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RECONSTITUTING THE NATURAL GAS INDUSTRY FROM WELLHEAD TO BURNERTIP

*Richard J. Pierce, Jr.**

The history of government intervention in the natural gas industry can provide a wealth of insights to students of government regulation. Over the past century, the industry has endured the entire regulatory cycle—limited intervention based on a well-documented market imperfection, broadened geographic scope of regulation necessitated by changes in technology, expansion of regulation beyond that required to respond to a market imperfection, mismatches between regulatory goals and forms of intervention, gross regulatory distortion of the gas market, and, during the past three years, implementation of a reconstitutive strategy¹ that has the potential to restore a healthy match between the imperfections of the gas market and the scope and form of government intervention in that market. In this article, I attempt to extract from this history lessons for students of law, economics, political science, and political economics.

In part I, I trace the history of the gas industry and its regulation from the industry's birth in London in 1802 to the apogee of inappropriate and excessive intervention in the U.S. gas market in 1978. In part II, I identify the imperfections that affect the gas market and the limited forms of intervention that can correct for those imperfections. In part III, I describe the complicated sequence of actions through which the legislative, executive, and judicial branches of government have combined to begin to replace pervasive and distortive command and control regulation with a reconstitutive strategy carefully crafted to achieve the goals of government intervention. Finally, in part IV, I identify the lessons embedded in the century of government intervention in the market for gas.

* George W. Hutchison Professor of Energy Law, Southern Methodist University; B.S., 1965, Lehigh University; J.D., 1972, University of Virginia.

1. I have borrowed the term "reconstitutive strategy" from Professor Richard Stewart. For his explanation of the term, see Stewart, *Reconstitutive Law*, 46 MD. L. REV. 86 (1986). See *infra* text accompanying notes 83-85 & 241-42.

I. THE HISTORY OF NATURAL GAS REGULATION—1802-1978

The period from 1802 until 1978 saw the birth and growth of a new industry that held the promise of providing enormous improvements in quality of life to all. Early in the industry's development, scholars recognized imperfections in the structure of the market for the industry's product that suggested the need for some form of government intervention to insure that society realized the full benefits potentially available from the new industry. During the first half century of government intervention in the market, the industry thrived under regulatory regimes that were designed and modified in geographic scope to fit the evolving structure of the market. Over the four decades from 1938 through 1978, however, the three branches of the U.S. government made a series of public policy errors that harmed all segments of the industry—producers, consumers and market intermediaries.

A. *Local Distribution of Manufactured Gas*

When William Murdoch began installing lights fueled with gas manufactured from coal in London in 1802,² he may have foreseen that he was pioneering a technology that would sweep the globe. Murdoch almost certainly did not anticipate, however, that his innovative action would give rise to a century of public policy debate, including several landmark decisions of the U.S. Supreme Court, two Presidential vetoes of Acts passed by Congress, and one of the longest and most bitter debates in the history of Congress.³ Murdoch's modest beginning soon was followed by more substantial ventures that entered the business of manufacturing gas from coal and distributing the gas for lighting in the major cities of Europe and North America.⁴ Baltimore was the site of the first U.S. gas distribution company in 1816.⁵

In the early years, several gas distributors operated in each major city, at least putatively in competition with each other.⁶ In 1848, John Stuart Mill, the great proponent of vigorous competition unencumbered by government intervention, identified a flaw in this market structure.⁷ Mill used the gas distribution industry to illustrate an important exception to his laissez faire prescription for maximizing society's wealth. Mill observed that the economies of scale in distributing gas were so large that the function could be performed at the lowest cost by a single firm. He saw the duplication of gas distribution lines in London as wasteful of society's resources and the putative competition among London's gas distributors as a thin disguise for agreements to allocate the market. Mill urged a change in industry structure so that a single company could distribute gas in London at the lowest cost to consumers.

Mill's study of the gas distribution industry was followed by the impor-

2. N. CLARK & G. CLARK, *GOVERNMENTS, MARKETS AND GAS* 5 (1984) [hereinafter CLARK & CLARK].

3. See *infra* text accompanying notes 15-31 & 43-44.

4. CLARK & CLARK, *supra* note 2, at 5.

5. G. BROWN, *THE GAS LIGHT COMPANY OF BALTIMORE* 36-39 (1936).

6. *Id.*

7. J.S. MILL, *PRINCIPLES OF POLITICAL ECONOMY* 171-72 (1848).

tant works of Thomas Henry Farrar, published in London in 1883,⁸ and of Henry Carter Adams, published in the U.S. in 1887.⁹ Each identified a class of activities best conducted through a monopolistic structure. Where an industry is characterized by increasing returns to labor and capital through the entire range of production that can be absorbed in a market, a multiple firm industry structure inevitably leads to unnecessarily high costs attributable to duplication of facilities. In such an industry, competition can never be effective over time, since each competitor has an incentive to reduce its price to make additional sales in order to reduce its costs until it serves the entire market.

Farrar and Adams described gas distribution as a classic example of such a natural monopoly activity. They recognized, however, that without the inherent constraint of competition, the benefits of monopoly would accrue to the owners of the enterprise in the form of higher profits rather than to the public in the form of lower prices and greater output. Thus, Farrar and Adams urged a single firm structure for the gas distribution market, with that firm subject to government control to insure that the reduced costs attributable to the unusual structure were reflected in reduced prices.

The path-breaking studies of the gas distribution market by Mill, Farrar and Adams eventually were reflected in the popular press and formed the basis for the initial form of government intervention in the gas industry.¹⁰ Municipalities began to issue franchises authorizing a single company to provide gas distribution service to the entire city in return for that company's agreement to provide universal service on nondiscriminatory terms at limited rates set forth in the franchise. Over time, changes in the size of the gas market accessible to a municipal distributor forced adjustments in this form of intervention. As the market for gas in a city grew, the franchisee's cost to provide service to each customer declined, rendering the rate previously specified in the franchise obsolete. Cities adjusted to this change initially by providing for periodic renegotiation of the franchise terms and ultimately by substituting for the fixed rate specified in the franchise a formula by which the rate to be charged would be redetermined periodically. The rate formulas contained in the utility franchises of the late nineteenth and early twentieth century are virtually identical to the formulas used by modern state and federal agencies to determine the maximum rate a regulated monopolist can charge.

In many cases, distributors of manufactured gas discovered that they could reduce their costs still further by extending their service to neighboring cities and to the growing areas around cities. This logical and universally beneficial form of market expansion, however, created stress in the traditional institutional structure of regulation through municipal franchise.¹¹ Customers outside the city were uncomfortable relying entirely upon the city to represent their interests. At the same time, many cities discovered that the task of

8. T. FARRAR, *THE STATE IN ITS RELATIONS TO TRADE* (1883).

9. H. ADAMS, *THE RELATION OF THE STATE TO INDUSTRIAL ACTION* (1887).

10. G. BROWN, *supra* note 5, at 68-69.

11. For other sources of stress, notably municipal corruption and incompetence, see W. JONES, *REGULATED INDUSTRIES* 30 (2d ed. 1976).

implementing a utility franchise was burdensome. Periodically, the city council had to put aside the other issues confronting the city in order to determine in protracted negotiations or in formal hearings the franchised distributor's historic costs and thus its future rates. Most cities were delighted to have the opportunity to cede this responsibility to a state agency newly created to serve this specialized public function.¹² Through this sequence, John Stuart Mill's careful study of distribution of manufactured gas in London in 1848 spawned the system of state public utility commission regulation of gas distribution rates that began in the early twentieth century and continues today as one of the most important forms of government intervention in the gas industry.

B. Interstate Transportation of Natural Gas

A major technological breakthrough in the early twentieth century transformed dramatically the scope, nature and structure of the gas industry. Both natural gas and gas manufactured from coal are difficult to transport because they remain gaseous down to -259° F. As a result, gas can be transported economically only by pipeline. The early pipelines were wooden and moved very little gas at low pressure.¹³ The high cost of transporting gas limited the geographic scope of any market to just a few miles radius from the source of supply. Natural gas, with chemical and functional characteristics similar to manufactured gas and a higher BTU content, was being discovered in large quantities in association with oil. With few exceptions, however, natural gas supplies were found hundreds or even thousands of miles from the major metropolitan areas where gas was in demand. Thus, most natural gas was flared at the wellhead, and gas distributors had no choice but to meet the gas needs of the cities with expensive, low BTU gas that could be manufactured from coal at any location.

The development of high tensile steel and electric welding permitted construction of high pressure steel pipelines that reduced dramatically the cost of transporting gas over long distances.¹⁴ Gas distributors began to exploit the new transportation technology by laying high pressure lines from their distribution systems to the nearest sources of natural gas and by replacing manufactured gas with less expensive, high BTU natural gas. Almost invariably, however, the available supplies of natural gas were in different states than the major population and industrial centers where demand for gas was large and growing. Thus, the new high pressure lines typically bought gas in one state, transported the gas anywhere between one hundred and two thousand miles, and resold the gas to distributors in other states.

The evolving new industry structure brought significant benefits both to oil producers, who finally had a market for the gas they previously had flared, and to consumers, who paid less for high BTU natural gas than they had been required to pay for low BTU manufactured gas. The new industry structure and the greatly expanded geographic scope of the gas market, however, cre-

12. See *id.* at 39-42.

13. CLARK & CLARK, *supra* note 2, at 6.

14. *Id.* at 7.

ated tensions in the traditional regulatory regime so great that they threatened the continued viability of the new interstate structure of the industry. States in which interstate pipelines purchased gas attempted to regulate sales by producers to pipelines and to limit the quantity of gas pipelines could transport out of the state. States in which interstate pipelines made sales to distributors attempted to regulate the price at which those sales were made.

Both producing states and consuming states had plausible bases for at least some forms of regulation of transactions undertaken by interstate pipelines. In the case of producing states, both the monopsony power of the pipelines and the potential for waste of the state's natural resources provided plausible support for intervention in the form of minimum price regulation at some level. In the case of consuming states, pipeline monopoly power seemed to justify state maximum price regulation at some level. The state regulations imposed on interstate pipelines began to jeopardize all interstate transactions, however, for two reasons. First, many of the state regulations went well beyond the required response to a market imperfection; rather, they were efforts to benefit the state's citizens at the expense of citizens of other states. Second, not surprisingly, the regulations of producing states and consuming states frequently imposed inconsistent obligations on interstate pipelines.

In a trio of cases during the 1920s, the Supreme Court was called upon to resolve disputes in which a state had imposed a regulation on an interstate pipeline or electric utility inconsistent with the regulations of another state or designed to favor the interests of citizens within the state over the interests of citizens of other states.¹⁵ The Court recognized that state regulation of many transactions undertaken by interstate pipelines and utilities jeopardized the future of all interstate commerce in natural gas and electricity. It held the state action at issue in each case unconstitutional under the dormant Commerce Clause. Taken together, the three cases established the principle that states may not regulate sales for resale or transportation in interstate commerce.

In the wake of the Court's decisions, Congress received numerous complaints from consumers, distributors, and producers alleging that the then unregulated interstate pipelines were engaging in a variety of discriminatory and abusive practices that harmed all other participants in the industry. Congress responded initially by directing the Federal Trade Commission (FTC) to study and to report on the allegations. The FTC complied with the congressional mandate with a voluminous report in 1935.¹⁶ The report contained massive data and solid analysis. It substantiated the allegations of abuse and attributed them to the existence of the same market imperfection identified by Mill, Farrar and Adams in the nineteenth century—because of large economies of scale, pipeline transportation of gas was a natural monopoly.¹⁷ Thus, unregulated interstate pipelines were able to exercise monopoly power over

15. *Public Utils. Comm'n v. Attleboro Steam & Elec. Co.*, 273 U.S. 83 (1927); *Missouri v. Kansas Gas Co.*, 265 U.S. 298 (1924); *Pennsylvania v. West Va.*, 262 U.S. 553 (1923).

16. REPORT OF THE FTC TO THE U.S. SENATE, S. DOC. NO. 92, 70th Cong., 1st Sess., pt. 84-A (1936) [hereinafter FTC REPORT].

17. *Id.* at 589, 591, 593, 600-01.

distributors and monopsony power over producers.¹⁸

C. *The Natural Gas Act of 1938*

Congress initially attempted to address the market imperfection identified in the FTC report in the most obvious and least intrusive manner—through legislation conferring upon a federal agency the power to regulate interstate pipelines as common carriers.¹⁹ Since the market imperfection related only to the transportation function, there is every reason to believe that this response would have been effective to avoid all of the abuses documented by the FTC report. Congress had chosen this form of intervention with respect to oil pipelines in 1906.²⁰ With interstate gas pipelines required to provide equal access to their facilities to all third parties, thousands of producers would be free to sell to hundreds of gas distributors and millions of consumers in a perfectly competitive gas sales market. The pipelines objected to this approach, however. They sought instead a form of government intervention that would protect them from competition in both the transportation and the sale of gas. Congress obliged by enacting the Natural Gas Act of 1938 (NGA).²¹

The congressional purpose underlying passage of the NGA was to fill the gaps in state regulatory power created by the Supreme Court's decisions of the 1920s with federal regulation designed to protect consumers from potential pipeline abuse of monopoly power.²² Thus, the Act granted the Federal Power Commission (FPC) jurisdiction to regulate three areas—(1) sales for resale in interstate commerce; (2) transportation in interstate commerce; and, (3) facilities used for such sales and transportation.²³

The form of regulation authorized was based on a public utility model rather than a transportation model. This was evident in the inclusion of sales within the scope of the authority granted—based on the implicit assumption that pipelines would own most of the gas they transported and thus would act as the principal intermediaries in the gas market. The utility model also was apparent in the nature of the powers and duties conferred on the FPC. In addition to insuring that rates within its jurisdiction were just, reasonable and not unduly discriminatory, the FPC was instructed not to permit construction of new facilities or initiation of new sales or services unless it first concluded that they were required in the public interest and not to permit abandonment of any facility, sale or service unless it first concluded that such abandonment was in the public interest.²⁴

The choice of the utility model over the common carrier model also was apparent in the regulatory powers not conferred on the FPC. Pipelines were

18. *Id.* at 615-16.

19. See *Associated Gas Distribs. v. FERC*, 824 F.2d 981, 997 (D.C. Cir. 1987). See also CLARK & CLARK, *supra* note 2, at 10-11.

20. Pub. L. No. 59-337, § 1, 34 Stat. 584, 584-86 (codified as amended in scattered sections of 49 U.S.C.).

21. 15 U.S.C. §§ 717-717z (1982).

22. See *FPC v. Louisiana Power & Light Co.*, 406 U.S. 621, 631 (1972).

23. 15 U.S.C. § 717 (1982).

24. 15 U.S.C. § 717f (1982).

not obligated to provide third parties access to their facilities. Pipelines were permitted to act as classic "tollgate[s] lying athwart a trade route,"²⁵ precluding mutually beneficial transactions between producers and consumers.

The FPC's effort to regulate interstate pipelines using a utility model proceeded with only modest distortive effects on the market for over a decade.²⁶ The agency encountered a significant problem in performing its consumer protection function in one recurring context, however. When a pipeline purchased gas from its own production division or subsidiary, the FPC was concerned that the pipeline might pay itself an excessive price in order to earn through its unregulated production activities the monopoly return on its pipeline activities that FPC regulation otherwise denied it. The FPC's concern was well-supported. A regulated monopolist has a powerful incentive to pay excessive prices to itself for unregulated products and services.²⁷

A regulatory agency can attempt to avoid abuse of the incentive for self-dealing in any of several ways, but none of the alternatives is completely effective.²⁸ The FPC chose the option of attempting to regulate the price charged a pipeline by its production division or subsidiary. Pipelines that purchased substantial volumes of gas from themselves challenged the FPC's power under the NGA to regulate the prices charged by producers affiliated with pipelines. In its 1947 opinion in *Interstate Natural Gas Co. v. FPC*,²⁹ the Supreme Court affirmed the FPC's power to regulate the prices charged interstate pipelines by producers affiliated with those pipelines. The Court did not base its holding primarily on the self-dealing rationale urged by the FPC, however. Much of its reasoning seemed equally applicable to sales by independent producers to interstate pipelines—an enormous class of transactions the FPC consistently had held to be outside its jurisdiction.

Many independent producers were concerned that the reasoning in *Interstate* foreshadowed a future holding that sales by independent producers to interstate pipelines also were subject to FPC regulation. They convinced Congress to enact legislation in 1950 that would clarify the NGA to avoid this risk entirely, but President Truman vetoed the Act based on reasoning that continues to mystify economists.³⁰ He expressed concern that a shortage of gas might occur in the future and that price controls were important in shortage

25. *Commonwealth Edison Co. v. Montana*, 453 U.S. 609, 650 (1981) (quoting *Developments in the Law—Federal Limitations on State Taxation of Interstate Business*, 75 HARV. L. REV. 953, 970 (1962)).

26. There is evidence that pipelines exercised monopsony power to maintain producer prices at artificially low levels. S. BREYER & P. MACAVOY, *ENERGY REGULATION BY THE FEDERAL POWER COMMISSION* 62 (1974) [hereinafter BREYER & MACAVOY].

27. See Pierce, *Reconsidering the Roles of Regulation and Competition in the Natural Gas Industry*, 97 HARV. L. REV. 345, 365-67 (1983); see also *Public Utility Holding Company Act Amendments: Hearings on S. 1869, S. 1870, S. 1871 and S. 1977 Before the Subcomm. on Securities of the Senate Comm. on Banking, Housing, and Urban Affairs*, 97th Cong., 2d Sess. 350-54 (1982) (remarks of Ronald G. Carr, Deputy Assistant Attorney General). See also *id.* at 493-94 (statement of Assistant Attorney General William F. Baxter explaining how regulated utilities can circumvent rate regulation through payment of excessive transfer prices to unregulated affiliate suppliers).

28. See E. GELLHORN & R. PIERCE, *REGULATED INDUSTRIES* 164-66 (2d ed. 1987) [hereinafter GELLHORN & PIERCE].

29. *Interstate Natural Gas Co. v. FPC*, 331 U.S. 682 (1947).

30. Veto of Bill to Amend the Natural Gas Act of 1938, 1950 PUB. PAPERS 257 (Apr. 15, 1950).

conditions. Ironically, as every economist who has looked at the issue has concluded, price controls on gas producers caused the shortage that President Truman predicted.³¹

D. Regulation of Producers—and Shortage

In 1954, the Supreme Court issued its infamous opinion in *Phillips Petroleum Co. v. Wisconsin*.³² A five justice majority held that the NGA obligated the FPC to regulate independent producer sales to interstate pipelines. The majority based its holding primarily on its interpretation of the admittedly ambiguous language of the NGA. It did not examine the FTC report on which the NGA was based to determine whether the market imperfection in the pipeline transportation market documented in that report existed in the wellhead sales market for gas. Nor did it allude to the existence of any imperfection in the wellhead market detected in any study that might conceivably have formed the basis for a congressional decision to intervene in that market.

In 1955, Congress again passed legislation that would have precluded regulation of independent producers. Again, the legislation was vetoed—this time by President Eisenhower, who supported its purpose but was concerned about the process through which it was enacted.³³

The FPC initially attempted to implement the Court's mandate through the traditional utility regulation model implied by the NGA. It began an adjudicatory proceeding for each producer to establish a maximum rate for each based on the company's historic cost of finding and producing gas.³⁴ Within six years the FPC abandoned this effort as a total failure on the basis of administrative feasibility alone. By 1960, the FPC had completed only ten producer rate cases and had developed a backlog of 2900 pending cases.³⁵

The area rate approach to producer regulation initiated by the FPC in 1961 provided significant administrative advantages.³⁶ The country was divided into several producing areas, each subject to a different price ceiling. This reduced the number of rate proceedings to a manageable level. The FPC began the task of setting maximum prices for each area based on its determination in an adjudicatory proceeding of the average cost of finding and producing gas in each. Since each proceeding required approximately ten years to complete, the FPC set interim rates for each area based on average historical contract prices. The interim rates were enforced through the FPC's policy of refusing to certificate a proposed new producer sale unless it was at a price "in line" with the interim rate.

