is free mobility of all resources, including free entry and exit of business firms, and all economic agents in the market possess complete and perfect knowledge.⁹⁸

Clearly, these characteristics represent significant constraints for any policymaker because no such "market" exists and market imperfections abound. However, these imperfections neither deter analysis nor prevent policy formation. Rather, the competitive market model helps identify the imperfections, and, once identified, the imperfections become justifications for government intervention.

The model of perfect competition is counterbalanced by the the-

ues: (1) modernizing and managing the safe operation of the Department's nuclear weapons complex, (2) reducing the nation's vulnerability to oil disruptions, (3) developing a nuclear waste program, (4) commercializing clean coal technologies, (5) responding to changes in the electric utility industry, (6) improving controls over the export of sensitive nuclear data, and (7) revitalizing the uranium enrichment program.

U.S. GENERAL ACCOUNTING OFFICE, GAO/OCG-89-16TR, TRANSITION SERIES: ENERGY ISSUES 1 (1988). See also U.S. GENERAL ACCOUNTING OFFICE, GAO/OCG-89-20TR, ENVIRONMENTAL PROTECTION AGENCY ISSUES (1988); U.S. GENERAL ACCOUNTING OFFICE, GAO/OCG-89-24TR, INTERIOR ISSUES.

97. See *supra* note 88.

98. See C.E. FERGUSON & J.P. GOULD, MICROECONOMIC THEORY 225 (1975). See also R. LIPSEY, G. SPARKS & P. STEINER, ECONOMICS ch. 13 (1973); E. PHELPS, POLITICAL ECONOMY ch. 10 (1985); P. SAMUELSON & W. NORDHAUS, ECONOMICS ch. 3 (12th ed. 1985); H. VARIAN, INTERMEDIATE MICROECONOMICS: A MODERN APPROACH ch. 1 (1987).

ory of natural monopoly. A textbook definition of natural monopoly is: "[a] firm or industry whose average cost per unit of production falls sharply over the entire range of its output. Thus, a single firm, a monopoly, can supply the industry output more efficiently than can multiple firms."⁹⁹ A utility is a paradigmatic example of a natural monopoly because it can lower its average unit costs over a long range of production. Also, because a large capital investment is necessary to play in the utility market, new entrants are discouraged, thus avoiding economic waste. Under the theory of natural monopoly, then, a single firm is a more efficient producer than are multiple firms.¹⁰⁰ The traditional government response to natural monopolies has been to secure their monopoly status in exchange for the strong hand of government intervention through the use of price-setting, service obligations, territorial allocations, and heavy entry and exit restrictions.¹⁰¹

The theory of contestable markets admits that perfect competition does not exist for certain products such as electricity and natural gas but that government regulation need not be heavy-handed, even with industries having the attributes of a natural monopoly. Instead, contestable markets utilize more flexible regulatory tools, thus softening intervention.

Thus a "contestable market" is an alternative, both to the model of perfect competition and the theory of natural monopoly.¹⁰² Indeed, such markets can be conceptualized as a hybrid of these two economic models. The contestable market theory realizes that although perfectly competitive markets do not exist, economies of scale, as found in natural monopolies, do not automatically preclude an industry from improving efficiency. The basic characteristics of contestable markets are easy entry and exit, which means that new entrants can enter the market with little or no sunk costs.¹⁰³ Also, market incumbents are

99. See P. SAMUELSON, *supra* note 98, at 911. See also R. POSNER, *ECONOMIC ANALYSIS OF LAW* ch. 12 (3d ed. 1986); S. BREYER, *REGULATION AND ITS REFORM* 15-19 (1982).

100. The problem is that a monopolist can reduce output and raise prices simultaneously, thus creating a "deadweight" loss of consumer surplus. By raising prices and reducing output, consumers are denied the opportunity of purchasing goods at prices along the range that is above a competitive level and below the monopoly price. S. BREYER, *supra* note 99, at 15-16, 389-92; R. POSNER, *supra* note 99, at 319-20.

101. See S. BERG & J. TSCHIRHART, *NATURAL MONOPOLY REGULATION: PRINCIPLES AND PRACTICE* (1988).

102. See Bailey & Baumol, *supra* note 88, at 113.

103. *Id.* The authors go on to explain this formal definition by saying:

Thus, a market that is protected by substantial entry barriers is clearly not contestable, because the barriers permit an equilibrium involving monopoly prices and monopoly profits. In the absence of barriers, those prices and profits would be undermined by entrants seeking to take advantage of the profit opportunity they provide. Thus, the matter can be looked at in a second and equivalent way. A market is perfectly contestable if firms can enter it and then, if they choose, exit without losing any of their investment. If this condi-

slow to respond to the lower prices of new entrants, thus making the incumbents susceptible to competition. "A contestable market works most effectively if, in response to a profit-making opportunity, new firms can enter quickly, earn profits at least temporarily (before incumbents can institute countermeasures) and then leave without any loss of investment in sunk capital."¹⁰⁴

The concept of a "government market" consists of a category broader than the model of a contestable market and has the following characteristics:

(1) *Externalities*. A government market is a reaction to ineffective regulations or mismatches in situations where continuing regulation is seen as desirable. Electricity distribution, for example, will not be completely deregulated because the distribution system exhibits monopoly characteristics and because distribution of this energy resource is deemed to be in the public interest.