Two characteristics of the area rates deserve emphasis. First, they were based on average historic costs. Thus, they were based on the implicit

31. See, e.g., BREYER & MACAVOY, *supra* note 26, at 56-89.

32. *Phillips Petroleum Co. v. Wisconsin*, 347 U.S. 672 (1954).

33. Veto of Bill to Amend the Natural Gas Act, 1956 PUB. PAPERS 256-57 (Feb. 17, 1956). The deciding vote in the Senate was cast by a Senator who allegedly changed his mind at the last minute after receiving a large sum of money from a producer. *Id.*

34. See BREYER & MACAVOY, *supra* note 26, at 56-89.

35. See J. LANDIS, REPORT TO THE PRESIDENT ELECT (1960).

36. See BREYER & MACAVOY, *supra* note 26, at 56-89.

assumption that the costs of finding and producing gas would remain about the same in the 1960s and the 1970s as they were in the late 1950s. Second, and somewhat inconsistently, the area rates reflected the concept of vintaging. The FPC explicitly acknowledged that the data it considered showed that the cost of finding and producing gas was greater in later periods than in earlier periods. In an effort to recognize this phenomenon, the FPC established rate ceilings for gas of a later vintage that were slightly higher than the ceilings applicable to gas of an earlier vintage. The basis for distinguishing among vintages has varied over time, but the concept is premised on the assumption—accurate in most but not all periods—that the cost of finding and producing gas will increase over time.

Those two characteristics of FPC producer rate regulation have given rise to a series of gross regulatory distortions of the gas market that have cost consumers billions of dollars. The first was based on a demonstrably false assumption. The cost of finding and producing a depletable resource tends to increase over time, often at a rapid rate. The cost of finding and producing gas rose significantly from the late 1950s through the 1970s.³⁷ As a result, the area rates based on 1950s costs were well below the costs of finding and producing most new supplies in the 1960s and 1970s. Producers significantly curtailed their efforts to find gas for sale to interstate pipelines, and a shortage was inevitable. By contrast, producers were enthusiastic to find gas for sale to the unregulated and rapidly growing intrastate market, and many manufacturing companies relocated their gas-burning plants to the producing states where gas was readily available from intrastate sources.

The second characteristic of the FPC's area rates—rates that vary by vintage—was based on a correct assumption, but it interacted with pipeline regulation in a way that made it impossible for the market to work properly.³⁸ Pipeline rates are based on the pipeline's average cost of gas. If that average cost is below the price that would exist in a competitive market, the quantity of gas demanded from a pipeline will exceed the quantity that would be demanded in a competitive market. Since the market price equals the marginal cost of finding and producing a new gas supply, pipeline prices based on a pipeline's average cost of gas and vintaged producer prices could not yield equilibrium in the gas market even if the FPC established rates applicable to each vintage of gas that were based on accurate determination of the cost of finding and producing gas of that vintage.

If, for instance, the marginal cost of current vintage gas is \$2.00 per MMBtu, the market will be in equilibrium if pipeline prices are \$2.00 plus the cost of transportation. If a pipeline buys half its gas at a price of \$1.00, representing the marginal cost of older vintage gas, however, it must charge a price of \$1.50 plus the cost of transportation. At that price, the quantity of gas demanded always exceeds the quantity of gas supplied. Unless pipelines bought large volumes of gas at prices above the market price, the combination

37. *Id.*

38. See Pierce, *Natural Gas Rate Design: A Neglected Issue*, 31 VAND. L. REV. 1089 (1978).

of vintaging of producer prices and regulation of pipeline prices had to create a shortage.

Regulation of producer prices created the acute gas shortage of the 1970s. Consumers lost somewhere between \$2.5 and \$5.0 billion per year in the form of increased energy costs and lost industrial production during the shortage era.³⁹ The FPC, however, can not be charged with full responsibility for its errors in implementing producer regulation. Through a combination of missteps by Congress and the Court, the FPC was given an impossible task. No scholar, agency, legislative body or court had found an imperfection in the wellhead market for gas. The FTC's declared imperfection in the pipeline market—potential abuse of monopoly power over gas transportation—obviously was inapplicable to the wellhead market. Thus, the FPC could not pursue in its regulation of producers the original NGA goal of controlling monopoly power. Years later, scholars identified a goal that the FPC might attempt to pursue—redistribution of wealth by reallocating rent from owners of gas to consumers—but these scholars also demonstrated that the FPC could further that goal only by creating a perpetual and costly shortage of gas.⁴⁰

Once the gas shortage and its enormous costs became apparent to the FPC, it changed its approach to producer regulation again in an effort to ameliorate the problem it had created. It adopted the concept of national rates. The characteristics of this approach offered the prospect of much greater accuracy in establishing rates based on current costs.⁴¹ First, the rates were national in scope and based on national cost data. This enabled the FPC to determine them in a single proceeding. Second, the oral adjudicatory hearing format for gathering and analyzing the cost data was abandoned in favor of notice and comment rulemaking. This reduced the time lag in the rate determination process from four years to two years. Third, instead of assuming implicitly that costs would remain constant over time, the FPC explicitly assumed that they would increase at a constant rate. Thus, the national rates were based on a projection of future costs through linear extension of the trend in historical costs.

The national rates established in the mid-1970s may have represented a reasonably close approximation of the current cost of finding and producing gas at the time—the second national rate was about five times the old area rates⁴²—but even the new national rate concept could not have yielded beneficial results over time for two reasons. First, while the assumption of cost increases at a constant rate provided a better approximation of future costs, that assumption cannot be correct for all periods of time. During some periods, the rate of cost increase accelerates; during other periods, costs actually

39. See G. LOURY, AN ANALYSIS OF THE EFFICIENCY AND INFLATIONARY IMPACT OF THE DECONTROL OF NATURAL GAS PRICES 10 (1981); P. MERRILL, THE REGULATION AND DEREGULATION OF NATURAL GAS IN THE U.S. 60 (1981); U.S. DEPARTMENT OF ENERGY, REDUCING U.S. VULNERABILITY: ENERGY POLICY FOR THE 1980's II-B-27 (1980).

40. See BREYER & MACAVOY, *supra* note 26, at 56-89.

41. See R. PIERCE, G. ALLISON & P. MARTIN, ECONOMIC REGULATION: ENERGY, TRANSPORTATION AND UTILITIES 525-34 (1980) [hereinafter PIERCE & ALLISON].

42. See *American Pub. Gas Ass'n v. FPC*, 567 F.2d 1016 (D.C. Cir.), *cert. denied*, 435 U.S. 907 (1977).

decrease. Thus, the national rate methodology would have generated rates that were well below costs for some periods and well above costs for other periods. Second, the FPC retained the concept of vintaging. Thus, unless pipelines purchased large quantities of gas at prices above the market level, thereby eliminating any conceivable consumer benefits of producer regulation, the gas shortage would continue.

E. The Natural Gas Policy Act of 1978—and Surplus

The severe shortage of gas in regions dependent upon interstate supplies finally broke the congressional impasse on gas policy.⁴³ After twenty-eight years of frequent consideration of gas legislation and nineteen months of continuous bitter debate, Congress enacted the Natural Gas Policy Act (NGPA).⁴⁴ In recognition of the failure of producer regulation, the NGPA provided for deregulation of producers. The process of deregulation was extremely complicated and gradual, however. About one-half of the nation's gas supply was scheduled for deregulation in three steps—1979, 1985 and 1987. The other half was never scheduled for deregulation, but would diminish over time as a result of depletion of old reservoirs until, sometime well into the twenty-first century, no regulated gas would continue to flow in the market. Congress also acted to limit the demand for gas. The incremental pricing provisions of the NGPA⁴⁵ forced pipelines and distributors to charge higher prices to many industrial consumers. A companion statute, the Powerplant and Industrial Fuel Use Act of 1978 (PIFUA),⁴⁶ prohibited completely the use of gas in many industrial and electric utility applications.

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.⁴⁷ 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.⁴⁸ 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 market will not permit them to sell gas in the volumes and at the prices to which they are committed by contract.⁴⁹

43. For a description of the devastating effects of the shortage, see SUBCOMM. ON INTERGOVERNMENTAL RELATIONS OF THE COMM. ON GOVERNMENTAL AFFAIRS, *THE STATUS OF THE NATION'S PREPAREDNESS FOR THE WINTER OF 1977-78*, 95th Cong., 1st Sess., 3 (1977).

44. Natural Gas Policy Act of 1978, Pub. L. No. 95-621, 92 Stat. 3351 (codified at 15 U.S.C. §§ 3301-3432 (1982)). See generally Pierce, *Natural Gas Policy Act of 1978—Change, Complexity, and a Major New Role for the KCC*, 47 J. KAN. B.A. 259 (1978).

45. 15 U.S.C. §§ 3341-3348 (1982).

46. PIFUA, Pub. L. No. 95-620, 92 Stat. 3289 (1979) (codified in scattered sections of 15, 42, 45, 49 U.S.C.). See *Symposium: Powerplant and Industrial Fuel Use Act of 1978*, 29 KAN. L. REV. 297 (1981).

47. See J. KALT & F. SCHULLER, *DRAWING THE LINE ON NATURAL GAS REGULATION* 4-8 (1987) [hereinafter KALT & SCHULLER]; S. WILLIAMS, *THE NATURAL GAS REVOLUTION OF 1985* 3-9 (1985); Carpenter, Jacoby & Wright, *Adapting to Change in Natural Gas Markets*, in *ENERGY MARKETS & REGULATION* (1986); Pierce, *supra* note 27, at 351-52.

48. See Pierce, *Lessor/Lessee Relations in a Turbulent Gas Market*, 38 INST. ON OIL & GAS L. & TAX'N 8 (1987).

49. See *Pipeline Take or Pay Costs Continue to Mount*, OIL & GAS J., Aug. 10, 1987, at 20.

The abysmal failure of the NGPA can be attributed to five fundamental flaws: (1) Congress did not understand the state of the gas market at the time; (2) Congress attempted to further a goal that could not be attained through price regulation; (3) Congress was totally unsuccessful in its attempt to predict the future of the gas market; (4) Congress did not understand the contractual basis for transactions in the gas market; and (5) finally, Congress did not understand that regulation insulates firms from the discipline of the market.

1. Misunderstanding of the State of the Gas Market

Congress thought that the severe shortage of gas that had devastated the economy as recently as the winter of 1976-1977 continued to exist in 1978. It did not. Within days of passage of the NGPA, the Secretary of the Department of Energy announced the existence of a "temporary" gas surplus that has persisted through 1988.⁵⁰ While there was considerable debate about the causes of the surplus at the time,⁵¹ they are easy to identify today.

Demand for gas had declined significantly on the interstate systems during the 1970s due to a combination of increased price and decreased perceived value of gas. Price increased for three reasons: (1) the five-fold increase in the price ceiling for "new gas" authorized by the FPC's national rate orders; (2) the increased unit cost of transporting and distributing gas that resulted from the reduced volume of gas flowing through the interstate system; and, (3) the purchase by pipelines and distributors of large volumes of unregulated gas (in the form of imports and manufactured gas) at above-market prices. The perceived value of gas declined because consumers no longer considered gas a reliable fuel—at any time the government could, and frequently had, curtailed supply or prohibited the use of gas for various purposes.

To a lesser extent, the transition from shortage to surplus also resulted from increases in the supply available to the interstate system. The FPC's national rate orders had induced increased efforts by producers to find new gas supplies for sale to the interstate market. Moreover, the NGPA had eliminated the legal barriers to the flow of gas from the well-stocked unregulated intrastate system to the interstate system. Thus, Congress enacted a statute designed to cope with a severe national shortage after the shortage had ceased to exist.

2. Attempt to Further a Goal Unattainable Through Price Regulation

Elimination of a gas shortage that no longer existed was only one of many goals Congress attempted to achieve through passage of the NGPA. Congress also sought to redistribute wealth through regulatory reallocation of rents from owners of natural resources to consumers. This is a classic mismatch between goals and forms of government intervention.⁵² Reallocation of rents

50. See *Existing Plants Using Natural Gas Freed of Near-Term Fuel Switching Mandate*, 1978 Energy Users Report (BNA) 6 (Nov. 16, 1978) (reporting that then-Secretary of Energy Schlesinger had announced the existence of a gas surplus of one trillion cubic feet).

51. See PIERCE & ALLISON, *supra* note 41, at 544-45.

52. See Breyer, *Analyzing Regulatory Failure: Mismatches, Less Restrictive Alternatives, and Reform*, 92 HARV. L. REV. 549 (1979).

can be accomplished at tolerable cost to aggregate social welfare only through taxes and transfer payments.⁵³ Yet, Congress attempted to pursue this goal in the NGPA by incorporating in the producer price provisions vintaging with a vengeance.

The nation's gas supply was divided into many different categories with different dates of discovery and widely varying ceiling prices. Large volumes of "old" gas were subject to price ceilings that would remain far below the market price of gas indefinitely. Other categories were subject to much higher ceilings or were exempt from ceilings entirely. Congress' goal was to limit the rent that could be earned by producers of "old" gas and to transfer that rent to consumers in the form of below market prices.

Congress expected pipelines to pay the market price for gas that was not subject to a price ceiling. This expectation was inconsistent with the incentives for pipelines built into the regulatory system. Regulated pipelines with access to large volumes of gas at prices well below the market price and confronting what they believed to be a continuing supply shortage would bid above the market price for unregulated supplies.⁵⁴ Many pipelines agreed to pay prices more than double the market price for deregulated gas in response to this regulatory incentive.⁵⁵ Thus, the wealth that was taken from some owners of gas by vintaging was transferred to other owners of gas, rather than to consumers.⁵⁶

3. Inaccurate Forecast of Future Market Conditions

Congress also failed completely in its attempt to predict the future performance of the gas market. The NGPA producer price ceilings were intended to increase with increases in the market price of gas so that, when a major category of gas was scheduled for deregulation, its price would increase slightly or remain at about the same level as the prior ceiling price. Thus, for instance, Congress specified that the price ceiling for "new gas" would increase at the rate of inflation plus four percent per year, with the expectation that the "new gas" ceiling price would approximate the market price at all

53. See K. ARROW & J. KALT, PETROLEUM PRICE REGULATION (1979); Pierce, *Government Intervention in the Market for Oil and Gas: Price Controls, An Excise Tax, or Deregulation*, 1 VA. J. NAT. RES. L. 229 (1981).

54. See Pierce, *supra* note 27, at 362-63; Pierce, *supra* note 38, at 1097-1100.

55. Pierce, *supra* note 27, at 351, 362-63. It is difficult, of course, to determine the market price of a commodity when Congress has distorted the market through price regulation to the extent that the same commodity can be sold at prices varying from \$0.45 to \$10.00. See Foster Natural Gas Report (Foster Associates) No. 1386, at 7 (Oct. 21, 1982). Radford Shantz and Francis Puzienne estimated the market price of natural gas to be between \$4.05 and \$4.63 in 1982. Foster Natural Gas Report (Foster Associates) No. 1381, at 9-10 (Sept. 16, 1982). At the time, several pipelines were paying over \$10.00 for deregulated gas. Foster Natural Gas Report (Foster Associates) No. 1349, at 15 (Feb. 4, 1982). See also U.S. DEPARTMENT OF ENERGY, AN ANALYSIS OF POST-NGPA INTERSTATE PIPELINE WELL-HEAD PURCHASES 28 (1982) (average price paid for deregulated gas in 1982 was \$7.24). The ability of a pipeline to pay more than the market price for gas and still to make a profit is attributable to the combination of regulation of producer prices for "old gas" at well below market price and regulation of pipeline prices based on average cost. See Pierce, *supra* note 38.

56. See R. MEANS, A PRELIMINARY ANALYSIS OF THE NATURAL GAS MARKET-ORDERING PROBLEM 34-45 (1981).

times. As of July 1987, however, the "new gas" ceiling price was over twice the market price of gas.⁵⁷

Moreover, Congress assumed that gas would be in short supply for the indefinite future. To protect residential consumers from the potential effects of this chronic shortage, Congress imposed significant regulatory limits on industrial and electric utility use of gas in the incremental pricing provisions of the NGPA and in the PIFUA. These provisions obviously were ill-suited to the surplus that has existed in the gas market from 1978 through 1988.

4. Failure to Understand Gas Contracting

Perhaps the biggest single flaw in the NGPA was Congress' failure to understand the way in which regulation would interact with the long-term contracts through which producers and interstate pipelines traditionally had governed those aspects of their relationships that were not controlled by regulation.⁵⁸ Predicting future market conditions and anticipating those conditions in the pricing provisions of long-term contracts is a difficult and risky business under any circumstances.⁵⁹ It is highly probable that at least some pipelines would have made errors in their forecasting of the gas market and in their gas contracting practices that would have placed them in a difficult position in the mid-1980s even in the absence of government regulation.

There is considerable evidence, however, that features of the regulatory scheme applicable to the gas industry during the late 1970s and early 1980s contributed significantly to the pipeline contracting practices that now pose a major obstacle to the transition to a competitive gas sales market. First, with prices regulated and supplies allocated administratively, pipelines experienced difficulty determining whether the market was in a condition of shortage or surplus.⁶⁰ Many pipelines believed that they were confronting a shortage as late as 1982 when the data now available demonstrate that a surplus existed as early as 1978. Second, the combination of regulation of producer prices for "old gas" at well below the market price and regulation of pipeline prices

57. The "new gas" ceiling price for July 1987 was \$4.60 per MMBtu. § 271.101. *Ceiling Prices for Certain Categories of Natural Gas*, II F.E.R.C. Stats. & Regs. ¶ 24,111, at 14,158. The spot market price of gas in July 1987 varied from \$1.20 to \$1.50 per MMBtu. *Survey of Domestic Spot Market Gas Prices*, 15 Energy Rep. (BNA) 568 (1987). The existence of continuing regulatory distortion of the gas sales makes it difficult to determine the market price of gas. The spot price at present is below the market price that would exist in a properly functioning gas sales market. I have estimated the present market value of gas at \$2.00. Pierce, *supra* note 48.

58. See U.S. DEPARTMENT OF ENERGY, NATURAL GAS PRODUCER/PURCHASER CONTRACTS AND THEIR POTENTIAL IMPACTS ON THE NATURAL GAS MARKET (1982); Pierce, *Natural Gas Regulation, Deregulation, and Contracts*, 68 VA. L. REV. 63 (1982).

59. See Goldberg, *Price Adjustments in Long-Term Contracts*, 1985 WIS. L. REV. 527, 531-33; Goldberg, *Regulation and Administered Contracts*, 7 BELL J. ECON. 426, 436-38 (1976); Joskow, *Commercial Impossibility, the Uranium Market and the Westinghouse Case*, 6 J. LEGAL STUD. 119, 173-75 (1977).