(2) *Entry and Exit*. Like the contestable market, the government market has looser entry and exit restrictions. In other words, regulations facilitate players in the market. Examples of such a regulation would be a qualifying facility (QF) under PURPA¹⁰⁵ and easier abandonment in the natural gas industry regarding dedicated gas.

(3) *Product Definition*. The government market determines product definition. The government sets rules to determine what good is traded in a particular market. Bulk electricity is an example of such a good, as are air pollution rights.¹⁰⁶

(4) *Price-setting*. The government market exists to serve a constrained price-setting function. The regulations exist to create a situation in which prices are set through bargaining within a lim-

tion is satisfied, no prices set by the incumbents that offer profits to entrants can long endure. Thus, freedom of entry and exit are the key requirements of contestability.

The second version of the formal definition of a contestable market is tantamount to a requirement that there be no sunk costs.

Id. Formally, a market is defined to be perfectly contestable if no price in that market can be in equilibrium when its magnitude is such as to enable an entrant to undercut it and nevertheless earn a profit.

104. *Id.* at 114.

105. See American Paper Inst. v. American Elec. Power Serv. Corp., 461 U.S. 402 (1982) (an example of a qualifying facility (QF) under PURPA).

106. See NATIONAL REGULATORY RESEARCH INSTITUTE, COMPETITIVE BIDDING FOR ELECTRIC GENERATING CAPACITY: APPLICATION AND IMPLEMENTATIVE (1988); Hahn & Hester, *Where Did All the Markets Go? An Analysis of EPA's Emissions Trading-Program*, 6 YALE J. ON REG. 109 (1989).

ited range.¹⁰⁷ This auction is intended to eliminate administrative price-setting.

(5) *Allocation*. The government market serves an allocation function. Through the above rules and regulations, goods are directed to certain consumers. Natural gas and electricity reliability are monitored through this allocation mechanism.¹⁰⁸

In a real way, the concept of a government market gives the phrase "political economy" its full force. This hybrid market signifies a realization that neither government nor market exist independently of each other and that government regulation is a matter of emphasis between economics and politics. This realization recalls Charles Lindblom's phrase that "the greatest distinction between one government and another is in the degree to which market replaces government or government replaces market."¹⁰⁹

Since the beginning of the 1980s, energy markets have moved toward equilibrium, thus reducing the need for radical Executive and Congressional intervention. Instead, day-to-day regulation takes place away from the more political branches and is accomplished through administrative agencies and the court system. Contemporary federal regulation of the natural gas and electric industries is occurring most noticeably at the Federal Energy Regulatory Commission (FERC), the primary innovator in the developing area of government markets.

The simple theme for FERC regulation is competition. From FERC's energy policy perspective, relative abundance and low prices

107. *But see* Farmers Union Cent. Exchange, Inc. v. FERC, 734 F.2d 1486 (D.C. Cir.), *cert. denied sub nom.*, Williams Pipe Line Co. v. Farmers Union Cent. Exchange, Inc., 469 U.S. 1034 (1984).

108. Because government markets institute a new hybrid regulatory/market regime, there is the possibility of a mismatch between the newly created market and the industry problem it is intended to fix. Consequently, there are effects that need to be watched, three of which are:

(1) *Transition Costs*. Legal transitions are costly, and these costs must be monitored. The creation of a government market in natural gas and electricity, for example, may well raise the cost of these services to certain captive customers without government oversight.

(2) *Antitrust*. As government regulation lessens, there will be a need for an increase in antitrust oversight. Because the government is now creating markets, these markets will run into the very sticky area of antitrust exemptions. Should a player in a government market receive any special antitrust immunity? This will be a central question to this whole enterprise. In addition, antitrust enforcement will generally have to be watched to ensure that either these government created markets or actors outside the markets do not exercise market power.

(3) *Long-term Contracts*. There will be many players who will seek to contract around the government market or even contract benefits out of that market. Transaction cost economics provide a model of what happens when there is contracting to avoid government regulations. In energy law, the problem of take-or-pay contracts as well as long-term contracts with captive shippers of coal are two examples of contracting around government regulations. Those contracts have adverse consequences for some consumers of those products and those third parties may require government protection.