60. For discussion of the complicated administrative allocation scheme that applied to natural gas in the late 1970s, see Pierce, *The Choice Between Adjudicating and Rulemaking for Formulating and Implementing Energy Policy*, 31 HASTINGS L.J. 1, 5-15 (1979). The D.C. Circuit recognized in 1978 that there was a potentially large but undetermined gap between the apparent and actual magnitude of the gas shortage. See *North Carolina v. FERC*, 584 F.2d 1003 (D.C. Cir. 1978).

based on the pipeline's average acquisition cost of gas made it impossible for any pipeline to meet the demand for gas by its customers without agreeing to pay above-market prices for some portion of its gas supply.⁶¹ Third, the method of regulating pipeline prices equated maximization of throughput with profit maximization.⁶² Thus, with bidding for new gas supplies necessarily at above market prices because of regulation of pipeline prices based on average cost, a pipeline could maximize its throughput, and hence its profits, only by bidding above market prices for new supplies.⁶³

5. Failure to Recognize that Regulation Insulates Firms from the Healthy Effects of Competition

Finally, Congress failed to recognize that utility-type regulation of pipelines under the NGA insulated them to a considerable degree from the healthy incentives naturally provided by a competitive market.⁶⁴ Cost-of-service ratemaking reduced pipelines' incentive to minimize their gas purchase costs. The requirement of prior regulatory approval for new sales, services and facilities proposed by potential competitors, along with minimum bill provisions in pipeline tariffs, reduced pipelines' concern that they might lose their markets to pipelines with lower costs. Moreover, decades of functioning in a pervasively regulated industry caused pipelines to discount the risk that contracts negotiated today might be a source of significant marketability problems in the future. If the risk arose, pipelines could turn to regulators or Congress with the expectation that they would be relieved of the burdens of their contractual commitments.

Acting on these regulatory incentives and disincentives, many pipelines entered into long-term contracts in the late 1970s and early 1980s that committed them to pay above-market prices for large volumes of gas well into the 1990s. Many pipelines naively accepted the accuracy of the congressional forecasts of future gas prices reflected in the constantly escalating ceiling prices of the NGPA. They incorporated the NGPA ceiling prices in their contracts as price floors. As the market price of gas declined continuously from 1981 through 1986, the NGPA ceiling prices continued to escalate at the rate specified in the statute. The pipelines who had converted the statutory price ceilings into contractual price floors soon discovered that they were committed to purchase a high proportion of their gas supplies at over twice the market price of gas.

Because of these basic flaws in the NGPA, the gas industry has performed as poorly during the period 1978 through 1987 as it did during the shortage era from 1970 through 1977. This time, instead of creating a shortage, the regulatory system created a large surplus, combined with high prices to consumers and financial distress for producers and pipelines. I will interrupt the chronology at this point to analyze the characteristics of the gas

61. Pierce, *supra* note 27, at 362-63; Pierce, *supra* note 38.

62. R. MEANS, *supra* note 56, at 81-83.

63. Pierce, *supra* note 27, at 362-63.

64. See *id.* at 357-65.

market today, identify the imperfections in the market, and describe the forms of intervention suited to those imperfections.

II. MARKET IMPERFECTIONS AND REGULATORY RESPONSES

To a large extent the regulatory distortion of the gas market of recent decades is attributable to a single generic error in policymaking—failure to limit government intervention to that required to respond to a demonstrated market imperfection. The initial form of intervention in the gas market illustrates the ideal sequence. When cities began to regulate gas distributors, the form and scope of their intervention was tailored to the imperfection in the gas distribution market documented by Mill, Farrar, and Adams. Similarly, when Congress received allegations of the existence of an imperfection in the interstate pipeline sector of the gas market, its initial reactions were perfect. It referred the allegations to an agency with expertise in analyzing markets, received an excellent analysis that identified and documented the imperfection, and proposed a form of intervention well-tailored to the imperfection.

Congress went astray at that point, however, and intervened in the pipeline sales market when the imperfection existed only in the transportation market. In 1954, the Supreme Court greatly compounded Congress' error of overbreadth by extending government intervention to a market in which no imperfection had been found—the wellhead sales market for gas. In 1978, Congress extended that error by continuing in a far more complicated form the intervention in the structurally competitive wellhead sales market.

In this section, I return to Mill's initial question. What imperfections exist in the gas market, and what forms of intervention are appropriate in response to those imperfections?⁶⁵

A. Market Imperfections

In searching for imperfections in the gas market, it is logical to begin by looking at the segment of the market that has been the subject of the bulk of government intervention in recent decades—the sales market for gas. Here the search is surprisingly easy and yields an uncontrovertible conclusion. There is no conceivable imperfection in the gas sales market that could justify regulatory intervention. There are a large number of gas producers; gas production is one of the least concentrated industries in the country.⁶⁶ Economies of scale are small, and barriers to entry are low. Similarly, there are a large number of gas consumers. If producers and consumers had sufficient access to each other, there is no possibility that monopoly or monopsony conditions could develop to hinder the performance of a perfectly competitive gas sales market.

The market for gas transportation presents a very different picture. Here the starting points are the studies of Mill, Farrar, Adams, and the FTC. In

65. This task has been made easier by the availability of numerous high quality studies of all segments of the gas market. See, e.g., sources cited *supra* notes 2, 26, 39 & 47. See also A. TUSSING & C. BARLOW, *THE NATURAL GAS INDUSTRY: EVOLUTION, STRUCTURE, AND ECONOMICS* (1984).

66. KALT & SCHULTER, *supra* note 47, at 97-99.

the distribution sector, the changes since the nineteenth century suggest little need to modify the original findings of the scholars of that period. Physical distribution of gas through low pressure lines is characterized by large economies of scale.⁶⁷ The duplication of facilities required to support two or more distributors in the same local market are so great that competition in the physical distribution of gas cannot provide the least cost solution for society.

The pipeline transportation sector of the gas market has experienced enormous growth since the FTC studied that market in the early 1930s. The size of the national market for gas has increased fifteen-fold, and the number of participants in the interstate transportation market has increased from 4 to 113.⁶⁸ Most major gas supply areas have access to markets through several different pipelines.⁶⁹ Hundreds of market areas, including most of the largest gas markets, have access to supplies through multiple pipelines.⁷⁰ Moreover, if Congress or the Federal Energy Regulatory Commission (FERC), the FPC's successor, were to eliminate the regulatory barriers to entry into new markets created by the certification requirement of the NGA, pipelines would extend their lines to compete in providing access to many more local markets.⁷¹

Notwithstanding these structural changes in the gas transportation market, many important characteristics remain as they were originally found by the FTC. As the size of a pipeline increases, the volume of gas it can transport increases at a rate significantly greater than the rate of increase in its costs. Thus, pipeline transportation continues to be characterized by large economies of scale up to a relatively large volume of throughput. Some supply areas have access to markets through only one or very few pipelines, and a majority of market areas, including most small and medium-sized markets, have access to supplies through only one pipeline.⁷² Moreover, because of capacity constraints, some multiple pipeline markets are not subject to effective competition for transportation of the entire volume of gas demanded, and natural economic barriers to entry alone limit the construction of new competitive capacity in some markets presently served by a single pipeline. Thus, the FERC's recent finding that the transportation network is "highly monopolistic in some markets, fairly competitive in others" seems well-supported.⁷³

Finally, while the cost characteristics of the gas production function are those of a naturally competitive industry, there is one characteristic of the production function that gives rise to a market imperfection at the wellhead. The gas contained in a reservoir typically is owned by a large number of peo-

67. *Id.* at 101-02.

68. Compare FTC REPORT, *supra* note 16, at 19-20, 28 with CONGRESSIONAL RESEARCH SERVICE, 97TH CONG., 2D SESS., NATURAL GAS REGULATION STUDY 19-20, 122-23 (1982) and U.S. DEPARTMENT OF ENERGY, THE CURRENT STATE OF THE NATURAL GAS MARKET 7-12 (1981).

69. KALT & SCHULLER, *supra* note 47, at 100.

70. *Id.* at 97-101.

71. See *infra* text accompanying notes 100-02 & 211-19.

72. KALT & SCHULLER, *supra* note 47, at 97-101.

73. Order No. 436, *Regulation of Natural Gas Pipelines After Partial Wellhead Decontrol*, [1982-1985 Regs. Preambles] F.E.R.C. Stats. & Regs. ¶ 30,665, at 31,474, 50 Fed. Reg. 42,408, 42,413 (1985) [hereinafter Order No. 436].

ple. Under the common law "rule of capture," each owner's property rights are highly imperfect until the owner brings gas to the surface through production. This gives rise to a variation of the "tragedy of the commons" that can result in waste of natural resources.⁷⁴

Waste of natural gas through the operation of the rule of capture can arise in several different ways. For present purposes, a single example of one of the most obvious manifestations is sufficient to illustrate the nature of the imperfection. Assume that *A* owns twenty-five percent of the gas in a reservoir that contains both oil and gas. The rest of the oil and gas in the reservoir is owned in varying proportions by others. Assume further that the present market value of the gas is less than the cost of transporting it to market. In this relatively common situation, reinjecting the gas in the reservoir frequently provides the greatest net benefits to society. Reinjection has two values to society. First, the gas can be produced at a future time when its market value may well exceed the cost of transporting it to market. Second, its reinjection into the reservoir typically increases the amount of oil that can be produced from the reservoir in the future and decreases the cost of producing the oil. Owner *A* may well choose not to engage in the socially beneficial conduct of reinjecting the gas, however; *A* may opt instead to engage in the wasteful practice of flaring the gas. *A*'s conduct will be shaped by the rule of capture. If *A* reinjects the gas, usually at considerable cost, most of the reinjected gas will be produced in the future by other owners who did not incur the cost of reinjection, and the other owners will derive most of the benefits of reinjection in the form of enhanced oil recovery as well. Thus, *A*'s conduct is distorted because the rule of capture does not permit *A* to internalize the full societal benefits of its decision to reinject gas.

B. Regulatory Responses

In this section, I will outline the range of governmental responses available to correct for the two imperfections in the gas market identified in the prior section—the natural monopoly tendency of gas transportation and the tendency toward waste in gas production. I will also assess generally the advantages and disadvantages of each option.

Since the gas sales market would be perfectly competitive in the absence of regulatory intervention and the gas transportation market tends to be monopolistic in many geographic areas, the appropriate response to this imperfection is regulation of the transportation market, leaving the sales market subject to the discipline of unregulated competition. This obvious prescription must be modified only to the extent that economies of scope render it possible for a single firm to perform both the sales function and the transportation function in a given market sector at costs significantly lower than the costs incurred by separate firms that specialize in each function.⁷⁵ Where that

74. For detailed treatments of this phenomenon, see S. McDONALD, *PETROLEUM CONSERVATION IN THE UNITED STATES: AN ECONOMIC ANALYSIS* (1971); J. WEAVER, *UNITIZATION OF OIL AND GAS FIELDS IN TEXAS* (1986); Pierce, *State Regulation of Natural Gas in a Federally Deregulated Market: The Tragedy of the Commons Revisited*, 73 CORNELL L. REV. 15 (1987).

75. See KALT & SCHUIER, *supra* note 47, at 94-96.

situation exists, policymakers must choose one of three responses: (1) encourage complete integration of the sales and transportation function in the same company, and regulate all activities undertaken by that integrated company; (2) force complete separation of the two functions, regulate the transportation company, make the sales market subject to unregulated competition, and accept some cost in the form of foregone economies of scope; or, (3) permit sales both by independent companies and by integrated transportation and sales companies, regulate the potentially monopolistic transportation function, make the sales market subject to unregulated competition, and police transactions between the regulated transportation company and its unregulated sales affiliate.⁷⁶

In 1938, Congress chose the first option as its response to the FTC finding that gas transportation tends toward natural monopoly. The Supreme Court then extended the scope of regulation to encompass wellhead sales to pipelines in 1954—an extraordinarily broad application of the first option. The performance of the gas market over the past two decades has demonstrated beyond question that the broad application of option one chosen by the Supreme Court yields poor results. The performance of the gas market in the 1980s, along with the poor performance of other markets that have been subject to similar regulatory regimes,⁷⁷ strongly suggests that option one yields unsatisfactory results even when confined to the more narrow scope originally reflected in the NGA.

Regulation is so much less effective than competition as a means of inducing companies to minimize costs, and regulation has such great potential to distort the operation of a market, that its scope should be limited to that essential to respond to an imperfection. Thus, in choosing a new policy for application to pipelines, the alternatives should be narrowed to the second or third options. In both, the sales market is subject to unregulated competition. The choice between the two may prove more difficult. It should be based principally upon the extent of the economies of scope that exist in the pipeline sector of the market, a subject on which little is known at present.

The same three options exist in choosing the most appropriate form of intervention at the distribution level. State authorities traditionally have chosen option one in this context—regulation of physical distribution and retail sales as a single integrated activity. The reasons for this choice are largely historical, however, and state decisionmakers were virtually foreclosed from choosing options two or three at the distribution level by the 1938 federal decision in favor of option one at the pipeline level. If the federal government changes to one of the regulatory regimes that unbundles gas sales and gas transportation at the pipeline level, state regulators will have the opportunity to reconsider the option most appropriate for application at the distribution level.

The economies of scope between gas distribution and retail gas sales are

76. For detailed analysis of these alternatives in the context of electricity, see Pierce, *A Proposal to Deregulate the Market for Bulk Power*, 72 VA. L. REV. 1183 (1986). See generally Williamson, *Transaction Cost Economics: The Governance of Contractual Relations*, 22 J.L. & ECON. 233 (1979).

77. See Pierce, *supra* note 76.

greater than the economies of scope between pipeline transportation and wholesales of gas. In order to preserve those economies, state decisionmakers can be expected to reject option two—forced segregation of physical distribution from retail sales. Yet, option one has the same disadvantages at the distribution level that have become so apparent at the pipeline level—regulating the retail gas sales market as if it were a monopoly when it has the characteristics of a perfectly competitive market distorts the market. Thus, it seems virtually certain that state regulators will elect to change to some variation of option three in response to the federal decision to abandon option one in favor of either option two or option three at the pipeline level.

To summarize, the most appropriate regulatory response to the existence of natural monopoly tendencies in gas transportation at the pipeline level is regulation of transportation and deregulation of sales. That far less intrusive form of intervention should be combined with either forced separation of pipeline transportation from gas sales or a mechanism to insure that pipelines do not use their market power as transporters to permit their sales subsidiaries to earn monopoly profits. With either of those forms of intervention in effect at the pipeline level, state regulators should reduce the extent of their control over the retail sales market and focus their attention on the monopolistic function of physical distribution of gas. I will leave until later the details of these forms of intervention, since many of them are raised concretely by the reconstitutive strategy that is being implemented at the federal level in 1988.

The second imperfection—potential waste in the production function—has formed the basis for three types of government intervention by producing states.⁷⁸ First, producing states have regulated production directly through extremely complicated and detailed regulatory regimes, including such elements as establishing allowable rates of production for every well in the state and limiting the circumstances in which gas can be flared. Second, states have attempted to avoid waste by forcing pipelines to buy gas that might otherwise be wasted and by establishing minimum prices at which gas must be purchased. Third, states have pressured multiple owners of oil and gas reservoirs to unitize their property interests.

Direct regulation of production imposes significant administrative burdens on owners of gas and on producing state governments. It is difficult to determine whether the public derives net benefits from the process. There is evidence that production regulation sometimes reduces the amount of waste that would take place in the absence of any government intervention.⁷⁹ There is also evidence, however, that production regulation sometimes creates waste that would not otherwise take place.⁸⁰ Moreover, the evidence is overwhelming that the net benefits of production regulation, if any, are attained at enormous cost.⁸¹ Direct regulation of production is a cumbersome and blunt instrument to further the goal of conservation.

78. See sources cited *supra* note 74. See also *Symposium: Workshop on Natural Gas Prorationing and Ratable Take Regulation* 57 U. COLO. L. REV. 149 (1986) [hereinafter *Symposium*].

79. See S. McDONALD, *supra* note 74, at 129, 168-70, 182; J. WEAVER, *supra* note 74, at 14, 347-49.

80. See S. McDONALD, *supra* note 74, at 183-96.

81. *Id.*

Forcing pipelines to buy gas that otherwise would be wasted and imposing minimum prices on gas purchased by pipelines may have been justified as a means of conserving resources at one time. A monopsonist has a natural incentive to purchase a lower quantity of a good than would be purchased in a properly functioning market at a lower price than the market would yield. Thus, if a gas supply is accessible to markets through only one unregulated pipeline, the state might enhance social welfare by forcing the pipeline to buy more gas than it desires at a higher price than it is willing to pay. Independent of the difficult questions of how much more gas the pipeline should be required to purchase and at what price, two conditions must exist to justify this form of intervention, however. First, the supply must be accessible to markets through only one pipeline. This condition still exists in some supply areas, but the number of such areas has diminished significantly over the past forty years.⁸² More fundamentally, state regulation of pipeline purchases can further a legitimate public purpose only if a pipeline can exclude third parties from using its transportation facilities.

If the federal government implements the form of intervention most appropriate as a response to the natural monopoly tendency of pipeline transportation, the justification for state regulation of pipeline purchases disappears. With third party access to each pipeline assured by federal regulation of gas transportation, any state requirement that a pipeline purchase more gas than it desires at a price higher than it is willing to pay necessarily creates, rather than avoids, waste of resources.⁸³

Unitization differs in kind from the other forms of intervention producing states have adopted to further the goal of conservation of resources. Regulation of gas production and gas purchasing are typical of the prescriptive command and control form of government intervention that became popular during the New Deal in response to depressed economic conditions. This form of intervention imposes enormous burdens on regulatory institutions. To be effective, detailed prescriptive regulation must govern every aspect of conduct affected by regulation and must be based on accurate and current findings of fact. If it is less than comprehensive, predicated upon inaccurate factual assumptions, or slow to respond to changes in its factual predicates, command and control regulation is worse than ineffective. It harms society in significant ways.

By contrast, unitization is a classic example of what Richard Stewart calls reconstitutive strategies.⁸⁴ Instead of attempting to change undesirable behavior directly, the government induces individuals to modify their conduct in socially beneficial ways by changing the consequences of their actions. In order to devise an effective reconstitutive strategy, it is first necessary to determine the source of the socially undesirable conduct. In the context of waste of natural gas, the source is the rule of property law that precludes individual owners of gas in a multi-owner reservoir from internalizing the social benefits

82. See KALT & SCHULLER, *supra* note 47, at 97-101.

83. See Pierce, *supra* note 74.

84. See Stewart, *supra* note 1. See also Stewart, *Beyond Delegation Doctrine*, 36 AM. U.L. REV. 323 (1987).

of conserving gas for future use. Unitization changes that rule by giving each owner a proportionate interest in the full costs and benefits of each decision to produce, to defer production, or to reinject gas previously produced. A producing state can respond effectively and completely to the market imperfection that sometimes causes waste of gas by adopting universal fieldwide unitization as the sole form of intervention in the gas market.⁸⁵

III. RECONSTITUTIVE STRATEGIES—1978-1988

In 1988, the federal government seems near completion of an extraordinary transition from the overly broad and highly distortive scheme of pervasive regulation of the gas industry to a reconstitutive strategy in which intervention is limited to the minimum required to induce socially beneficial conduct by the participants in the market. The difficult path to this desirable end was not charted by a single government institution. Rather, it was the product of many decisions made by Congress, the FERC, and federal courts.⁸⁶

Five steps were necessary in the transition process: (1) deregulate the wellhead sales market; (2) eliminate federal constraints on the retail sales market; (3) regulate pipeline transportation; (4) modify the scope of regulation of distribution; and, (5) resolve a series of critical implementation issues. The first three steps have been completed, while the last two are still in progress. I will describe the intricate chronology of transition and frame the issues that must still be resolved to complete the reconstitutive process.