109. C. LINDBLOM, POLITICS AND MARKETS: THE WORLD'S POLITICAL-ECONOMIC SYSTEMS ix (1977).

indicate increasing competition in the natural gas and electricity industries. FERC is trying to move the pricing and allocation decisions of both industries toward market-based mechanisms and away from administrative law judges. FERC initiatives in the two industries are examples of the emergence of government regulation freeing markets for the pricing and allocation of goods.

B. FERC Natural Gas Initiatives

Recent FERC natural gas regulation has been considered nothing short of revolutionary.¹¹⁰ Through a series of rulemaking orders as interpreted by the D.C. Circuit Court of Appeals, and provoked by the market dislocation in the mid-1970s caused by dual natural gas markets,¹¹¹ the natural gas industry is facing its most significant restructuring since the Natural Gas Policy Act of 1978 (NGPA).¹¹²

Shortages and rising prices in the mid-1970s resulted in significant regulatory activity by Congress and structural changes in the natural gas industry. First, Congress passed the NGPA, which was designed to stimulate production, unify the market, and cushion consumers from gross price shocks.¹¹³ The second event was private ordering through contract.¹¹⁴ In addition, pipeline companies entered into long-term contracts with producers under which the pipelines were obligated to take-or-pay for up to 95% of the contract amount of natural gas.¹¹⁵ Unfortunately, when an abundance of gas developed, as in the 1980s, high take-or-pay obligations prevented lower priced natural gas from getting to the market. The market was thus distorted.¹¹⁶

In response to this distortion, pipelines, producers, and consum-

110. Fox, *Transforming an Industry by Agency Rulemaking: Regulation of Natural Gas by the Federal Energy Regulatory Commission*, 23 LAND & WATER L. REV. 113-14 (1988). See also Pierce, *Reconstituting the Natural Gas Industry from Wellhead to Burnertip*, 9 ENERGY L.J. 22 (1988).

111. See S. BREYER & P. MACAVOY, *ENERGY REGULATION BY THE FEDERAL POWER COMMISSION* (1974); Breyer & MacAvoy, *The Natural Gas Shortage and the Regulation of Natural Gas Producers*, 86 HARV. L. REV. 941 (1973); A. TUSSING & C. BARLOW, *supra* note 76; S. BREYER, *supra* note 99.

112. Pub. L. No. 95-621, 92 Stat. 3351 (codified at 15 U.S.C. §§ 3301-3432 (1982)). See also Allison, *Natural Gas Pricing: The Eternal Debate*, 37 BAYLOR L. REV. 1 (1985).

113. Allison, *supra* note 112.

114. See Pierce, *Natural Gas Regulation, Deregulation, and Contracts*, 68 VA. L. REV. 63 (1982).

115. See, e.g., Medina, McKenzie & Daniel, *Take or Litigate: Enforcing the Plain Meaning of the Take-or-Pay Clause in Natural Gas Contracts*, 40 ARK. L. REV. 185 (1986).

116. From 1978 through 1987, the NGPA has had extremely unfavorable effects on all segments of the industry. Consumer prices have been well above the level that would exist in a competitive market. At the same time, the existence of a large surplus of gas throughout the period has forced the shut in of many gas supplies and has driven a large number of gas producers into bankruptcy. Simultaneously, interstate pipelines have incurred contractual liabilities of \$11.7 billion for gas they are obligated to pay for but unwilling to take because the

ers petitioned FERC for relief. Pipelines tried to insure their cash flow to pay their fixed and variable costs through minimum billings.¹¹⁷ Pipelines also tried to get access to the surplus market through special marketing programs.¹¹⁸ Producers simply wanted to get their gas to market, and they supported the special marketing programs. Consumers, naturally, tried to avoid the imposition of "minimum bills" in which gas was more costly than its market value. Also, some consumers protested the new marketing programs that excluded them from participation.¹¹⁹

FERC reacted to these requests and to changing market conditions by attempting to loosen pricing and entry and exit controls for the purpose of letting gas flow more smoothly through the distribution system from producer to end-user or, in industry jargon, from wellhead to burnertip. Because pipelines were the bottleneck in the natural gas fuel cycle, they were the targets of FERC regulatory efforts.¹²⁰

In Order No. 436,¹²¹ FERC proposed to separate the merchant and transportation roles of pipeline companies as a means of opening access for captive customers and others who found it difficult to switch fuels or supplies.¹²² Order No. 436 was ultimately remanded to FERC

market will not permit them to sell gas in the volumes and at the prices to which they are committed by contract.

Pierce, *Reconstituting the Natural Gas Industry from Wellhead to Burnertip*, *supra* note 83, at 11 (footnotes omitted).