A. NGPA—*The Seed for a Competitive Gas Sales Market*

The many flaws in the NGPA have caused the gas market to perform poorly since 1978.⁸⁷ Still, by embodying the fundamental congressional decision to begin to permit the wellhead price of at least some gas to be determined by supply and demand,⁸⁸ the NGPA created an environment in which competition ultimately would displace government decree as the dominant force in the gas sales market. The conditions of surplus and excessive pipeline prices spawned by the NGPA placed pipelines under great pressure to find new ways to market gas. By the early 1980s, many pipelines had lost significant portions of their markets to other fuels and to other sources of gas supply. They had committed to buy such large quantities of gas at prices above the market price that, even with access to large volumes of "old gas" at artificially low price ceilings, their average cost of gas exceeded the price that customers with access to alternate fuels or alternate sources of gas were willing to pay.

85. See Pierce, *supra* note 74. See also McDonald, *Unit Operation of Oil Reservoirs as an Instrument of Conservation*, 49 NOTRE DAME L. REV. 305 (1973).

86. Judges charged with responsibility to review FERC actions have played a particularly important role; at critical junctions, courts issued opinions that served as guideposts leading the FERC to the proper path. *E.g.*, Associated Gas Distribs. v. FERC, 824 F.2d 981 (D.C. Cir. 1987); Maryland People's Counsel v. FERC, 761 F.2d 768 (D.C. Cir. 1985) [hereinafter *MPC I*]; Maryland People's Counsel v. FERC, 761 F.2d 780 (D.C. Cir. 1985) [hereinafter *MPC II*].

87. See *supra* text accompanying notes 43-64.

88. See *Transcontinental Gas Pipe Line Corp. v. State Oil & Gas Bd.*, 474 U.S. 409, 420-23, *reh'g denied*, 475 U.S. 1091 (1986).

Pipelines reacted initially to their marketability problem in two ways. First, they began to enforce the minimum bill provisions the FERC had previously authorized in their tariffs in order to limit their customers' ability to reduce purchases or switch to other suppliers. Second, pipelines initiated special marketing programs and selective transportation programs carefully designed to permit each to recapture the customers it had lost to alternate fuels and to other sources of gas supply without any loss of total revenues.⁸⁹ A pipeline could accomplish this goal through the regulatory process by selling or transporting gas at prices well below its average cost to customers with ready access to alternative means of meeting their energy needs, while it continued to sell gas at a much higher price to its customers without ready access to alternatives. Pipelines refused to sell gas at discounted prices or to transport less expensive third party owned gas to their "captive customers."

This combination of tactics based on FERC regulation insulated pipelines from competition to such an extent that they were able to sell gas at prices far above the maximum price that could be charged in a competitive market. To illustrate this point, consider that the price of oil, a close competitor of gas in many applications, declined by over fifty percent from the time it was deregulated at the beginning of 1981 until the beginning of 1985.⁹⁰ Over the same period, the average price of gas sold by the regulated interstate pipelines increased by sixty-seven percent despite the existence of a gas surplus throughout the period.⁹¹

Gradually, the FERC became aware that its regulation of pipeline sales was causing the price of gas to increase dramatically above the market-clearing level, and it became uneasy about its role. It eliminated one of the major sources of regulatory protection from competition in 1984 by declaring invalid as anticompetitive the variable cost component of minimum bill provisions contained in pipeline tariffs.⁹² This reduced significantly the economic penalty a pipeline customer had to pay to switch to a lower cost source of supply. The FERC also expressed concern about the effects of the special marketing programs and selective transportation programs that had become ubiquitous in the industry.⁹³ The FERC continued to authorize those programs, however, in response to the contentions of pipelines that the programs provided the only means to market the large volumes of the gas pipelines had committed to purchase at above-market prices under the NGPA.

Then came what one commentator has characterized as the natural gas revolution of 1985.⁹⁴ In companion cases styled *Maryland People's Counsel v.*

89. See Griggs, *Restructuring the Natural Gas Industry: Order No. 436 and Other Regulatory Initiatives*, 7 ENERGY L.J. 71, 82-83 (1986).

90. ENERGY INFORMATION ADMINISTRATION, MONTHLY ENERGY REVIEW (Dec. 1985).

91. KALT & SCHULLER, *supra* note 47, at 25.

92. Order No. 380, *Elimination of Variable Costs from Certain Natural Gas Pipeline Minimum Commodity Bill Provisions*, [1982-1985 Regs. Preambles] F.E.R.C. Stats. & Regs. ¶ 30,571, 49 Fed. Reg. 22,778 (1984).

93. See, e.g., Notice of Inquiry, *Impact of Special Marketing Programs on Natural Gas Companies and Consumers*, IV F.E.R.C. Stats. & Regs. ¶ 35,513, 49 Fed. Reg. 3193 (1984).

94. S. WILLIAMS, *supra* note 47.

FERC (MPC I and MPC II),⁹⁵ the D.C. Circuit held all special marketing programs and selective transportation programs unlawful under the NGA. The opinions in the two cases, by Judge Ruth Bader Ginsburg and Judge (now Justice) Scalia, were remarkably similar. The court analyzed the two programs with care to determine their effects on consumers. It concluded that the FERC was permitting pipelines to divide their markets into two segments—customers with ready access to alternate fuels or alternate sources of gas and captive customers. Through this regulatory market segmentation, pipelines were able to exploit to the maximum their monopoly power over consumers. Since the goal of the NGA was to protect consumers from exploitation by monopolistic pipelines, the court held that selective discounting of sales prices and selective transportation of gas violated the NGA.

The FERC had to act rapidly in response to *MPC I* and *MPC II*. Pipelines continued to face acute marketability problems attributable to their contractual commitments under the NGPA to purchase large volumes of gas at prices above the level the market would support. The D.C. Circuit had just eliminated the principal means through which pipelines were maintaining their throughput and revenues. The FERC had to devise a new means of getting gas to markets that would not violate the court's prohibition on anticompetitive regulation.

B. Order No. 436—Regulation of Pipeline Transportation

In Order No. 436,⁹⁶ the FERC finally did what Congress should have done in response to the FTC report in 1935—it initiated a program to regulate pipeline transportation of gas. Until 1985, the FERC and its predecessor the FPC had largely ignored the transportation function that the FTC had determined to be monopolistic. The FERC had regulated, instead, the structurally competitive sales market. As a result, pipelines were able to exclude potential competitors from the sales market by denying them access to pipeline transportation. In short, by regulating pipeline sales but not pipeline transportation, Congress and the FERC had created artificially pipeline monopoly power in the inherently competitive sales market.

Order No. 436 is intended, in effect, to require pipelines to provide equal access to anyone who requests transportation of gas. It represents application by a regulatory agency of the "essential facility" doctrine developed by the courts under the Sherman Act over seventy-five years ago.⁹⁷ The FERC explicitly declined to impose an equal access obligation, however, because it feared that it might be foreclosed from making pipelines common carriers by Congress' 1935 decision to decline to impose such an obligation by statute. To avoid what a court might consider an *ultra vires* action, the FERC stated the equal access rule as one of two options any pipeline could adopt voluntarily. If a pipeline declined to become an equal access carrier, it could continue to

95. *MPC I*, 761 F.2d 768 (D.C. Cir. 1985); *MPC II*, 761 F.2d 780 (D.C. Cir. 1985).

96. See Order No. 436, *supra* note 73.

97. See *Otter Tail Power Co. v. United States*, 410 U.S. 366 (1973); *United States v. Terminal R.R. Ass'n*, 224 U.S. 383 (1911). See generally Tye, *Competitive Access: A Comparative Industry Approach to the Essential Facility Doctrine*, 8 ENERGY L.J. 337, 374-77 (1987).

exclude all third parties from transporting gas on its system. Under Order No. 436, as well as *MPC I* and *MPC II*, however, a pipeline could not provide transportation selectively or engage in selective discounting of its sales price. Without those powers, any pipeline that did not become an equal access carrier risked dramatic erosion of its market over time as its customers switched to less expensive alternative fuels or less expensive sources of gas.

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.

Of course, all of these beneficial results are dependent upon effective FERC regulation of pipeline transportation. In a market supplied by a single pipeline, that pipeline can exercise its monopoly power over transportation to create the same set of problems that existed when it was a regulated monopolist in the sales market unless the FERC regulates effectively the pipeline's transportation rates. The FERC undertakes this task in Order No. 436 by adopting Ramsey pricing principles for pipeline transportation.⁹⁸ 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.⁹⁹ 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.

The FERC will find it easier to regulate effectively the potentially monopolistic market for pipeline transportation than to regulate the structurally competitive gas sales market. The regulatory framework it has chosen to regulate gas transportation has proven effective in other contexts; it offers the prospect of furthering several goals simultaneously.¹⁰⁰ First, the rate ceiling based on fully-allocated cost precludes a pipeline from exercising its monopoly power in ways that harm society. Second, the floor based on variable cost eliminates the potential for predatory pricing and cross-subsidization. Third, the flexibility to charge rates that vary between the floor and the ceiling provides each pipeline the incentive and ability to extract from each customer a contribution to the pipeline's fixed costs that is as close to the customer's proportionate share of those costs as possible. The amount of that contribution necessarily will vary depending on the value each customer attaches to transportation service, but allowing the pipeline flexibility to negotiate rates within the range will have the effect of maximizing the volume of gas transported while minimizing the rate each customer must pay. Finally, providing for

98. See GELLHORN & PIERCE, *supra* note 28, at 170-81, 185-89; Baumol & Bradford, *Optimal Departures from Marginal Cost Pricing*, 60 AM. ECON. REV. 265 (1970); Ramsey, *A Contribution to the Theory of Taxation*, 37 ECON. J. 47 (1927).

99. 18 C.F.R. §§ 284.7(d)(5), 284.8(d) (1987).

100. See Barnekov, *The Track Record*, 1987 REG. 19.

negotiated rates within a predetermined band gives each pipeline the opportunity to recover its fixed costs.

The FERC incorporated in Order No. 436 another feature that could prove exceptionally important to the future performance of the gas market. It provided an optional expedited certificate procedure through which pipelines can obtain regulatory approval to construct new facilities. If the pipeline agrees to assume the risk that a proposed new facility will not generate revenues sufficient to cover its costs, the FERC will accord the pipeline a rebuttable presumption that the facility is in the public interest.¹⁰¹ The purpose of this procedure is to permit competition ultimately to play a greater role in the transportation market, as well as in the sales market.

Traditionally, pipelines have used the certification requirements of the NGA as a means of precluding market entry by competing pipelines. If pipeline *A* is the sole supplier to market *X*, and pipeline *B* wants to enter that market, it must first obtain a certificate of public convenience and necessity authorizing it to construct the facilities necessary to permit entry. Under the procedures used by the FERC to consider such applications for the prior forty-seven years, pipeline *A* could oppose pipeline *B*'s application on a wide variety of grounds and demand and receive a hearing on the issues it raised. Even if *B* prevailed in the hearing, *A* would have succeeded in increasing *B*'s costs of entry significantly, quite possibly to the extent that its entry no longer was profitable, by delaying *B*'s entry for years and forcing it to incur millions of dollars of costs in the hearing process. Since any pipeline considering entry into a new market knew that the existing monopolist could force it to incur these high costs of entry, the FERC's traditional procedure deterred attempts at entry and permitted pipelines to protect their monopolies in many markets that could support competition. The new procedure for considering certificate applications will eliminate the power of monopolistic pipelines to raise their competitors' cost of entry by making it impossible for the incumbent monopolist to obtain a hearing to consider the potential entrant's application.

The FERC will be able to engage in reasonably effective regulation of gas pipeline transportation under Order No. 436. It cannot possibly create the kind of incentives for efficiency in the transportation market that would result from competition in that market, however. Thus, the 431 markets that are now served by multiple pipelines can expect better service at lower cost than the 1,012 markets that are now served by only a single pipeline.¹⁰² The laudable goal of the optional expedited certificate process is to eliminate regulatory barriers to entry into the gas transportation market so that the number of markets in which a pipeline has monopoly power over transportation will decrease over time. As this takes place, more markets will experience the benefits of competition among transporters, and the FERC ultimately can replace imperfect and burdensome regulation with reliance on competition even in the transportation sector of the gas market.

In *Associated Gas Distributors v. FERC (AGD)*,¹⁰³ the D.C. Circuit

101. 18 C.F.R. §§ 157.102, 157.103, 157.11 (1987).

102. KALT & SCHULLER, *supra* note 47, at 101.

103. *Associated Gas Distribs. v. FERC*, 824 F.2d 981 (D.C. Cir. 1987).

affirmed each of the major components of Order No. 436. Indeed, the court suggested strongly that the FERC can go further to implement its goals. Several pipelines argued that the FERC had exceeded its authority because: (1) equal access was not really voluntary in light of the extreme economic pressure Order No. 436 imposed on pipelines to become equal access carriers; and (2) the FERC was precluded from forcing pipelines to become equal access carriers by Congress' 1935 decision to decline to make gas pipelines common carriers. The court accepted the first part of the argument, analogizing the options offered pipelines in Order No. 436 to "the choice between the noose and the firing squad."¹⁰⁴ It rejected, however, the second part of the argument.¹⁰⁵

It does not follow from Congress' decision declining to make gas pipelines common carriers that Congress intended to preclude the FERC from taking such an action. Since Congress explicitly required the FERC to eliminate undue discrimination in gas sales and transportation in the NGA, and since the FERC made well-supported findings that equal access to pipeline transportation is essential to eliminate such undue discrimination, the FERC had the power to impose the equal access condition on provision of transportation service. This reasoning by the court could prove valuable to the FERC as it implements Order No. 436. I will defer further discussion of Judge Williams' excellent opinion in *AGD* until the discussion of implementation issues.

C. *Deregulation of the Sales Market*

While the NGPA provided the seed for deregulation of the sales market, Congress simultaneously incorporated in its 1978 legislation features that had the potential to distort that market in significant ways for the indefinite future. First, by incorporating vintaging of producer prices, the NGPA retained price ceilings on some "old gas" well below the market price. Vintaging was largely responsible for the shortage of the 1970s and the surplus of the 1980s. As long as this feature persists, it is impossible for the gas market to equate demand and supply unless pipelines buy large volumes of gas at above market prices. Second, the NGPA retained for some types of gas the requirement that a sale commenced in the past must continue in the future unless the FERC determines that abandonment is in the public interest. This feature creates rigidity in the market that impedes the ability of buyers and sellers to adjust sales relationships to reflect constantly changing market conditions. Third, Congress artificially limited the amount of gas that could be used for various purposes through the incremental pricing provisions of the NGPA and through the PIFUA. These limits force consumers to use more costly fuels when abundant gas supplies are available. Finally, by reducing the federal role in regulating the gas sales market at the wellhead without addressing the permissible role for states in that market, Congress arguably authorized producing states to regulate the wellhead gas market. State regulation of the wellhead sales market has even greater potential to distort that market than federal regula-

104. *Id.* at 1024.

105. *Id.* at 997-1003.

tion. Fortunately, each of these sources of regulatory distortion of the gas sales market has been largely eliminated through a combination of actions by the three branches of the federal government.

1. Elimination of Vintaging

In 1986, the FERC acted to eliminate the concept of vintaging that had long been recognized as the source of numerous market distortions that had imposed billions of dollars of costs on gas consumers.¹⁰⁶ Congress had incorporated in the NGPA price ceilings on some "old gas" that were established originally under the NGA. Those price ceilings artificially depressed the price of "old gas" to about twenty-five percent of the market price and caused the gas shortage of the 1970s.¹⁰⁷ They also contributed significantly to the high price of gas in the 1980s by inducing pipelines to purchase large volumes of gas at prices far above the market.¹⁰⁸ Congress provided one means in the NGPA through which the FERC potentially could eliminate or reduce this persistent source of market distortion. The FERC had the power to determine that the statutory price ceilings on "old gas" were no longer "just and reasonable" under the NGA.¹⁰⁹ It could then establish new price ceilings that did meet that vague statutory standard. The FERC exercised this power in Order No. 451.

The FERC determined that the statutory price ceilings on "old gas," that kept the price of much of that gas from rising above fifty cents per MMBtu, were no longer just and reasonable and should be replaced by a new ceiling of \$2.60, escalating at the rate of inflation.¹¹⁰ The FERC based its order on findings that: (1) the cost of discovering and producing gas had increased since the FPC originally established the area and national rates in the 1960s and 1970s; (2) vintaging distorted the market in many ways that harmed consumers; and, (3) elimination of artificially low priced gas would reduce consumer prices over time by encouraging greater production of "old gas."¹¹¹

The FERC could not stop with that simple step, however. The traditional methods of regulating the industry had distorted contracting practices for decades.¹¹² Many pipelines, accustomed to price ceilings that were perpetually below the market price, had agreed to pay the maximum lawful price for "old gas" purchased under long-term contracts. Thus, an increase in ceiling price alone could cause the contract price for large volumes of gas to exceed the market price automatically. To avoid this result, the FERC provided for a "good faith negotiation" process in which the contract purchaser could decline to pay the price demanded by the producer if the contract purchaser

106. Order No. 451, *Ceiling Prices: Old Gas Pricing Structure*, III F.E.R.C. Stats. & Regs. ¶ 30,701, 51 Fed. Reg. 22,168 (1986) [hereinafter Order No. 451]. See Shoneman & McConnell, *FERC Order No. 451: Freedom (Almost) for Old Gas*, 7 ENERGY L.J. 299 (1986).

107. See *supra* text accompanying notes 32-42.

108. See *supra* text accompanying notes 43-64.

109. 15 U.S.C. §§ 3301, 3314, 3316 (1982).

110. 18 C.F.R. §§ 271.402(c)(3), (7), 271.602 (1987).

111. Order No. 451, 51 Fed. Reg. at 22,172, 22,195-204, 27,405.

112. See Pierce, *supra* note 58.

agreed instead to release the gas for purchase by a third party and to transport the gas to that third party on request.¹¹³

The FERC also attempted to use the good faith negotiation procedure to help pipelines renegotiate some of their problem contracts, i.e., contracts in which the NGPA had induced pipelines to commit to buy large volumes of gas at above-market prices. If a producer demanded renegotiation of a contract in which the price was artificially low because of the prior price ceilings, the pipeline purchaser could demand renegotiation of any other contract applicable to "old gas" to reduce the price in that contract to the market price.¹¹⁴ Since many contracts cover both "old gas" and much more expensive "new gas," pipelines could force producers to renegotiate some high-priced contracts in return for the pipeline's agreement to pay a higher price under a contract that applies only to "old gas."

While Order No. 451 will eliminate some of the distortion created by artificially low price ceilings on "old gas," it may not be fully effective in achieving that goal for at least two reasons. First, the procedures are complicated, and their implications to a producer are not clear. Many parties may decline to use the procedures because of uncertainty concerning the attendant risks.¹¹⁵ The FERC could enhance the likelihood of achieving the goal of eliminating vintaging by simplifying the Order No. 451 procedures to focus only on that goal. The FERC would then need to implement some other strategy to address problem contracts, however—an independent goal that will be addressed in the discussion of implementation issues.¹¹⁶ Second, even the new ceiling price on "old gas" established in Order No. 451 may become a source of market distortion in the future. The FERC does not have the power to deregulate "old gas." The new ceiling price established in Order No. 451 is above the present market price. Thus, its existence does not create distortion in today's market conditions. As history demonstrates, however, the gas market can change rapidly. If the market price of gas rises above the Order No. 451 price ceiling, that ceiling will begin to create the same kinds of distortions that have harmed gas consumers in the past. The solution to this problem is simple. Congress should deregulate all gas sales.