117. Elimination of Variable Costs from Certain Natural Gas Pipeline Minimum Commodity Bill Provisions, Order No. 380, *Midwestern Gas Transmission Co.*, 26 F.E.R.C. (CCH) ¶ 61,318 (1984). *See also*, Order No. 380-A, 28 F.E.R.C. ¶ 61,175 (1984); Order No. 380-C, 29 F.E.R.C. (CCH) ¶ 61,077 (1984); and Order No. 380-D, 29 F.E.R.C. (CCH) ¶ 61,332 (1984); *Wisconsin Gas Co. v. FERC*, 770 F.2d 1144 (D.C. Cir. 1985), *cert. denied*, 476 U.S. 1114 (1986). Fixed cost provisions of minimum billings were addressed in individual proceedings. *See, e.g.*, *Transwestern Pipeline Co. v. FERC*, 820 F.2d 733 (5th Cir. 1987), *cert. denied*, 484 U.S. 1005 (1988).

118. *Columbia Gulf Transmission Co.*, 25 F.E.R.C. (CCH) ¶ 61,220 (1983). While utilities (also referred to as local distribution companies or LDCs) can pass through the higher cost natural gas to their customers, the high prices will reduce demand thus reducing LDCs' profits. Therefore, neither LDCs nor their customers were happy with the SMP. *See Maryland People's Counsel v. FERC*, 761 F.2d 768 (D.C. Cir. 1985); 761 F.2d 780 (D.C. Cir. 1985); and, 768 F.2d 450 (D.C. Cir. 1985).

119. There was a double sting to the exclusion from the new marketing programs. Not only were consumers not able to buy the cheaper gas, they had to pay a higher portion of fixed costs not absorbed by the beneficiaries of the new programs.

120. *See Pierce, Reconsidering the Roles of Regulation and Competition in the Natural Gas Industry*, 97 HARV. L. REV. 345 (1983) (questioning the need for pipeline regulation in today's market); Note, *Is Natural Gas Pipeline Regulation Worth the Fuss?*, 40 STAN. L. REV. 753 (1988) (same).

121. *See* Order No. 436, Regulation of Natural Gas Pipelines After Partial Wellhead Decontrol, 50 Fed. Reg. 42,408 (1985), *modified*, Order No. 436-A, 50 Fed. Reg. 52,217 (1985), *modified*, Order No. 436-B, 51 Fed. Reg. 6,398 (1986), *vacated*, *Associated Gas Distrib. v. FERC*, 824 F.2d 981 (D.C. Cir. 1987), *cert. denied*, 108 S. Ct. 1469 (1988).

122. According to Professor William Fox, Order No. 436 had four objectives:

- (1) non-discriminatory transportation for all shippers if a pipeline volunteers to open access;

by the D.C. Circuit in *Associated Gas Distributors v. FERC*¹²³ for FERC's failure to relieve pipelines from their take-or-pay burdens. Even though it did result in a remand, the opinion largely approved of FERC's regulatory efforts. The court upheld FERC's jurisdiction to promulgate open access provisions as long as the provisions were non-discriminatory. As a result, *Associated Gas Distributors* is a landmark decision for natural gas regulation. The court also sustained the order's flexible rate treatment. This approach to ratemaking allowed pipelines to set rates within a zone of reasonableness and to give discounts rather than have the pipelines tied to a single cost-based rate.¹²⁴ More innovatively, the court upheld regulations that allowed pipeline customers to modify their contracts with pipelines unilaterally under certain circumstances by converting a percentage of their contract demand from a gas purchase obligation to an "unbundled" transportation obligation.

After being thrice rebuffed by the court¹²⁵ for not adequately handling the take-or-pay issue, FERC was forced to respond. It did so

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- (2) relaxed ratemaking treatment of pipelines' take-or-pay buyout agreements;
 - (3) expedited and easier treatment for some new construction and abandonments; and,
 - (4) price protection for some customers of pipelines who enjoyed the advantages of "old" gas.

Fox, *supra* note 110, at 125.

Professor Pierce characterizes the "voluntariness" of the transportation provisions of Order No. 436 as follows:

The effect of Order No. 436 on any pipeline that becomes an equal access carrier is to force the pipeline to compete with others—producers, other pipelines and gas marketing companies—in the sales market. As a result, the pipeline no longer has monopoly power in the sales market, the monopoly rationale for regulating pipeline sales is eliminated, and the pipeline no longer can use regulation of the sales market as a means of protecting itself from competition.

Pierce, *Reconstituting the Natural Gas Industry from Wellhead to Burnertip*, *supra* note 83, at 25 (footnotes omitted). See also Griggs, *Restructuring the Natural Gas Industry: Order No. 436 and Other Regulatory Initiatives*, 7 ENERGY L.J. 71 (1986).

123. See *Associated Gas Distrib. v. FERC*, 824 F.2d 981 (D.C. Cir. 1987), *cert. denied sub nom.*, *Southern California Gas Co. v. FERC*, 108 S.Ct. 1469 (1988).

124. FERC is experimenting with a form of "Ramsey" rates. Professor Pierce explains:

The FERC undertakes this task in Order No. 436 by adopting Ramsey pricing principles for pipeline transportation. A pipeline can charge any rate between a ceiling based on its fully allocated cost of transportation and a floor based on its variable cost. The difference between the two is, in aggregate, the pipeline's fixed costs, and the amount by which the rate charged a customer exceeds the floor is that customer's contribution to the pipeline's fixed costs.

Pierce, *Reconstituting the Natural Gas Industry from Wellhead to Burnertip*, *supra* note 83, at 25 (footnotes omitted).

125. The D.C. Circuit told the FERC to look more closely at the take-or-pay issue in *Maryland People's Counsel v. FERC*, 761 F.2d 780 (D.C. Cir. 1985); *Associated Gas Distrib. v. FERC*, 824 F.2d 981 (D.C. Cir. 1987), *cert denied*, 108 S.Ct. 1469 (1988); and in *Consolidated Edison Co. of New York v. FERC*, 823 F.2d 630, 641 (D.C. Cir. 1987) (1985 FERC abandonment policy remanded because it contained the same "pervasive defect" of avoiding the take-or-pay issue found in Order No. 380 and Order No 436).

with Order No. 500.¹²⁶ According to FERC Chair Martha Hesse, the underlying philosophy of Order No. 500 is "spreading the pain," to the end of making open access "a fact of life in the gas industry."¹²⁷

Order Nos. 436 and 500 form the heart of the regulatory revolution in the natural gas industry by their attempts to pry open access to markets through pipelines and by trying to resolve the multi-billion dollar take-or-pay liability problem. Although these efforts recently have been dealt a setback by the Fifth Circuit,¹²⁸ FERC has been moving toward the objective of promoting a more competitive natural gas market by focusing on pipelines. By easing entry and exit controls and expanding price decontrols, these natural gas regulations constitute a government market.¹²⁹

C. FERC Electricity Initiatives

From the end of World War II until the late 1960s, the electricity market remained stable. Then from the late 1960s until the early 1980s, the market experienced drastic swings, eventually leveling off to a steady growth averaging between 2% and 3% per year.¹³⁰ The consensus interpretation of these market changes is that excess capacity, slowed growth in demand, greater price elasticity of demand, new en-

126. See Regulation of Natural Gas After Partial Wellhead Decontrol, Order No. 500, 52 Fed. Reg. 30,334 (1987), *modified*, Order No. 500-A, 52 Fed. Reg. 39,507 (1987), *modified*, Order No. 500-B, 52 Fed. Reg. 39,630 (1987), *modified*, Order No. 500-C, 52 Fed. Reg. 48,986 (1987), *modified*, Order No. 500-D, 53 Fed. Reg. 8,439 (1988). Natural gas lawyers Hollis and LeDuc point out that the 500 series of FERC orders is intended to remedy the defects of Order No. 436 as found by the D.C. Circuit in *Associated Gas Distributors* by:

- (1) Providing that an open access pipeline may refuse transportation of producer owned gas unless the producer offers the pipeline a take-or-pay credit;
- (2) adopting two alternative mechanisms for pipeline recovery of past buy-down or buy-out of take-or-pay liabilities;
- (3) establishing principles for earlier recovery of future gas supply charges; and,
- (4) eliminating the contract demand reduction.

Hollis & LeDuc, *Order No. 500 et al.: The FERC's Long and Winding Road to Take-or-Pay Resolution*, 2 NAT. GAS L.J. 1, 11 (1988).

127. See Romo, *A Natural Gas Policy Update—Spreading the Pain: Part II*, 121 PUB. UTIL. FORT., May 26, 1988, at 40-41.

128. *Mobil Oil Exploration & Prod. Southeast, Inc. v. FERC*, 885 F.2d 209 (5th Cir. 1989) (FERC Order No. 451 vacated on ratemaking, pre-granted abandonment, take-or-pay, and open access).

129. In the Order No. 451 series, FERC extended price deregulation and eliminated "vintaging." See 52 Fed. Reg. 22,168 (1986); FERC Order No. 490-A, 53 Fed. Reg. 29,002 (1988) (18 C.F.R. Pt. 157). In Order No. 490, 53 Fed. Reg. 4,121 (1988) and Order No. 490-A, 53 Fed. Reg. 29,002 (1988) (18 C.F.R. Pt. 157) FERC loosened its abandonment policies. With Order No. 497, 53 Fed. Reg. 22,139 (1988) (18 C.F.R. Pts. 161, 250, 284) FERC attempted to curb anti-competitive gas marketing practices.