2. Elimination of Regulatory Rigidity

Under the NGA, the relationship between a buyer and a seller was governed both by the provisions of long-term contracts and by the requirement that the FERC grant prior permission to both buyer and seller before any such relationship is terminated.¹¹⁷ The NGPA eliminated this prior abandonment obligation for some types of gas, but retained it indefinitely for other types of

113. Order No. 451, 51 Fed. Reg. at 22,204-19.

114. *Id.* at 22,219.

115. See *Calls for Price Caps to Share Risks of New Contracts*, 14 Energy Rep. (BNA) 621 (1986) (Tennessee Gas Pipeline study indicates that only one of the twenty largest producers that sell to it is likely to renegotiate contracts under Order No. 451).

116. See *supra* text accompanying notes 66-97.

117. 15 U.S.C. § 724(b) (1982). See *United Gas Pipe Line Co. v. FPC*, 385 U.S. 83 (1966); *Panhandle E. Pipe Line Co. v. FERC*, 803 F.2d 726 (D.C. Cir. 1986).

gas.¹¹⁸ It can be a source of significant distortion in many circumstances. Three examples illustrate the problems created by the abandonment provisions of the NGA.

First, producer *A* sells gas under a long-term contract with pipeline *B* that obligates *B* to purchase 500 MMBtu per day at \$2.50 per MMBtu. The contract is burdensome to *B* because its price exceeds the market price. *A* offers to decrease the contract price to \$1.85 in return for an increase in the quantity purchased to 1000 MMBtu per day. This offer is unattractive to *B* because it already has committed to purchase more gas than it can sell. *B* wants to be released from the contract entirely. Pipeline *C* needs additional gas supplies and wants to commit to buy *A*'s gas on the terms *A* offered to *B*. This is a classic illustration of a Pareto optimal transaction; everyone benefits if *A* releases *B* from the contract and enters into a new contract with *C*. The parties cannot take this action, however, until the FERC authorizes abandonment of the prior relationship between *A* and *B*.

Second, *A* has an old contract with *B* under which *B* can purchase gas at \$1.50 per MMBtu, but the contract does not require *B* to purchase any gas. Because *B* has committed to purchase more gas than it can sell, *B* has declined to purchase any gas from *A* for the past three years. *A*'s contract with *B* has now expired, and pipeline *C* has offered to commit to purchase *A*'s gas at the same price but under a contract that obligates *C* to buy seventy-five percent of the volume *A* can make available. *A* would like to accept *C*'s offer, but it cannot do so without first obtaining the FERC's permission to abandon its relationship with *B*.

Third, *A* has a contract with *B* that obligates *B* to purchase 1000 MMBtu per day at \$7.50 per MMBtu, several times the market price of gas. The contract expires, and *B* would like to cease buying from *A* in order to buy from producer *D* at a price of \$1.85 per MMBtu. Again, the socially beneficial transaction cannot take place unless the FERC first authorizes abandonment of the relationship between *A* and *B*.

Each of the changes in purchasing relationships hypothesized and thousands of real world variations would assist in creating a properly functioning gas market. Yet, under the FERC's traditional approach to applications to abandon service, there is an excellent chance that none would take place. Any party could request and obtain a hearing to determine whether abandonment is in the public interest. At the hearing, any party opposing the application would be entitled to present evidence on a wide range of issues, such as the comparative need of pipelines' *B* and *C* for gas from *A* now and for the next several decades.¹¹⁹ If an application for abandonment is opposed, the resulting hearing can cost millions of dollars and require a decade to yield a final order.¹²⁰ In the second case, pipeline *B* is certain to oppose the applica-

118. 15 U.S.C. § 3431 (1982).

119. See *Transcontinental Gas Pipe Line Corp. v. FPC*, 488 F.2d 1325, 1328-29 (D.C. Cir. 1973), *cert. denied*, 417 U.S. 921 (1974).

120. For data concerning the time required to complete a curtailment proceeding and the cost of such a proceeding, see *Pierce*, *supra* note 60. An abandonment proceeding involves many of the same issues and requires at least as much time and cost to complete. See *PIERCE & ALLISON*, *supra* note 41, at 551.

tion, while producer *A* can be counted on to oppose the application in the third case. In any of the cases, the potential opponents include thousands of distributors and consumers that receive gas directly or indirectly from the pipelines, as well as the pipelines' competitors and other suppliers. Almost invariably, someone intervened in opposition to the abandonment application and demanded a hearing. Applications for abandonment were infrequent in this environment, since any potential applicant realized that it could succeed, if at all, only after years of expensive regulatory proceedings.

Between 1985 and 1987, the FERC moved rapidly to eliminate the abandonment requirement of the NGA as a significant source of market distortion. In Order No. 245,¹²¹ the FERC announced new standards for considering applications for abandonment. Instead of examining the situations of the parties in detail, the FERC would focus on the effect of a grant of abandonment on the overall performance of the gas market. The FERC would grant abandonment if it had the effect of "increasing competition and causing gas prices to respond to that competition."¹²² The FERC then began to identify generic situations in which it would be favorably disposed to grant abandonment based on these criteria: when the parties to a contract include release of future contractual commitments as a condition for settling a contract dispute;¹²³ when the prior purchaser declines to match an offer by another purchaser under the good faith renegotiation procedures established in Order No. 451;¹²⁴ when both parties agree to terminate the relationship;¹²⁵ and, when the contractual basis for the relationship has ended and one of the parties requests abandonment.¹²⁶

The FERC also began to grant abandonment in many cases without ordering a hearing.¹²⁷ By changing its substantive standards for granting abandonment, the FERC changed the nature of the issues in many abandonment proceedings from issues of adjudicative fact, e.g., how much gas will pipeline *X* need five years from now, to issues of legislative fact, e.g., what is the overall effect on the performance of the market if a pipeline is allowed to cease buying gas from a producer when the contract between the two expires? An agency is not required to grant a request for a hearing when the only controverted issues are issues of legislative fact.¹²⁸ The FERC has proposed a legislative rule that will codify the new standards it has established.¹²⁹ Once

121. Opinion No. 245, 33 F.E.R.C. ¶ 61,333 (1985), *clarified*, Order No. 245-A, 34 F.E.R.C. ¶ 61,296 (1986), *rev'd and remanded*, Consolidated Edison Co. v. FERC, 823 F.2d 630 (D.C. Cir. 1987).

122. *Id.* at 61,657.

123. 18 C.F.R. § 2.77 (1987).

124. Order No. 451, *supra* note 106, at 22,205-06.

125. Notice of Proposed Rulemaking, *Abandonment of Sales and Purchases of Natural Gas Under Expired, Terminated or Modified Contracts*, IV F.E.R.C. Stats. & Regs. ¶ 32,441, 52 Fed. Reg. 18,702 (1987).

126. 18 C.F.R. § 157.21 (1987).

127. *Id.*

128. See 2 K. DAVIS, ADMINISTRATIVE LAW TREATISE 10.5, 12.6 (1980); R. PIERCE, S. SHAPIRO & P. VERKUIJ, ADMINISTRATIVE LAW AND PROCESS 252 (1985).

129. Notice of Proposed Rulemaking, IV F.E.R.C. Stats. & Regs. ¶ 32,441 (1987).

the rule is final, the FERC will have completed the process of eliminating a significant source of gross regulatory distortion of the gas market.

3. Elimination of Demand Constraints

The gas sales market also has been distorted by artificial constraints on demand for gas. The distortive effects of the two statutory schemes enacted in 1978—the PIFUA¹³⁰ and the incremental pricing provisions of the NGPA¹³¹—would have been far more severe if they had been implemented fully in the manner Congress envisioned. The NGPA required interstate pipelines and distributors served by interstate pipelines to charge artificially high prices to “consumers subject to incremental pricing” up to the “appropriate alternative fuel cost.”¹³² The class of consumers to which the higher prices applied was limited initially to industrial consumers that use gas in large boilers,¹³³ but the FERC was required to consider expanding that class to include all industrial consumers.¹³⁴ The FERC also was required to determine the appropriate alternative fuel cost on which the price was to be based.¹³⁵

Until 1983, the FERC’s method of implementing the incremental pricing provisions was uncertain. Because of a combination of regulatory, legislative and judicial actions, there was the distinct possibility that the FERC might implement the statute in a manner that would cause all industrial gas prices to exceed the cost of most alternate fuels.¹³⁶ This, in turn, would have caused many industrial consumers to switch from gas to other fuels even though there was a persistent and growing gas surplus.¹³⁷ Fortunately, the FERC ultimately devised a method of implementation that caused only a limited number of industrial consumers to switch from domestic gas to imported oil.¹³⁸ Still, the incremental pricing provisions distorted the market and aggravated the gas surplus that was created by the other provisions of the NGPA. Congress finally repealed the incremental pricing provisions in 1987,¹³⁹ nine years after the federal government recognized the existence of a gas surplus.¹⁴⁰

The PIFUA imposed four different artificial limits on gas demand. First, it prohibited all use of gas as a primary fuel in any existing electric utility

130. Pub. L. No. 95-620, 92 Stat. 3289 (1979) (codified in scattered sections of 15, 42, 45, 49 U.S.C.).

131. 15 U.S.C. §§ 3341-3348 (1982).

132. *Id.* § 3344(d)(2).

133. *Id.* § 3341.

134. *Id.* § 3342.

135. *Id.* § 3344(e).

136. *See Process Gas Consumers v. Consumer Energy Council*, 463 U.S. 1216 (1983) (holding unconstitutional provision of the NGPA through which Congress had attempted to veto the FERC rule applying incremental pricing to all industrial uses of gas). *See also* PIERCE & ALLISON, *supra* note 41, at 616-20 (discussing the controversy over whether the FERC should set “appropriate alternative fuel cost” based on price of number two or number six fuel oil).

137. *See* PIERCE & ALLISON, *supra* note 41, at 616-20.

138. The FERC rescinded its rule expanding the class of consumers subject to incremental pricing and established the “appropriate alternative fuel cost” at a level slightly below the cost of number six fuel oil. *See Foster Natural Gas Report (Foster Associates)* No. 1604, at 30 (Jan. 29, 1987).

139. Pub. L. No. 100-42, 101 Stat. 310 (1987).

140. *See supra* note 50.

powerplant after January 1, 1990.¹⁴¹ Second, it prohibited the use of gas in any new utility powerplant immediately.¹⁴² Indeed, the PIFUA prohibited the construction of any powerplant designed to burn gas.¹⁴³ Third, it limited an electric utility's consumption of gas to the average quantity it consumed during the shortage period 1974 through 1976.¹⁴⁴ Finally, the PIFUA authorized the Department of Energy (DOE) to issue orders or rules that would prohibit the use of gas in any other major fuel burning installation.¹⁴⁵

These provisions of the PIFUA were predicated on Congress' belief that there would always be a severe shortage of gas and that any consumer that could substitute oil for gas should be required to do so. Thus, Congress prohibited certain uses immediately and other uses in the future, anticipating that the DOE would complete the task over time by prohibiting many other uses of gas through the exercise of delegated authority.

Within days of the enactment of the PIFUA, the DOE announced the existence of a national gas surplus.¹⁴⁶ A few months later, the DOE and Congress viewed with alarm the Iranian revolution and its effects on the supply and price of oil. It became universally apparent that Congress had acted on the basis of a serious misunderstanding of energy markets in 1978, and that full enforcement of the PIFUA would have the disastrous effect of shifting a substantial portion of the demand for gas to imported oil.¹⁴⁷

Congress tacitly acquiesced in the DOE's decision to attempt to nullify the PIFUA administratively. The DOE began to issue exemptions from the gas to oil provisions of the PIFUA to anyone who applied.¹⁴⁸ Still, the statute reduced the demand for gas and increased the demand for oil. The process of obtaining a PIFUA exemption required time and money.¹⁴⁹ Moreover, firms were reluctant to invest in combustion equipment designed to burn gas knowing that the DOE could render the investment worthless at any time by beginning to enforce the PIFUA. In 1981, Congress amended the PIFUA by deleting the automatic limitations and prohibitions on gas use in preexisting combustion equipment, but retained the prohibitions on gas use in new equipment and on construction of new equipment designed to burn gas.¹⁵⁰ Finally, Congress repealed those provisions in 1987.¹⁵¹

After nine years of gas surplus, Congress eliminated the artificial constraints on gas demand it imposed in 1978. This is another critical step in the

141. 42 U.S.C. § 8341(a)(1) (1982).

142. *Id.* § 8311(1).

143. *Id.* § 8311(2).

144. *Id.* § 8341(a)(2).

145. *Id.* § 8341(b).

146. *See supra* note 50.

147. REGULATORY ANALYSIS REVIEW GROUP, U.S. DEPARTMENT OF ENERGY, REPORT ON THE PROPOSED REGULATIONS TO IMPLEMENT THE POWER PLANT AND INDUSTRIAL FUEL USE ACT OF 1978 5 (1979).

148. *See Comstock, FUA: The Transition to Alternative Fuels in the Industrial and Electrical Utility Sectors*, 29 U. KAN. L. REV. 337, 355-56 (1981).

149. *See Beckman & Prairie, Problem Areas in the Exemption Process Under the Powerplant and Industrial Fuel Use Act of 1978*, 29 U. KAN. L. REV. 369 (1981).

150. Pub. L. 97-35, Title X, subtitle B, § 1021(a), 95 Stat. 614 (1981).

151. Pub. L. No. 100-42, 101 Stat. 310 (1987).

process of eliminating regulatory distortion and creating a competitive gas sales market. For the first time in nine years, electric utilities and industrial consumers are free to build gas fired plants when they determine that to be the most efficient means of producing their products. Over the next decade, gas demand will increase as consumers react to their new-found freedom.

4. Federal Preemption of State Regulation

As the federal government gradually relaxed its regulatory grip on the gas sales market, a new threat to the market arose in the form of state regulation of wellhead sales. Many producers were distressed to discover that the gas surplus reduced dramatically the price they could elicit for supplies that were not subject to contract. State conservation agencies responded to the producers' plight by ordering interstate pipelines to purchase gas not under contract in a wide variety of circumstances.¹⁵² If permitted to continue, this form of state regulation had the potential to transfer wealth from consumers in one state to producers in another state and to create a gas market that is in a perpetual state of surplus attributable to artificially high prices.¹⁵³

In *Transcontinental Gas Pipe Line Corp. v. State Oil & Gas Board (Transco)*,¹⁵⁴ the Supreme Court held that state orders compelling interstate pipelines to buy uncontracted gas are preempted by the congressional decision in the NGPA to permit the price of gas to be determined by supply and demand. Producing states are continuing to search for ways to shift the burden of the gas surplus entirely to out-of-state consumers and to enable producers to sell uncontracted gas at above-market prices,¹⁵⁵ but the federal courts seem willing to guard against this potential new source of distortion of the gas sales market.¹⁵⁶

Through this complicated sequence of actions, the three branches of the federal government have established the framework within which a fully competitive gas sales market can evolve. As with any transition from pervasive command and control regulation to a reconstitutive strategy, however, establishing a framework is only the first step. Some participants in the industry preferred their status quo ante as putatively regulated monopolists, and substantial transition costs must be borne by some combination of participants in the gas market. The proponents of the reconstitutive strategy must overcome these sources of resistance to change and must implement the reconstitutive strategy in an environment in which many participants in the market are searching for new ways of using regulation to create or to perpetuate monopoly power.

152. See *Symposium*, *supra* note 78.

153. See *Pierce*, *supra* note 74.

154. *Transcontinental Gas Pipe Line Corp. v. State Oil & Gas Bd.*, 474 U.S. 409, *reh'g denied*, 475 U.S. 1091 (1986).

155. See, e.g., Texas Railroad Commission Regulations 3.28, 3.30, 3.31, 3.34 (1987).

156. See, e.g., *ANR Pipeline Co. v. Corporation Comm'n*, 643 F. Supp. 419 (W.D. Okla. 1986). See generally *Pierce*, *State Non-Utility Regulation of Natural Gas Production, Transportation and Marketing*, 33 ROCKY MTN. MIN. L. INST. (1987).

D. Implementation Issues

The FERC must address five major issues to implement the reconstitutive strategy effectively. The FERC must: (1) overcome pipelines' reluctance to become equal access carriers; (2) allocate among the participants in the market the substantial transition costs that exist in the form of pipeline liabilities under take-or-pay provisions of gas purchase contracts; (3) police or prohibit self-dealing between regulated pipelines with monopoly power in the gas transportation market and their gas marketing affiliates; (4) establish a market-based method of allocating transportation capacity; and, (5) assure that adequate transportation capacity is constructed and that monopoly power over transportation is reduced by authorizing new pipeline construction on an expedited basis.

States also confront a challenging agenda to assure that the significant benefits of the federal government's reconstitutive strategy are realized fully in each state. Producing states must devise and implement strategies to enhance efficiency in the production process. Consuming states must design and implement new methods of regulating gas distribution that transmit to all gas consumers the benefits of competition in the upstream sales market.

In this section, I will map the contours of each of these critical issues and suggest principles that should guide the resolution of each.

1. Pipeline Reluctance to Provide Equal Access

Pipelines have been slow to embrace the equal access option.¹⁵⁷ Although most major pipelines have filed one or more proposed equal access plans, each pipeline invariably proposes features designed to allow the pipeline to continue to use its monopoly power over transportation to permit it to exercise some market power in the gas sales market. These features take many forms, e.g., sales prices that increase to the extent that a customer substitutes for the gas it previously purchased from the pipeline gas purchased from other sources.¹⁵⁸ The FERC has rejected these plans or conditioned their approval on the pipeline's willingness to drop the anticompetitive features.¹⁵⁹ Until late 1987, most pipelines refused to submit true equal access plans. Rather, they submitted a series of plans with different forms of anticompetitive provisions. As a result, two years after the FERC issued Order 436, few major pipelines were operating under approved permanent equal access tariffs.

The FERC could address the problem of pipeline recalcitrance simply by exercising patience. In a gas sales market that is dominated increasingly by competition, most pipelines will discover that they cannot survive for very many years without competing aggressively in the transportation market.¹⁶⁰ Exercising patience alone has at least three disadvantages, however. First, it may take several more years to complete the process. In the meantime, participants in the gas market in many regions would continue to suffer as a result

157. See Griggs, *supra* note 89, at 97.

158. See Foster Natural Gas Report (Foster Associates) No. 1601, at 20-21 (Jan. 8, 1987).

159. *Id.*

160. See S. WILLIAMS, *supra* note 47, at 17-18.

of the use of pipeline monopoly power over transportation to sell gas at inflated prices. Second, a few pipelines with high gas purchase contract liabilities or with monopoly power over transportation in large markets might never file a true equal access tariff. Third, the courts might balk at the FERC's continued implementation of a reconstitutive strategy that imposes a high proportion of the transition costs on pipelines.

The D.C. Circuit's opinion in *AGD* contains two significant passages that bear directly on the FERC's options in overcoming pipeline reluctance to equal access. First, the court made it clear that the FERC has the power to order pipelines to provide equal access to avoid the undue discrimination and exploitation of consumers that the NGA prohibits.¹⁶¹ This provides the FERC the attractive option to abandon its frustrating attempt to apply indirect pressure on pipelines to relinquish voluntarily their monopoly power in the gas sales market in favor of a rule mandating equal access on all pipelines. Second, however, the court remanded Order No. 436 with instructions to consider methods of allocating to producers some portion of the costs of transition to open access carriage that are borne initially by pipelines in the form of contract liabilities for overpriced gas.¹⁶² The D.C. Circuit's lengthy criticism of the FERC's "insouciance on take-or-pay" in its opinion in *AGD*,¹⁶³ combined with the court's actions in related cases,¹⁶⁴ suggests that it will hold implementation of important elements of the reconstitutive strategy for the gas industry hostage until the FERC addresses fully the issue of allocation of contract take-or-pay costs.