130. Yokell & Violette, *Market Structure and Opportunities in the Electric Utility Industry Today*, 121 PUB. UTIL. FORT., Jan. 7, 1988, at 9.

trants in the generation end of the fuel cycle,¹³¹ and merger, acquisition, and spin-off activities all evince a competitive climate the electricity industry has not seen since the turn of the century.¹³²

Yet, as in the natural gas market, there is a paradox accompanying increased competition. Although there are more options available for the generation of electricity on the supply side and more options for consumers to choose from on the demand side, these options are not available to all consumers. Specifically, purchasing flexibility exists for large industrial consumers but does not filter down to smaller customers.¹³³

In a controversial¹³⁴ series of proposed rulemakings, FERC is gravitating toward greater reliance on market-like competition to align more closely supply, demand, and price, rather than have prices artificially set by federal or state regulators. FERC's free market favoritism is theoretically sound. However, there are structural impediments in the electricity industry—just as there are in the natural gas industry—that make complete transition from regulation to market undesirable. Like the natural gas industry, the electricity industry may be able to promote more competition in the generation segment of its fuel cycle, but the transmission segment exhibits monopoly characteristics, and, hence, this segment must be regulated. Regulation of transmission is necessary to prevent captive customers, small commercial and residential users, from being forced to absorb excess utility costs.

FERC's rulemaking activities aspire to achieve two goals. First, FERC wants to discontinue setting wholesale rates administratively and to have them set in something like a competitive market.¹³⁵ Sec-

131. See generally Lennon & Meyers, *Net Energy Use Impacts of PURPA Implementation*, 122 PUB. UTIL. FORT., May 12, 1988, at 28.

132. See O'Connor, Levin, Cahill & Keenan, *The Transition to Competition in the Electric Utility Industry*, 8 ENERGY L. & POL'Y, 223 (1988); Kirsten, *Deregulation and Reorganization in the Electric Utility Industry*, 120 PUB. UTIL. FORT., Sept. 3, 1987, at 11; Scherer, *Powering America to a More Productive Future*, 121 PUB. UTIL. FORT., June 9, 1988, at 17; *The Electric Utility Executives' Forum*, 121 PUB. UTIL. FORT., June 9, 1988, at 78; Studness, *Electric Utility Capacity Planning and U.S. Energy Policy*, 122 PUB. UTIL. FORT., July 7, 1988, at 33.

133. Yet those smaller, captive, residential and commercial customers will bear increased costs and reliability burdens created by those who are granted such purchasing flexibility.

* * *

By ensuring service to captive customers who are unable to leave the system . . . utilities will incur higher costs. These costs will make them less likely to compete with their unregulated counterparts for the more profitable segments of the market. This in turn will make it increasingly difficult to serve their customers economically.

Scherer, *supra* note 132, at 19.

134. See generally Romo, *1988: The Year the FERC Shook Electricity*, 122 PUB. UTIL. FORT., Sept. 1, 1988, at 29.

135. See, e.g., Barker, *A Workable Test of a Workably Competitive Bulk Power Market*, 122 PUB. UTIL. FORT., Apr. 14, 1988, at 13, 14, which sets out a test for creating such a market:

ond, following the successful lead of PURPA, which opened up markets in co-generation and small power production,¹³⁶ FERC proposes to even further expand generation options to encourage competition.

PURPA began developing generation alternatives by creating a new electricity market. Under PURPA, a co-generation facility¹³⁷ or small power producer¹³⁸ can become a "qualifying facility" (QF) entitled to sell their excess product to a utility¹³⁹ up to the utility's avoided cost.¹⁴⁰ Therefore, any QF that can produce more electricity than it can use at a cost lower than the cost of electricity of the purchasing utility can make a profit by law on those sales.

The PURPA scheme successfully brought new entrants into the market and increased the energy efficiency of electricity production.¹⁴¹ Building on that success, FERC has issued three notices of proposed rulemaking (NOPRs) that have the potential to revolutionize federal regulation of electricity to the same degree that FERC's natural gas revolution did.¹⁴²

Two NOPRs concern avoided cost determinations. In Docket No. 88-5,¹⁴³ FERC proposes the establishment of bidding procedures to be implemented by state regulatory authorities and nonregulated electric utilities as a means of establishing rates for QF power purchases. This proposed rule would create an artificial market for price setting and would avoid a fixed reliance on a utility's full avoided cost. If successful, such bidding would encourage cogeneration and

It is proposed that for a selling utility to qualify as a being approved to charge market-based rates for bulk power interchange and transmission service, there must be at least two other potential sellers of *comparable services* to the buying utility. Therefore, each buyer should have, at a minimum, three *viable suppliers* for a service in order to establish a workably competitive interchange market.