Pipeline reluctance to accept equal access is motivated in part by the natural tendency of any firm to prefer the security of monopoly to the pressures of competition. It is also motivated in part, however, by the very large transition costs some pipelines would be required to bear in the form of take-or-pay liability. There is considerable uncertainty concerning the magnitude of these costs, but some estimates placed them as high as \$11.7 billion by the end of 1986.¹⁶⁵ Some pipelines allege plausibly that their take-or-pay liabilities exceed their net worth by a large margin.

2. Allocation of Transition Costs

The FERC could permit the costs of transition to a competitive gas sales market to remain entirely on the parties that bear those costs in the newly

161. *Associated Gas Distributors v. FERC*, 824 F.2d 981, 997-1003 (D.C. Cir. 1987).

162. *Id.* at 1030.

163. *Id.* at 1021-30, 44.

164. In *Consolidated Edison Co. v. FERC*, 823 F.2d 630 (D.C. Cir. 1987), the court also reversed and remanded a decision applying the FERC's new policy of granting abandonment when abandonment would assist the operation of the market. See *supra* text accompanying notes 106-18. The court explicitly analogized its action in *Consolidated Edison* to its action in *AGD*:

Following the lead of the *Associated Gas Distributors* opinion, which remands an order most elements of which it would otherwise uphold, due to the unexplained take-or-pay rationale, we, likewise, remand this case for the same pervasive defect, although given proper bases we might uphold it.

Id. at 641.

165. See *supra* note 49.

created competitive market—in this case, interstate pipelines with large contractual obligations to purchase gas at above-market prices. Louis Kaplow has made an excellent case for the proposition that both efficiency and equity are furthered by this approach to the costs of transition from one legal regime to another.¹⁶⁶ However, neither the FERC nor the courts that review the FERC's decisions have been willing to acquiesce totally in this theoretically correct market-based allocation of transition costs.

This unwillingness probably is attributable to a combination of three factors. First, the magnitude of the costs is extraordinary—\$11.7 billion in the first two years of the transition, with the potential for much more over the next few years. Second, at an intuitive and visceral level, both the FERC and the D.C. Circuit perceive inequities in allowing the pipeline segment of the industry to bear a disproportionate share of transition costs. Third, pipelines are so desperate to avoid the staggering costs of transition to a competitive market that they have engaged in a wide range of tactics to slow the pace of the transition process. The FERC and reviewing courts believe that the rate of transition will increase significantly if other segments of the industry are required to bear a greater proportion of the transition costs.

Take-or-pay liabilities attributable to pipeline contractual commitments to purchase gas at prices above the market price can be allocated through the regulatory system to any of three groups of market participants—pipelines, producers, and pipeline customers. The latter group includes both distributors and consumers, with state authorities exercising some degree of control over the allocation of costs between distributors and consumers served by distributors.¹⁶⁷

Until 1987, the FERC was unwilling to exercise regulatory power to force producers to bear any of the costs of pipeline take-or-pay liabilities, except in limited circumstances.¹⁶⁸ However, the FERC devised several mechanisms through which pipelines can use the regulatory system to allocate a substantial portion of their take-or-pay liabilities to their customers. First, the carrying costs of payments made for gas not taken are borne by pipeline customers by allowing pipelines to treat those payments as assets on which a rate of return can be earned through each pipeline's demand charge.¹⁶⁹ Second, in 1985 the FERC announced a policy of permitting pipelines to include in their commodity charge any take-or-pay liabilities that were prudently

166. Kaplow, *An Economic Analysis of Legal Transitions*, 99 HARV. L. REV. 509 (1986).

167. The extent to which state regulators can exercise this authority is difficult to determine and may vary depending on whether a distributor's imprudent actions contributed to the costs it must bear. See *Nantahala Power & Light Co. v. Thornburg*, 476 U.S. 953 (1986). See also Order No. 500, Interim Rule and Statement of Policy, 52 Fed. Reg. 30,334, 30,344 (1987) (to be codified at 18 C.F.R. pts. 2, 284) [hereinafter Order No. 500]; Nixon & Johnston, *Nantahala Affirms Narragansett—Whither Pike County?* 8 ENERGY L.J. 1 (1987).

168. In Order No. 451, the FERC required producers who initiated good faith negotiations to obtain a higher price for "old gas" to subject all other contracts applicable to "old gas" to renegotiation at the pipeline's option. See *supra* text accompanying notes 106-16. For a chronology of the FERC's frustrating attempts to deal with the take-or-pay issue, see Doane, *Take-Or-Pay: FERC's Regulatory Dilemma*, 2 NAT. RES. & ENV. No. 4, 18 (ABA Section of Natural Resources Law 1987).

169. 18 C.F.R. § 2.76 (1987). See KALT & SCHULLER, *supra* note 47, at 251.

incurred.¹⁷⁰ Third, in 1987 the FERC adopted a new interim policy that permits pipelines to recover up to fifty percent of their take-or-pay costs through direct billing to their customers.¹⁷¹

Each of these mechanisms is problematic. The first allocates to customers only the time value of the money expended by pipelines in advance of their purchase of gas. If, for instance, a pipeline pays for gas it is unable to take and resell at a compensatory price in 1987, and the pipeline exercises its contractual right to make up for its prior deficiency in takes by taking gas at no cost in 1989, the first mechanism leaves the pipeline financially whole. However, that mechanism leaves entirely on pipelines the burden of costs of payments made for gas the pipeline can never take and resell at a compensatory price. For some pipelines those costs may exceed a billion dollars.

The second mechanism has severe flaws. It would require the FERC to conduct hearings to determine the prudence of thousands of decisions made by the pipelines. The process would take many years and could cost participants hundreds of millions of dollars in regulatory expenses.¹⁷² During the pendency of the proceedings, all participants in the market would be harmed significantly by the uncertainty concerning the ultimate allocation of billions of dollars of previously incurred costs. The FERC undoubtedly would commit many errors in the process by holding prudent decisions imprudent and imprudent decisions prudent.¹⁷³ Moreover, it is not at all clear that pipelines actually would be able to pass through to their customers the costs that are held to have been prudently incurred. By authorizing inclusion of such costs in each pipeline's commodity charge, the FERC subjects pipelines to the significant risk that the competitive gas market will not support a price that includes any portion of unrecouped take-or-pay costs. The FERC must attempt to find a method of allocating take-or-pay costs that avoids the delay, cost, risk and uncertainty inherent in prudence proceedings.

The FERC's new policy seems more promising as a method of allocating take-or-pay liabilities between pipelines and their customers. Allocating to the shareholders of each pipeline a fixed percentage of its take-or-pay liabilities has the advantage of imposing on pipelines costs that are roughly proportionate to each pipeline's imprudence in its contracting practices.¹⁷⁴ The fifty percent of such costs pipelines are allowed to recover actually would be recovered, since direct billing avoids the risk of nonrecovery due to market forces. The allocation of part of each pipeline's take-or-pay liabilities to its customers is defensible on two grounds: customers benefit significantly from

170. 18 C.F.R. § 2.76 (1987).

171. Order No. 500, 52 Fed. Reg. 30,334, 30,341-46 (1987). See also Notice of Proposed Statement of Policy, *Recovery of Take-or-Pay Buy-out and Buy-Down Costs by Interstate Natural Gas Pipelines*, 52 Fed. Reg. 7478 (1987).

172. For data concerning the cost and duration of adjudicatory proceedings conducted by the FERC, see Pierce, *supra* note 60.

173. See Pierce, *The Regulatory Treatment of Mistakes in Retrospect: Canceled Plants and Excess Capacity*, 132 U. PA. L. REV. 497 (1984) (discussing extreme difficulty of determining prudence of decisions predicated on multi-decade forecasts of future market conditions and inevitability of errors in the process).

174. See *infra* text accompanying notes 181-83.

the transition to equal access carriage and some portion of pipeline take-or-pay costs can be characterized as costs inherent in that transition.

The new policy raises significant legal questions, however. Arguably, a pipeline must be given the opportunity to recover all of its prudently incurred costs through some means.¹⁷⁵ Conversely, customers arguably have the right to establish that any cost was not prudently incurred and therefore should not be reflected in a pipeline's rate in any form.¹⁷⁶ The existence of these arguments makes it difficult for the FERC to avoid the need to conduct long and expensive prudency hearings on the take-or-pay costs of every pipeline. Yet, such hearings would distort the operation of the market by creating uncertainty concerning the rules that govern the market for a decade or more.

The FERC may have deterred both pipelines and their customers from demanding prudency hearings by stating its policy in a clever way.¹⁷⁷ The FERC established an interim rule that a pipeline can recover through direct billing no more than fifty percent of its take-or-pay costs, but that it is entitled to recover fifty percent through direct billing if and to the extent that fifty percent of its take-or-pay costs are determined to have been prudently incurred. A pipeline can demand a prudency hearing to establish its entitlement to an opportunity to recover more than fifty percent of its take-or-pay costs, but any amount in excess of fifty percent can be recovered only through the pipeline's commodity charge. Similarly, customers can demand a hearing to establish the imprudence of the pipeline's costs, but the first fifty percent that is determined to be imprudent can be deducted only from the pipeline's commodity charge.

Assuming that the FERC exercises its authority to mandate equal access, as it should, the potential stakes in any prudency hearing conducted under these rules are very low. Since the market precludes pipelines from recovering take-or-pay costs in their commodity charge, a pipeline has nothing to gain by demanding a prudency hearing under these rules, and its customers can gain only if and to the extent that they can establish that over fifty percent of the pipeline's costs were attributable to its imprudence. The FERC's new policy may achieve an equitable allocation of take-or-pay costs between pipelines and their customers without the need to conduct destructive and "high interminable"¹⁷⁸ prudency hearings.

The D.C. Circuit's concern does not lie in the FERC's allocation of costs between pipelines and their customers. The D.C. Circuit has not yet had occasion to address that policy. Rather, it has repeatedly chided the FERC

175. See *West Ohio Gas Co. v. Ohio*, 294 U.S. 63, 72 (1935).

176. *Id.*

177. In its order on remand from the D.C. Circuit's decision in *AGD*, the FERC established interim rules governing allocation of take-or-pay costs to pipeline customers. Order No. 500, 52 Fed. Reg. 30,334, 30,341-46 (1987). A pipeline can attempt to recover all of its prudently incurred take-or-pay costs in its commodity charge. Alternatively, a pipeline can recover up to 50% of its take-or-pay costs through a volumetric surcharge on total pipeline throughput if: (1) it becomes an equal access carrier; and, (2) it agrees to absorb between 25% and 50% of its take-or-pay costs.

178. The Supreme Court consistently has characterized adjudicatory proceedings conducted by the FERC's predecessor, the FPC, as "high interminable." *FPC v. Louisiana Power & Light Co.*, 406 U.S. 621, 643 (1972); *Atlantic Refining Co. v. Public Serv. Comm'n*, 360 U.S. 378, 389 (1959).

for failing to consider adequately a regulatory mechanism for requiring producers to bear a portion of take-or-pay costs.¹⁷⁹ In *AGD*, the court reasoned that: (1) take-or-pay liabilities are a cost of the transition to equal access; (2) producers benefit from equal access; therefore, (3) producers should be required to bear a portion of pipeline take-or-pay liabilities.¹⁸⁰ The court's reasoning is sound, but it is subject to three qualifications: (1) some indeterminate portion of take-or-pay liabilities are the product of pipeline imprudence, rather than the transition to equal access; (2) allocating take-or-pay costs to prudence through the regulatory process without creating a new source of regulatory distortion is difficult; and, (3) producers have borne a significant portion of the costs attributable to pipeline contracting practices through processes other than regulatory allocation of costs.

Pipelines varied considerably in the gas purchasing practices they followed during the late 1970s and early 1980s.¹⁸¹ Some committed to purchase large volumes of gas at prices many times the market price under contracts that provided them no protection from potential declines in the market value of gas. By choosing this course, these pipelines maximized their profits in the short-term,¹⁸² but exposed themselves to risks in the long-term. Other pipelines exercised caution in their purchasing practices by limiting the price they committed to pay, limiting the quantity of high-priced gas they committed to purchase, and including in their contracts provisions that protected them in the event of a significant decline in the gas market. The two groups of pipelines now are in very different situations. Pipeline take-or-pay liabilities vary from zero to several billion dollars.¹⁸³

The pipelines with large take-or-pay liabilities attributable to their effort to maximize their short-term profits would have experienced significant take-or-pay problems even if the FERC had made no changes in regulation of the gas industry. The effect of major regulatory changes like Order No. 380 and Order No. 436 was to increase the take-or-pay problems of those pipelines and to create modest take-or-pay problems for some pipelines that would not have experienced such problems under the prior regulatory regime. Thus, in determining the appropriate allocation of take-or-pay liabilities among participants in the market, it is important to remember that only a portion of those costs can be characterized as costs of the transition to a reconstitutive strategy. Some proportion is attributable to the imprudence and greed of a few pipelines. Determining the proportion of each pipeline's take-or-pay costs that are attributable to each of these causes is impossible. It is reasonable to infer, however, that the greater a pipeline's take-or-pay costs the greater the propor-

179. *Associated Gas Distribs. v. FERC*, 824 F.2d 981, 1021-30 (D.C. Cir. 1987); *Consolidated Edison Co. v. FERC*, 823 F.2d 630, 641 (D.C. Cir. 1987).

180. *AGD*, 824 F.2d at 1027.

181. See DEPARTMENT OF ENERGY, AN ANALYSIS OF POST-NGPA INTERSTATE PIPELINE WELLHEAD PURCHASES 13-32 (1982).

182. See R. MEANS, *supra* note 56, at 91-106; Pierce, *supra* note 27, at 362-63. See *supra* text accompanying notes 58-64.

183. *Pipeline, Producer See Take-or-Pay Differently: Ruinous or No Problem?*, 15 Energy Rep. (BNA) 268 (1987).

tion of those costs that are attributable to pipeline imprudence rather than to regulatory transition.

The D.C. Circuit discussed three potential methods of allocating take-or-pay costs to producers through regulation.¹⁸⁴ Each has severe problems. First, the FERC could hold that unrecoupable take-or-pay payments violate the ceiling price provisions of the NGPA.¹⁸⁵ Such a holding would have no effect on the thousands of contracts with high prices applicable to gas that is no longer subject to a ceiling price, but it would reduce pipeline liability under thousands of other contracts the provisions of which establish a contract price based on a regulatory price ceiling that is far above the market price.

The court recognized the major problem with this approach, however—such a holding would be wrong as a matter of law.¹⁸⁶ Take-or-pay provisions were ubiquitous in gas purchase contracts when Congress enacted the NGPA, and such clauses always impose on the buyer the risk that it will be committed to pay for gas it is unable to resell at a profit. Yet, Congress made no reference to such clauses in the NGPA. It is inconceivable that Congress intended to render ineffective a standard provision in thousands of gas purchase contracts without even mentioning the provision.

Second, the court referred to the possibility that the FERC might exercise its power under section 5 of the NGA to set aside as unreasonable the troublesome provisions of some old contracts.¹⁸⁷ This remedy would interfere with party expectations under some contracts entered into a decade or more ago, while it would leave unaffected the contracts entered into in the late 1970s and early 1980s that are the source of most pipeline take-or-pay problems. The FERC cannot regulate contracts entered into after 1978.¹⁸⁸ Without that power, the section 5 remedy would have an uncertain effect on pipeline take-or-pay liabilities.¹⁸⁹

The court seemed to recognize the severe limitations of the first two possibilities. It emphasized a third potential means of allocating take-or-pay liabilities to producers—the FERC could authorize any pipeline to deny access to any producer that has not satisfactorily renegotiated its gas purchase contracts with the pipeline.¹⁹⁰ This possibility seems to have at least two desirable characteristics: (1) it could be implemented directly by pipelines, and (2) the policy could be supported through reasoning that is entirely consistent with reliance on the market to determine the price of gas. Indeed, the reasoning

184. *AGD*, 824 F.2d at 1027-29.

185. *Id.* at 1022 n.26.

186. *Id.* See also *Universal Resources Corp. v. Panhandle E. Pipe Line Co.*, 821 F.2d 1097 (5th Cir. 1987) (seller of gas cannot be held responsible for buyer's inability to make up volumes paid for but not taken where buyer's inability is attributable to: (1) buyer's contractual commitment to take-or-pay for gas; and, (2) buyer's decision to take gas at such a low level that make up is impossible).

187. *AGD*, 824 F.2d at 1027-28.

188. *Id.* at 1027 n.30. See also *Pennzoil Producing Co. v. FERC*, 645 F.2d 360 (5th Cir. 1981). But see *Office of Consumers' Counsel v. FERC*, 826 F.2d 1136, 1139 n.2 (D.C. Cir. 1987).

189. The FERC is in the process of attempting to gather data to determine the extent to which pipeline take-or-pay liabilities are attributable to old contracts that remain subject to the FERC's jurisdiction. See Order No. 500, 52 Fed. Reg. 30,334, 30,341 (1987) (to be codified at 18 C.F.R. pts. 2, 284).

190. *AGD*, 824 F.2d at 1028-36.

suggested by the court seems compelling. The FERC-mandated equal access to pipelines is extremely beneficial to producers; the FERC is entitled to extract from producers a share of the costs of the transition to this form of regulation by conditioning the availability of equal access.¹⁹¹

The problem with equal access conditioned on satisfactory settlement of take-or-pay controversies lies in implementation of the principle. The one easily implemented version of conditional access can be rejected summarily. The FERC cannot confer upon pipelines sole discretion to determine whether a producer has satisfactorily resolved its contractual disputes with the pipeline and thus is entitled to access to the pipeline's system. If pipelines have that discretion, they can exercise monopsony power over producers and monopoly power over consumers in many circumstances—the problems that led the FERC to promulgate Order No. 436 in the first place.¹⁹² Conditioned access can work only if the FERC defines and enforces the conditions. This is a daunting task.¹⁹³

The thousands of gas purchase contract disputes differ with respect to a wide variety of parameters, e.g., contract price, contract vintage, type of gas, amount of money at stake, level of take-or-pay commitment, duration of make up period, duration of contract, access to markets through alternative pipelines, and reserves available for delivery under the contract. Moreover, a high proportion of problem contracts that are the source of take-or-pay liabilities today are the product of negotiated settlements of prior disputes between the parties. It is difficult to conceive of a definition of access conditioned on resolution of contract disputes that would perform well in the wide variety of circumstances surrounding such disputes. To be effective, any definition must be easy for the parties to apply in a mechanical manner. Otherwise the FERC will spend the next decade or more adjudicating disputes concerning application of the definition in widely varying contexts.

On an interim basis, the FERC has empowered pipelines to condition each producer's access to pipeline transportation on the producer's willingness to forgive one unit of take-or-pay liability for each unit of gas transported.¹⁹⁴ The FERC has solicited comments on an appropriate permanent condition. It is not clear whether the interim condition will: (1) be effective in allocating take-or-pay costs to producers; (2) avoid conferring on pipelines both monopsony and monopoly power; and, (3) be administrable by the FERC.

The D.C. Circuit may have been right to insist that the FERC consider potential methods of allocating a portion of take-or-pay costs to producers through regulatory action. However, it should not continue to hold hostage the entire reconstitutive strategy for the gas industry if the FERC is unable to implement a satisfactory means of accomplishing this goal. It may not be possible to accomplish this purpose through regulation without unacceptable regulatory distortion of the evolving competitive gas sales market. Moreover, many producers are being forced to absorb a high proportion of the transition

191. *Id.* at 1027.