136. 16 U.S.C. § 824a-3(1982) (PURPA § 210).

137. 18 C.F.R. § 292.205 (1989).

138. 18 C.F.R. § 292.204 (1989).

139. 18 C.F.R. § 292 subpart C (1989).

140. 18 C.F.R. § 292.101(b)(6)(1989). *American Paper Inst., Inc. v. American Elec. Power Serv. Corp.*, 461 U.S. 402 (1983).

141. See Lennon & Meyers, *Net Energy Use Impacts of PURPA Implementation*, 121 PUB. UTIL. FORT., May 12, 1988, at 28 (authors also find that QF electricity has reduced reliance on oil and natural gas generated electricity). The "threat" of QF power, or the "threat" of the full avoided cost obligation imposed on utilities has instigated some utilities to offer "discount" rates to industrial consumers. The discount is that the utility will lower the industrial consumer's rate if the consumer agrees *not* to build a cogeneration facility. See Norris, 1987—*The Year in Review*, 121 PUB. UTIL. FORT., Jan. 7, 1988, at 42; Bain, *State Regulation of "Anti-cogeneration" Contracts*, 121 PUB. UTIL. FORT., June 23, 1988, at 43.

142. See 53 Fed. Reg. 9324-34 (1988) (18 C.F.R. Pts. 35 and 293) for a brief description of the NOPRs.

143. See Regulations Governing Bidding Programs, FERC Dkt. No. RM88-5-000 (Mar. 16, 1988) in FED. ENERGY REG. COMM'N REP. (CCH) ¶ 32,455, 32,021 (proposed rules to be codified in 18 C.F.R. Pts. 35 & 293).

small power production, energy conservation, efficient use of facilities, and equitable rates.¹⁴⁴ In the second rulemaking, FERC Docket No. 88-6, guidelines are provided for states that choose to set rates administratively rather than through an auction-like market.¹⁴⁵

In its third NOPR, Docket No. RM88-4,¹⁴⁶ FERC proposes the creation of a new entity in the electricity market, independent power producers (IPPs).¹⁴⁷ Like QFs, IPPs compete with traditional public utilities, and among themselves, for a share of an emerging market. Traditional public utilities may have reached their technological capacity,¹⁴⁸ as evidenced by the fact that they are producing electricity at a cost higher than other producers. Through IPPs, FERC intends to exploit this gap.¹⁴⁹

The IPP notice proposes that rates will be set according to a bidding process similar to that for QF power. In other words, IPP ratemaking will be determined in a constrained market rather than on a historic cost basis.¹⁵⁰ This rate regulation is an attempt to reform traditional ratemaking by setting rates more competitively. It is also an attempt to rationalize electricity pricing by treating the new class of suppliers uniformly.

IPPs and QFs fit the economic theory behind contestable markets and government markets. As new entrants, they must offer electricity

144. *Id.* at 2.

145. Administrative Determination of Full Avoided Costs, Sales of Power to Qualifying Facilities, and Interconnection Facilities, FERC Dkt. No. RM88-6-000 (Mar. 16, 1988) (amending 18 C.F.R. §§ 292.304-.306 (1987)).

146. Regulations Governing Independent Power Producers, FERC Dkt. No. RM 88-4-000 (Mar. 16, 1988) (to be codified in 18 C.F.R. Pts. 38 and 382).

147. An IPP is defined as a power producer that does not have a franchise area and does not own transmission facilities, or in other words is not structured like a classic public utility. *Id.* at 34. The FERC definition also requires that all sales be made from an independent power facility (IPF). The IPF is not in any utility's rate base and is not otherwise afforded cost-of-service treatment so that the IPP does not get a competitive edge by having all or a portion of its costs protected by traditional regulation.

148. *Id.* at 54.

149. There are three forms that an IPP can take. First, an IPP can include industrial IPPs that generate more power than they need for their own consumption, then sell the excess. A second form would be a non-utility, non-industrial entity that has little consumption needs and exists to generate and sell power. Third, there can be utility IPPs that sell power outside their franchise area. *Id.* at 42-44.

150. Traditional cost-of-service ratemaking may well become a regulatory relic. Such ratemaking works well when the industry is expanding and costs are declining. In such a situation, cost-based ratemaking encourages the regulated entity, such as a public utility, to invest more in capital expansion. When, however, costs are rising, too much investment in plant leads to excess capacity and overinvestment in plant. Overinvestment, in turn, leads to regulators trimming rate increase requests which can lead to underinvestment. *See id.* at 26-29; *see also* Averch & Johnson, *Behavior of the Firm under Regulatory Constraint*, 52 AM. ECON. REV. 1052 (1962) (discusses the tendency to overinvest); J. TOMAIN, *NUCLEAR POWER TRANSFORMATION* ch. 4 (1987) (same); P. NAVARRO, *supra* note 92 (discusses the tendency to underinvest under the traditional scheme of public utility regulation).

below the buyer's (incumbent's) incremental cost in order to profit and stay in the market. Most frequently, buyers of IPP power will be franchised utilities, often vertically integrated, who will buy when electricity is cheaper in the market than it is to produce.