192. See *supra* text accompanying notes 87-97.

193. See KALIT & SCHULLER, *supra* note 47, at 252-53.

194. Order No. 500, 52 Fed. Reg. 30,334, 30,337-41 (1987) (to be codified at 18 C.F.R. pts. 2, 284).

costs to equal access even in the absence of regulatory allocation of those costs.

A high proportion of problem contracts have been the subject of negotiated settlements already. In all such cases, the producer agreed to absorb a portion of the take-or-pay costs—as much as ninety percent in many cases.¹⁹⁵ In a high proportion of these cases, the pipeline used its power to deny the producer access to markets as a means of obtaining the producer's agreement "voluntarily" to absorb a large portion of the costs of the transition to equal access. If the FERC makes equal access mandatory, this source of pipeline leverage to allocate costs to producers will no longer exist. It has already resulted in considerable allocation of take-or-pay costs to producers, however, and many pipelines will continue to have available other sources of leverage to accomplish this purpose even if the FERC mandates equal access.

The relatively few pipelines with large take-or-pay liabilities allege credibly that they cannot pay all of these liabilities. They contend that they would have no choice but to file for reorganization under chapter 11 of the bankruptcy laws rather than to pay all outstanding take-or-pay liabilities. A credible threat of a chapter 11 filing is a powerful tool in negotiating settlement of contract disputes. Many pipelines already have used this threat as a source of leverage to induce producers to absorb a high proportion of take-or-pay costs, and it would remain available as a source of leverage even if the FERC mandates equal access.

Moreover, pipelines need not stop at threatening reorganization under chapter 11. Through chapter 11, pipelines can disavow their executory contracts,¹⁹⁶ thereby allocating to producers all future pipeline take-or-pay liabilities. The pipeline's shareholders almost certainly would lose a portion of the value of their equity in the reorganization process, but this hardly seems an inequitable result, given the significant role of pipeline management in creating billions of dollars of contractual liabilities.

Whether the FERC and the courts ultimately adopt a regulatory mechanism to allocate take-or-pay costs or allow those costs to be allocated through the process of renegotiation of each contract, it is important that both institutions follow two decisionmaking criteria. First, insuring that the gas market performs effectively in the future is far more important than attempting to effect an equitable allocation of the costs of the transition to a properly functioning market. Society's interests should not be held hostage to the interests of the shareholders of a few firms. Second, an administrable mechanism to allocate take-or-pay costs can further no goal more ambitious than rough justice. Any attempt to attain precision through individualized regulatory adjudication of each dispute is certain to bog down in a decade-long administrative morass that imposes inordinate costs on all participants in the gas market.¹⁹⁷

195. In 1986, pipelines resolved \$5.4 billion in take-or-pay liabilities in return for \$700 million in payments to producers. See *Pipeline's Take or Pay Costs Continue to Mount*, OIL & GAS J., Aug. 10, 1987, at 20.

196. 11 U.S.C. § 365 (1982).

197. See *Pierce*, *supra* note 60.

3. Policing Affiliate Transactions

A firm that is regulated in one market because of its monopoly power in that market has a natural incentive to engage in self-dealing with unregulated affiliates.¹⁹⁸ By paying its affiliate higher prices or charging its affiliate lower prices, the firm can disguise its monopoly profits from its regulated activities in the form of abnormally high profits earned by its unregulated affiliate. Gas pipelines operating under equal access regulation have an incentive to engage in self-dealing with their gas marketing affiliates. If the pipeline is able to favor its marketing affiliate—by charging it lower transportation rates or by providing it greater flexibility in terms and conditions of transportation—the marketing affiliate can earn monopoly profits even in the structurally competitive gas sales market. It is not easy to avoid self-dealing, particularly when it can exist in subtle forms, such as leniency toward affiliate violations of terms and conditions of service that are enforced rigidly against non-affiliates.

Every major pipeline has created an affiliated gas marketing entity. A high proportion of pipeline transportation of gas owned by third parties is undertaken on behalf of the pipeline's affiliated marketer.¹⁹⁹ The FERC has received scores of credible complaints that pipelines favor their affiliated marketers in many ways.²⁰⁰ The FERC has two options to avoid or minimize self-dealing in gas transportation: (1) permit pipelines to transport gas on behalf of their affiliates and police those transactions; or, (2) prohibit pipeline transportation on behalf of affiliates. So far, the FERC has pursued the first option, but it has warned that it will implement the second option if its policing efforts prove ineffective.²⁰¹

There are economies of scope of unknown magnitude between the functions of gas sales and gas transportation.²⁰² These economies will be lost if the FERC prohibits transportation on behalf of affiliates. Conversely, if pipelines are permitted to transport on behalf of their affiliates, there will be costs of unknown magnitude in the form of pipeline exercise of monopoly power through undetected self-dealing. Thus, the choice between the two options should be based on empirical analysis yet the data may be difficult or impossible to gather. The FERC's initial choice of options seems sensible in the absence of adequate data. The FERC has based its choice implicitly on its belief that economies of scope are greater than the costs of undetected self-dealing. I share that belief, particularly if the FERC establishes a new system for allocating pipeline capacity that reduces the potential for undetected self-dealing between pipelines and their affiliates.

4. Allocation of Pipeline Capacity

In Order No. 436, the FERC provided for allocation of pipeline capacity

198. See sources cited *supra* note 27.

199. Foster Natural Gas Report (Foster Associates) No. 1601, at 11-12 (Jan. 8, 1987).

200. Foster Natural Gas Report (Foster Associates) No. 1602, at 3-11 (Jan. 15, 1987).

201. See *FERC Tackles Pipeline Affiliates, Fines Panhandle Eastern \$130,000*, 15 Energy Rep. (BNA) 336-37 (1987); *Hesse Places Faith in Task Force to Curb Marketer Abuse*, 15 Energy Rep. (BNA) 402-03 (1987).

202. KALT & SCHULLER, *supra* note 47, at 94-95.

through two mechanisms. A high proportion of capacity is grandfathered to existing pipeline sales customers who can convert it to transportation capacity automatically.²⁰³ The remaining capacity of a pipeline must be allocated on a first come, first served basis.²⁰⁴ A capacity entitlement continues indefinitely as long as the owner pays a modest reservation fee. The FERC prohibits brokering of capacity.²⁰⁵

The D.C. Circuit expressed skepticism concerning the FERC's method of capacity allocation in *AGD*, but held the issue not yet ripe for judicial review.²⁰⁶ The court's skepticism is well-founded. The FERC's method of allocating capacity is doomed to failure. By placing a low price on pipeline capacity and prohibiting the sale of capacity, the FERC has created a situation in which there appears to be an acute capacity shortage in every market. The FERC has created an apparent capacity shortage, notwithstanding clear evidence of excess pipeline capacity nationally, by making pipeline capacity very nearly a free good. It costs relatively little money to retain or to acquire pipeline capacity, and the prohibition on brokering imposes no opportunity cost on an owner of capacity rights who chooses to underutilize but not to relinquish those rights. As a result, present holders of capacity rights retain far more capacity than they need, and prospective new holders apply for more capacity than they can ever use.

The first come, first served system also makes it particularly difficult to police self-dealing between pipelines and their marketing affiliates. No one knows what first come, first served means in the capacity allocation context. Self-dealing thrives in an environment with ambiguous rules, since clear rules are essential to the task of defining and detecting favoritism.

The FERC's goal should be to create a competitive market in pipeline capacity in which price assures that capacity is allocated to those who value it most. The FERC has commissioned studies of an auction system for initial allocation of capacity on each pipeline.²⁰⁷ An auction would yield an optimal initial allocation if it were governed by appropriate rules.²⁰⁸ The legal, political and practical obstacles to a pipeline capacity auction are formidable, however.²⁰⁹ More fundamentally, the FERC is focusing on the relatively inconsequential issue of initial allocation of capacity; it should concentrate on the far more important issue of rules to govern a constantly functioning secondary market in capacity rights.

Initial allocation of rights determines only the initial distribution of

203. In *AGD*, the court discussed the grandfathering of a few transactions through which pipelines were transporting relatively small volumes of gas for industrial consumers. *Associated Gas Distribs. v. FERC*, 824 F.2d 981, 1040-41 (D.C. Cir. 1987). My reference, however, is to the preexisting claim of each pipeline customer to a share of pipeline capacity represented by the customer's sales contract demand quantity.

204. Order No. 436, 50 Fed. Reg. 42,408, 42,437-38 (1985).

205. *Id.* at 42,437-38.

206. *AGD*, 824 F.2d at 1005-07.

207. See FEDERAL ENERGY REGULATORY COMMISSION, GAS TRANSPORTATION RATE DESIGN AND THE USE OF AUCTIONS TO ALLOCATE CAPACITY (1987).

208. *Id.* at 3.

209. *Id.* at 32-37.

wealth. The FERC can create a properly functioning market in capacity with virtually any initial distribution of rights if it creates appropriate rules to govern transactions in capacity rights. An initial allocation of capacity proposed by the traditional sales customer of pipelines, principally gas distributors, illustrates the point.

Traditional sales customers argue that equitable principles support initial allocation of pipeline capacity to them because they have paid for that capacity over the years through the rates they paid to purchase gas from the pipeline. If the FERC were to find this argument persuasive, the resulting initial allocation almost certainly would be suboptimal. Assume, for instance, that distributor *A*, one of the pipeline's sixty customers, has experienced significant loss of markets so that it needs only half the capacity it is allocated. The initial capacity allocation to *A* will yield inefficient results if *A* retains the capacity and uses only half while other potential users are unable to obtain capacity. The inefficient result can be avoided easily, however, by permitting *A* to sell its allocated capacity in excess of its needs to the entity that places the highest value on additional capacity, whether that is another distributor, a consumer, a producer, or a gas marketer.

The point is simple and has been documented in many contexts: an efficient allocation of any scarce good depends not on its initial allocation but on its transferability in a competitive market.²¹⁰ An initial allocation to traditional sales customers, or any other initial allocation that the FERC can support on equitable grounds, will produce efficient results as long as the FERC allows capacity rights to be traded in a competitive market. Of course, the capacity market must be competitive. The danger of the initial allocation to traditional sales customers lies in the potential that the initial owners of capacity—gas distributors accustomed to meeting regularly to address issues of mutual concern—would form a cartel and exercise monopoly power in the sale of capacity rights. Again, however, the remedy is easy. Once the FERC authorizes a market in pipeline capacity, it or the Justice Department must enforce the antitrust laws in that market.

5. Expedited Certification of New Capacity

The FERC's new optional expedited certificate procedure (o-e-c)²¹¹ is an important component of the reconstitutive strategy for the gas industry. By granting applications to construct new pipeline capacity promptly without expensive regulatory hearings, the FERC can reduce significantly the barriers to entry in the gas transportation market and eliminate the power previously exercised by pipelines to protect their monopoly in a market by raising significantly their rivals' costs of entry.²¹² The potential for o-e-c to assure that adequate capacity exists in each market and to eliminate monopoly power

210. See, e.g., Coase, *The Problem of Social Cost*, 3 J.L. & ECON. 1 (1960); Demsetz, *Toward a Theory of Property Rights*, 57 AM. ECON. REV. 347 (1967).

211. See *supra* text accompanying notes 100-02.

212. See CLARK & CLARK, *supra* note 2, at 1331; KALT & SCHULLER, *supra* note 47, at 114-15, 132; S. WILLIAMS, *supra* note 47, at 9-10; Pierce, *supra* note 27, at 359. See generally Krattenmaker & Salop, *Anticompetitive Exclusion: Raising Rival's Costs to Achieve Power Over Price*, 96 YALE L.J. 209 (1986).

over transportation in many markets will be enhanced significantly if the FERC establishes a competitive market in pipeline capacity. Potential entrants can use the market price of capacity on the pipeline serving each market as the basis for deciding whether to enter a market. If the price of existing capacity is high and rising, entry by a new competitor is virtually certain unless entry is limited by regulation.

Pipelines have filed numerous applications under the o-e-c procedure, but the FERC has not yet granted any.²¹³ So far, "expedited" is a misnomer. The FERC must begin to implement this program effectively. It has encountered two significant problems to date: defining the risks a pipeline must assume to be eligible for an o-e-c and devising procedures to resolve the environmental issues raised by the opponents of an o-e-c application. The first is easily resolved; the second poses a real challenge.

The FERC conditions eligibility for the o-e-c procedure on the pipeline's agreement to assume the risks that the project will not generate revenues sufficient to cover its costs.²¹⁴ This condition precludes a pipeline from constructing a facility to serve one market and recovering part of its costs of that facility through the rates it charges in another market in which it has monopoly power.²¹⁵ Some o-e-c applications incorporate contracts in which potential beneficiaries of the project agree to assume part of the risks of the project. The FERC should hold this voluntary contractual risk sharing between project owner and project beneficiaries entirely consistent with the purpose of the prohibition on involuntary risk allocation to non-beneficiary markets. The D.C. Circuit has already signaled its approval of voluntary risk sharing in *AGD*.²¹⁶ A clarification of the o-e-c policy specifically approving voluntary risk sharing will remove a significant impediment to implementation of the o-e-c procedure.

Many o-e-c applications have been opposed on environmental grounds, sometimes by entrenched monopolists who desire to block competitive entry through any means and sometimes by wealthy landowners on the proposed pipeline's route.²¹⁷ The FERC faces a major challenge in devising means to preclude environmental challengers from blocking competitive entry in many markets by forcing long and costly adjudicatory hearings. It is ironic that environmental objections to underground pipelines have the potential to limit the quantity of gas that can reach many metropolitan areas. With a few notable exceptions, e.g., arctic tundra and some coastal wetlands,²¹⁸ underground

213. See *Justice Backs California Lines Eased Permits*, OIL & GAS J., Nov. 16, 1987, at 72; INSIDE FERC, July 20, 1987, at 1, 9-10.

214. 50 Fed. Reg. 42,472 (1985).

215. Foster Natural Gas Report (Foster Associates) No. 1604, at 26-27 (July 29, 1987).

216. *Associated Gas Distribs. v. FERC*, 824 F.2d 981, 1034-35, 1037 (D.C. Cir. 1987). See also *Tennessee Gas Pipeline Co. v. FERC*, 824 F.2d 78, 82-83 (D.C. Cir. 1987) (explaining why voluntary contractual allocation of risk is desirable in a competitive gas market).

217. See Foster Natural Gas Report (Foster Associates) No. 1631, at 10-11 (Aug. 6, 1987); Foster Natural Gas Report (Foster Associates) No. 1608, at 12-13 (Feb. 26, 1987); *Coastal Corp. Unit Plans Pipeline to California Heavy Oil Fields*, 15 Energy Rep. (BNA) 545 (1987).

218. See Houck, *Land Loss in Coastal Louisiana: Causes, Consequences, and Remedies*, 58 TUL. L. REV. 3 (1983).

pipelines can be environmentally benign. Moreover, construction of any pipeline under the o-e-c procedure will materially improve air quality by inducing consumers to replace dirty fuels with the cleanest energy source available.

The FERC should conduct an informal rulemaking proceeding to resolve on a generic basis many of the issues that must be addressed in determining the environmental impact of a pipeline constructed under o-e-c procedure, e.g., the adverse impacts of construction in the most commonly encountered topographic and geophysical conditions and the beneficial affect of increased availability of gas on air quality. The environmental benefits of a new gas pipeline are so great that the FERC can support creation of a rebuttable presumption that a pipeline proposed under o-e-c procedures will provide net environmental benefits.²¹⁹ An opposing party could then obtain a hearing only if it could place into controversy specified factual issues, e.g., the pipeline would cross arctic tundra or would threaten significant loss of coastal wetlands.

6. Implementation Issues at the State Level

Congress, the FERC and federal courts are in the process of implementing a reconstitutive strategy for the major components of the natural gas industry that are subject to federal control. This strategy carries the potential to benefit all participants in the gas market in every state. It is largely up to each state's government to insure that the potential benefits of the federal strategy are realized in each state by adopting complementary reconstitutive strategies to govern the components of the gas industry that are subject to state control—gas production and gas distribution.

The reconstitutive strategy required in producing states is easy to identify. Producing states must abandon their expensive, futile and counter-productive attempt to regulate gas production and purchasing in detail in favor of a strategy that provides each owner of gas a natural incentive to conserve resources and to develop and produce reservoirs efficiently.²²⁰ That strategy is field wide unitization of each reservoir, with particular emphasis on reservoirs that contain both gas and oil, at the earliest possible time in the reservoir's development.²²¹

Identifying the most promising reconstitutive strategy for state implementation in the distribution sector is more complicated. Consumers served by distributors have been harmed by the prior inappropriate regulatory scheme in many ways. Regulation of the price charged by producers for "old" domestic gas supplies forced consumers to purchase more expensive alternate fuels and gas from more expensive sources.²²² Regulation of pipelines as protected monopolists in the wholesale gas market deprived distributors and the

219. In *AGD*, the court affirmed the FERC's creation of a rebuttable presumption that a facility proposed under o-e-c procedures is in the public interest, but it refused to give an advisory opinion on the nature of the evidence sufficient to rebut the presumption or to force a hearing on contested factual issues. *AGD*, 824 F.2d at 1030-38.

220. See *supra* text accompanying notes 78-85.

221. See sources cited *supra* note 85.

222. See *supra* text accompanying notes 32-42.

consumers they served of the substantial benefits of competition in that market.²²³ Finally, protecting the monopoly power of distributors in both the gas retail and the gas transportation market has deprived consumers of the benefits of competition in those markets.²²⁴

Industrial consumers have suffered a disproportionate share of the costs of regulatory distortion. Regulators allocated most of the gas shortage of the 1970s to industrial consumers.²²⁵ When the price of gas rose, state regulators acquiesced in distributors' exercise of their monopoly power to deflect the anger of residential consumers by forcing industrial consumers to subsidize residential consumers by paying rates far in excess of costs.²²⁶ Ultimately, the disproportionate burden of regulatory distortion of the gas market imposed on industrial consumers cost the nation industrial output, jobs, and competitiveness in many international markets.

The first step state regulators should take is to mandate equal access to distribution systems so that distributors will be exposed to the healthy effects of competition in the gas sales market. The analysis that led the FERC and federal courts to implement equal access to pipelines applies as well to distributors. The market for gas transportation has monopolistic tendencies in many locations, but the gas sales market can support vigorous competition at all levels.

Mandating equal access to distribution systems will not have beneficial effects as significant and widespread as mandating equal access to pipelines. The economies of scope between sales and transportation to the distributor level are sufficiently large that distributors will enjoy a natural advantage in competing to make sales to most low volume consumers. Still, permitting competition in the retail sales market will limit the ability of distributors to exercise monopoly power, particularly in the market for sales to industries, schools and hospitals.

The second step in the state strategy should be to eliminate the destructive internal cross-subsidies that are embedded in many distributor rate structures. With energy markets intensely competitive, attempting to require industrial consumers to subsidize residential consumers is an exercise in futility. If industrial consumers' rates exceed the market price of gas, they will simply switch to other fuels. State regulators, like the FERC, should adopt Ramsey pricing principles, allowing distributors the flexibility to extract as much of their fixed costs from consumers with ready alternatives as possible, with the balance of fixed costs allocated among consumers who place a higher value on gas service.²²⁷

The D.C. Circuit's decision in *AGD* includes a lively debate about the potential effect of the FERC's o-e-c procedure on state regulation of distributors²²⁸—the only issue on which the members of the panel disagreed. The

223. See *supra* text accompanying notes 42-64.

224. See S. WILLIAMS, *supra* note 47, at 25.

225. See Pierce, *supra* note 60.

226. See KALT & SCHULLER, *supra* note 47, at 161, 249; Pierce, *supra* note 38.

227. See KALT & SCHULLER, *supra* note 47, at 162.

228. *Associated Gas Distribs. v. FERC*, 824 F.2d 981, 1030-38, 1044-46 (D.C. Cir. 1987).

judge who dissented on this issue expressed concern that the FERC would grant applications under the o-e-c procedure that would allow pipelines to bypass distributors by making sales directly to industrial consumers, thereby depriving states of the power to compel cross-subsidies from industrial consumers to residential consumers.²²⁹ Because of this concern, he would have held the o-e-c procedure invalid.