FERC natural gas and electricity rulemakings are revolutionary in two ways. First, they rest on FERC's existing authority and not on some new legislative mandate. Second, they break away from traditional utility-type regulation. Still, these proposals are consistent with the dominant model of energy regulation because the model aspires to mimic the market when it can, and resorts to regulation only when a market imperfection can be pointed out as a justification for government intervention. The one cautionary note is that the regulatory transitions, like any such transition, will have associated costs, and complaints will be heard from the losers. For example, traditional public utilities, faced with new competition, will face a potential loss of market power. Captive consumers of natural gas and electricity may also complain. The realignment of these two industries should improve allocative efficiency as natural gas and electricity are sold at accurate prices without an accompanying loss of social welfare. Yet captive consumers of natural gas and electricity may bear an unreasonable amount of the transition costs, and a general move to the market will not, on its own, protect those consumers. However, there will likely be associated regulation, possibly from the states, to shore up these imperfections.

Federal natural gas and electricity initiatives clearly are motivated by one overriding goal—to move energy regulations closer to the market. This movement is premised on the recognition that natural gas and electricity (and oil and coal) are relatively abundant. Also, old electricity technologies seem to have peaked, while new technologies in production and distribution appear available. Combined, adequate supplies and potential technological gains mean greater efficiencies and more competition. According to the prevailing tenet of American democratic capitalism, markets are better suited than governments to order supplies, demands, and prices in a competitive environment. Therefore, as a matter of allocative efficiency, the regulatory gamble is that price and allocation controls for natural gas and electricity should move outside the hearing rooms of FERC and into the government markets proposed by these rulemakings.

IV. CONCLUSION

The direct message of the dominant model is that United States energy policy is market driven. The implication of this message is

equally clear. Given the structural setting of a complex policymaking process that is woven throughout government and is directly affected by the tensions created by separation of powers and federalism, no comprehensive national energy policy of any detail is likely to develop despite executive, legislative, or administrative desires to do so.

There are ideological and pragmatic reasons behind this conclusion. The first reason, grounded in the liberal tradition, is that the country is "generally suspicious" of central planning. Rather than have an imitation Japanese or European industrial policy, the United States economy continues to run on private competition. Granted, the government will attempt to halt large accumulations of corporate power through antitrust enforcement. Still, though, countervailing government control of the economy through heavy central planning is simply not an accepted way of doing business.

A second and corollary reason is that although government is used as a backstop to prevent large aggregations of corporate power, government will also promote and support competitive businesses. The New Deal was not so much an experiment in social policy—though it was clearly that—as it was an example of the federal government stimulating the economy by getting business on its feet again.

Third, there is a commitment to the hard energy path of large-scale, high-technology, capital intensive energy production. This commitment finds its roots in the industrial revolution of the nineteenth century. This history makes it difficult for policy makers and decision makers to design and implement alternative energy policies, thus putting the burden of change on proponents of alternatives.

Fourth, also echoing the liberal tradition, there is an underlying faith in the market. The country's efforts to achieve the virtues of the market—color blindness, individual liberty, equality, and technological innovations—may not reach a Utopian plateau, but government controls are worse approximations. The country's faith in the market forms the baseline, and government will only intervene if cracks in the baseline are perceived.

Thus the dominant model of U.S. energy policy is firmly based in the tenets of democratic capitalism: private ownership and production; competition; no overt central planning; wariness of monopoly; and government support of each of the other elements. The hope is that our national economy and our quality of life can flourish if (1) markets are relatively clear, (2) entry and exits are relatively inexpensive, and (3) corporate power is relatively dispersed. Indeed, the ideology of domestic energy policy rests upon the idea that inter-industry and intra-industry competition are highly desirable. Moreover, such

industrial pluralism ultimately serves the public interest by providing relatively abundant energy at relatively stable prices. Economic efficiency, economic growth, economies of scale, and a cautious eye on market power thus define the public interest in energy. So says the dominant model. What remains to be seen is whether the dominant model has significant longevity given contemporary concerns about the continued use of fossil fuels and environmental degradation. Before the environmental consequences of hard path energy production can be adequately addressed, however, the dominant structure of domestic energy policymaking and policy must be acknowledged. Hopefully, this article has provided that acknowledgement.