The D.C. Circuit's linkage of the o-e-c procedure with state regulation of distributors' rate structures is unfortunate based on several grounds. First, even if the FERC never uses o-e-c in a bypass situation, the procedure is an important part of the reconstitutive strategy. The o-e-c procedure can provide major benefits both to consumers and to distributors by insuring that adequate capacity is constructed and by reducing the monopoly power of pipelines.²³⁰ Second, as the AGD majority pointed out, states have other means of blocking distributor bypass if they choose to do so.²³¹ Third, it is premature to address the difficult federalism issue that would be presented if the FERC authorized a distributor bypass that a state prohibited. All consumers in a state would be benefited if the state decided to eliminate the cross-subsidies that now make distributor bypass attractive.²³² It does not necessarily follow, however, that the federal government should make that decision. As Justice Scalia recently noted, "a law can be both economic folly and constitutional."²³³ A state should not be able to regulate in ways that harm citizens of other states,²³⁴ but the adverse effects of distributor rate structures that require massive cross-subsidies seem to be borne primarily in the state that imposes the rate structure. For that reason, states are likely to eliminate cross-subsidies in distributor rates without federal coercion.²³⁵ The FERC should preempt state decisions to prohibit distributor bypass only if it concludes that such state regulatory actions have significant adverse effects on out-of-state interests.²³⁶

States will have to grapple with one other significant problem in implementing a reconstitutive strategy for distributors. Many states have become aggressive in forcing distributors to pursue least cost gas purchasing practices.²³⁷ Such a policy can be beneficial to the state's citizens *if* state regulators recognize that all purchasing strategies involve risks and that the strategy that minimizes costs in one period will not necessarily minimize costs in another period.

229. *Id.* at 1044-46.

230. *See supra* text accompanying notes 100-02 & 211-19.

231. AGD, 824 F.2d at 1035-36.

232. *Id.* at 1036-38; GELLHORN & PIERCE, *supra* note 28, at 170-89; KALT & SCHULLER, *supra* note 47, at 161-62.

233. CTS Corp. v. Dynamics Corp., 107 S. Ct. 1637, 1653 (1987).

234. *See* Pierce, *Regulation, Deregulation, Federalism, and Administrative Law: Agency Power to Preempt State Regulation*, 46 U. PITT. L. REV. 607, 646-54 (1985).

235. State policies in this area vary greatly at present, and the issues are the subject of vigorous debate in many states. *See* KALT & SCHULLER, *supra* note 47, at 167-68. *See also* Reid, *Competition in Natural Gas Transportation Rates Reaches California*, PUB. UTIL. FORT., Aug. 20, 1987, at 14; *Arkansas Reviews Gas Bypass, Transportation Policies*, PUB. UTIL. FORT., Aug. 20, 1987, at 47.

236. *See* Pierce, *supra* note 234, at 646-54.

237. *See, e.g.,* Northern Ind. Pub. Serv. Co. v. Carbon County Coal Co., 799 F.2d 265 (7th Cir. 1986).

Present conditions in the gas market provide a useful starting point to illustrate this principle. The price of gas on the spot market is lower than the price of gas sold under long-term contracts. Some distributors, under pressure from state regulators, are buying almost exclusively on the spot market. This minimizes gas purchase costs today but may maximize those costs in the future. In any market in which a commodity is sold both on a spot and a long-term basis, the price on the spot market is more volatile than the price under long-term contracts. Distributors that are relying almost entirely on the spot market will discover that their gas purchase costs are extremely high in the first cold winter after the deliverability surplus has disappeared.

Unless state regulators define the least cost purchasing obligation in advance, distributors are exposed to potential opportunistic second-guessing by their state regulators.²³⁸ During a warm summer with a deliverability surplus, regulators might disallow as imprudent the cost of gas purchased under long-term contracts. During the next cold winter, they might disallow the cost of gas purchased on the spot market. States must work hard to avoid this destructive potential. One promising approach is to require each distributor to submit for prior approval its gas purchasing policy, with state regulators estopped from disallowing in the distributor's rates any costs incurred through implementation of the policy previously approved.²³⁹ Another is to limit regulators' power to disallow costs to those incurred in inter-affiliate transactions.²⁴⁰

IV. BROADER LESSONS FROM THE GAS INDUSTRY

For the first time in forty years, there is the realistic prospect that the form and scope of government intervention in the gas market will achieve the stated goal of the Natural Gas Act of 1938—to protect consumers from exploitation by monopolistic pipelines. I have traced the history of fifty years of errors that cost society scores of billions of dollars and the dramatic transformation of government intervention in the market over the past few years. In this section, I will extract from this history lessons that can be applied to other efforts to shape the conduct of private participants in a market to conform to society's goals. Most of the lessons are not new, but apparently society must learn them many times before they are routinely reflected in public policymaking.

As the title of this article suggests, the changes in the nature of government intervention in the gas industry over the last few years illustrate in a specific context Professor Richard Stewart's thesis that society can further many of its goals more effectively by substituting reconstitutive strategies for command and control regulation.²⁴¹ Stewart notes that, traditionally, when we have reached a political consensus that the market is not furthering a societal goal, e.g., air quality, safe working conditions, reasonable prices, or conser-

238. See KALT & SCHULLER, *supra* note 47, at 163-64, 260; Pierce, *supra* note 76, at 1199-1202.

239. See Pierce, *supra* note 76, at 1228-30.

240. *Id.*

241. See Stewart, *supra* note 1; Stewart, *supra* note 84.

vation of resources, we have responded by attempting to command the participants in the market to modify their behavior. We soon discover, however, that we must control in detail the behavior of a large number of participants in the market in our effort to further a goal through this form of intervention. The result typically is command and control regulation that is pervasive, complicated, expensive, distortive and largely ineffective.

Stewart is concerned that the widespread recognition that command and control regulation has failed will yield decisions to abandon many social goals. He argues that many of the goals of command and control regulation are both important and attainable through forms of intervention other than command and control regulation. He faults political liberals for attempting to defend their goals by making the insupportable argument that command and control regulation furthers those goals effectively. He faults political conservatives for arguing that important social goals should be abandoned because the sole means we have adopted to further those goals has proven ineffective.

Stewart's prescription is to identify new forms of government intervention that are both more effective and less intrusive than command and control regulation. In formulating these reconstitutive strategies we should minimize our reliance on command and induce socially beneficial changes in the conduct of participants in the market by changing the consequences of their actions. The changes in the form of government intervention in the gas market that are taking place today support the validity of Stewart's thesis in one important context and should encourage efforts to identify reconstitutive strategies that can further other important societal goals.

The gross distortions and enormous social costs created by government intervention in the gas market over the past forty years provide powerful evidence to support two related principles identified by Professor (now Judge) Stephen Breyer. He maintains that (1) government can create large social costs by choosing a method and scope of intervention that does not match the market imperfection government is attempting to correct,²⁴² and (2) any form of effective government intervention must be based on a careful analysis of the characteristics of the particular market at issue.²⁴³ Two critical errors in the decisionmaking that led to ineffective and distortive intervention in the gas market illustrate these principles particularly well.

In 1938, Congress intervened in the gas sales market when an imperfection existed only in the gas transportation market.²⁴⁴ This mismatch between market imperfection and form of intervention conferred upon pipelines monopoly power in the structurally competitive gas sales market. In 1954, the Supreme Court extended price regulation to the wellhead sales market in the absence of any evidence of an imperfection in that market and without any apparent understanding of the characteristics of the market in which the court mandated intervention.²⁴⁵ The billions of dollars in unnecessary social costs that resulted from these two errors illustrate the importance of adhering to

242. See S. BREYER, *REGULATION AND ITS REFORM* (1982); Breyer, *supra* note 52.

243. See Breyer, *Reforming Regulation*, 59 TUL. L. REV. 4, 16-18 (1984).

244. See *supra* text accompanying notes 16-31.

245. See *supra* text accompanying notes 32-42.

Breyer's two principles in all decisionmaking with respect to government intervention. By contrast, the decisions of the D.C. Circuit in *MPC I* and *MPC II* and the FERC's Order No. 436 illustrate the excellent results that can be attained if government intervention is tailored to a specific market imperfection identified through careful analysis of the characteristics of the market.²⁴⁶

The history of regulation of the gas industry also emphasizes the significance of a point made frequently by Professor Alfred Kahn.²⁴⁷ The form and scope of government intervention appropriate in a market is not static because no market is static. As technology and demographics change, the economic characteristics of a market also change in ways that dictate changes in the nature of government intervention appropriate for that market.

The development of high tensile steel changed the market for gas transportation from a local monopoly to a national monopoly in the 1920s. Fortunately, the courts, the FTC and Congress recognized this change in market characteristics and modified the scope of government regulation to fit the new characteristics of the gas transportation market. Many gas markets have now grown to such an extent that they can support competition among suppliers of gas transportation. The FERC has provided for this change in market characteristics through its optional expedited certificate program. Government institutions must continue to study the characteristics of each market to determine whether changes in market characteristics dictate changes in the appropriate form of intervention.

The work of Professors Kenneth Arrow and Joseph Kalt²⁴⁸ demonstrates yet another important point that is supported by the history of regulation of the gas sales market. By analyzing the performance of the oil industry under price controls, Arrow and Kalt showed that price regulation cannot be used to redistribute wealth without imposing intolerable costs on society. If the government wants to redistribute wealth, it can do so at a tolerable cost only through taxes and transfer payments.²⁴⁹

When the FPC attempted to redistribute wealth from producers to consumers in the 1960s and early 1970s by imposing price controls on producers, it created a shortage that cost consumers \$2.5 to \$5.0 billion a year.²⁵⁰ When Congress attempted to pursue the same goal through a different form of price controls in 1978, it transferred wealth among producers, while it cost consumers billions of dollars in excessive gas costs.²⁵¹ This lesson seems particularly difficult for many policymakers to accept. Many state regulators are continuing to attempt to transfer wealth from one class of consumers to another through regulation of retail gas prices. One of the judges who participated in judicial review of Order No. 436 would have held invalid an important com-

246. See *supra* text accompanying notes 92-102.

247. See, e.g., A. KAHN, *THE ECONOMICS OF REGULATION: PRINCIPLES AND INSTITUTIONS* 70-77 (1970).

248. See K. ARROW & J. KALT, *supra* note 53.

249. *Id.*

250. See *supra* text accompanying notes 32-42.

251. See *supra* text accompanying notes 43-64.

ponent of the reconstitutive strategy for the gas industry because of his belief that it threatened the continued ability of regulators to pursue this futile and costly effort.²⁵²

Continuing with the lessons in economics, two of Professor Milton Friedman's major theses are well-supported by the history of regulation of the gas industry. Friedman frequently has scoffed at the ability of government to predict the future performance of a market and to engage in beneficial central planning of the economy.²⁵³ His skepticism is borne out by the disastrous consequences of the federal government's efforts to engage in central planning of energy prices, production and consumption in 1978. The ink was not yet dry on the PIFUA when it became apparent to all that Congress had established fuel use rules premised on its erroneous belief that there was a chronic shortage of natural gas and that ample supplies of oil would continue to be available at reasonable prices.²⁵⁴

The congressional forecasts of future market conditions on which Congress premised central planning of the gas industry in the NGPA also proved totally inaccurate. The critical price ceiling applicable to "new gas" provides a good illustration.²⁵⁵ Congress attempted to create a price ceiling that would approximate the market price of gas. Many pipelines incorporated the ceiling price in their contracts based on the naive assumption that the central planners could anticipate the future performance of the gas market. The ceiling price rose automatically at the rate of inflation plus four percent per year. At no time did the market cooperate with the central planners to yield a price anywhere near the planners' forecast. In 1979, the market price soared well above the level forecast. Beginning in 1981, the market price began to plummet, resulting in a ceiling price that was more than double the market price by 1988.

Friedman's second point that is supported by the performance of the gas sales market under conditions of regulations is his contention that government is the most frequent source of monopoly power.²⁵⁶ By regulating gas sales instead of gas transportation in 1938, Congress conferred upon pipelines monopoly power in the structurally competitive gas sales market. By regulating entry and exit in the gas transportation market, Congress strengthened considerably the monopoly power of pipelines in both the transportation market and the sales market.

The performance of the gas market under the reconstitutive strategy that is being implemented also will provide a good test of the contestable markets theory developed by Professors William Baumol and Elizabeth Bailey.²⁵⁷

252. *Associated Gas Distribs. v. FERC*, 824 F.2d 981, 1044-46 (D.C. Cir. 1987) (Mikva, J., dissenting).

253. See M. FRIEDMAN & R. FRIEDMAN, *FREE TO CHOOSE* 54-64 (1980).

254. See *supra* text accompanying notes 130-51.

255. Compare ceiling price for "new gas" published in § 271.101. *Ceiling Prices for Certain Categories of Natural Gas*, II F.E.R.C. Stats. & Regs. ¶ 24,111, at 14,158, with spot market price of oil published in ENERGY INFORMATION ADMINISTRATION, MONTHLY ENERGY REVIEW.

256. See M. FRIEDMAN & R. FRIEDMAN, *supra* note 253, at 194-203.

257. See Bailey & Baumol, *Deregulation and the Theory of Contestable Markets*, 1 YALE J. ON REG. 111 (1984).

They maintain that even a market that is characterized by large economies of scale and relatively few participants can perform in a manner similar to a perfectly competitive market if it is contestable. It is contestable if barriers to entry and exit are low, and if the government mandates equal access to any facilities that represent large immobile sunk costs.

The reconstitutive strategy reflected in the FERC actions of 1985 provide a paradigmatic illustration of the application of contestable markets theory. By eliminating regulation of gas sales, including the certification and abandonment requirements of the NGA, and requiring equal access to pipelines, the FERC has rendered the gas sales market perfectly contestable. By easing the regulatory barriers to entry and exit in the gas transportation market, the FERC has made even that market imperfectly contestable. I expect the industry's performance over the next decade to provide strong support for the contestable markets theory.

Finally, the history of regulation of the gas industry obviously can be helpful to policymakers who must grapple with similar issues in somewhat analogous contexts, e.g., telecommunications and electricity. However, it is important to exercise caution in attempting to transfer solutions to problems in one market to other markets. As Judge Breyer has demonstrated, the most appropriate form of intervention in a market can be determined only through detailed study of the characteristics of the specific market at issue.²⁵⁸ While there are common features of the gas, electricity and telecommunications markets, there are also important differences in the characteristics of those markets.²⁵⁹

Not all of the lessons from the history of regulation of the gas industry are in the field of regulatory economics. That history also can aid our understanding of administrative law and political science as well. Two of the many path-breaking insights of Professor Kenneth Davis are reinforced by this history. First, Congress cannot possibly obtain the expertise necessary to develop a regulatory scheme in detail; nor can it exercise the foresight necessary to resolve by statute all of the important issues that will arise in implementing any regulatory scheme.²⁶⁰ Thus, while Congress may be able to improve its performance by resolving statutorily a higher proportion of the "fundamental policy issues" that are raised by the decision to regulate a market, as many judges and scholars have argued, it must delegate to agencies the bulk of such decisions.²⁶¹

The NGPA and PIFUA represented two of the most detailed statutes ever enacted. Congress purported to leave to agencies only a few details of implementation. The two statutes also created two of the most destructive regulatory schemes in history, largely because Congress attempted to make most of the policy decisions raised by the decision to regulate when Congress

258. Breyer, *supra* note 243.

259. See P. JOSKOW & R. SCHMALENSEE, *MARKETS FOR POWER: AN ANALYSIS OF ELECTRIC UTILITY DEREGULATION* 42-43 (1983); Pierce, *supra* note 76, at 1212; Tye, *supra* note 97.

260. See K. DAVIS, *ADMINISTRATIVE LAW TREATISE* 3.3 (2d ed. 1979).

261. See Pierce, *The Role of Constitutional and Political Theory in Administrative Law*, 64 *TEX. L. REV.* 469 (1985).

had neither the expertise in the industry nor the foresight required to make those decisions. It would be a dreadful mistake if courts began to force Congress to legislate routinely in the manner reflected in the NGPA and PIFUA by holding that Congress cannot delegate important policy decisions to agencies.

The second of Davis' insights that finds considerable support in the history of regulation of the gas industry is the value he attaches to the use of legislative rules adopted through informal rulemaking.²⁶² Every time the FPC or the FERC attempted to set policy through adjudication of individual disputes, it performed miserably and imposed large costs on society. Every time the agency made policy through generic rules, it improved its performance dramatically and established policies that allowed the market to function more effectively.

This stark contrast can be seen in many regulatory contexts. Compare, for instance, the results of the individual and area rate proceedings²⁶³ with the results of the national rate proceedings, or the results of case-by-case decisions on certification and abandonment of service with the results of the agency's generic approach to those issues.²⁶⁴ As Professor Davis has long maintained, agencies should rely on informal rulemaking almost exclusively to resolve contested issues of legislative fact and to make policy; they should use formal adjudication only to resolve the contested issues of adjudicative fact that sometimes arise in implementing policy.

I had hoped that an analysis of the history of regulation of the gas industry would provide some useful evidence to support one of the opposing views in the long-standing debate concerning the degree of deference courts should accord agencies in the process of substantive review of agency actions.²⁶⁵ Alas, the evidence relevant to this important debate is ambiguous. In 1954, the Supreme Court accorded little deference to the FPC and contradicted the agency's long-held view that it was not required to regulate sales of gas by independent producers. That holding by a court that declined to defer to an agency even though the judges obviously had no expertise in the area cost the nation scores of billions of dollars.²⁶⁶

Based on the disastrous effects of the *Phillips* decision, it is tempting to conclude that reviewing courts should grant greater deference to expert agency decisionmakers. Such a conclusion is not consistent with recent history, however. In *MPC I* and *MPC II*, a court improved the operation of the gas market materially when it declined to defer to the agency.²⁶⁷ In that case, the judges obviously were able to obtain an understanding of the operation of the gas market superior to that of the expert agency. Perhaps the only inference that can be drawn from the inconsistent track record of reviewing courts

262. See K. DAVIS, *supra* note 260, at 6.38.

263. See *supra* text accompanying notes 34-42.

264. See *supra* text accompanying notes 101-02, 117-29 & 211-19.

265. See Starr, Sunstein, Willard, Morrison & Levin, *Judicial Review of Administrative Action in a Conservative Era*, 39 ADMIN. L. REV. 353 (1987).

266. See *supra* text accompanying notes 32-42.

267. See *supra* text accompanying notes 86-102.

is the modest and unsatisfying suggestion that a judge should defer to an agency's resolution of a substantive issue within its area of expertise except in the rare case when she is confident that she has an understanding of the issues superior to that of the agency.

There may be one final lesson in the history of regulation of the gas industry, and it permits me to conclude on an appropriately optimistic note. Professor George Stigler, a scholar for whom I have great respect, frequently has opined that scholarly writing has little effect on public policy.²⁶⁸ The history of natural gas regulation contradicts Stigler's assertion.

Every time a scholar published a major study finding the existence of either a market imperfection or regulatory distortion, the study ultimately was reflected in appropriate changes in public policy. Indeed, the history of regulation of the gas industry suggests that the inevitable lag between academic recognition of a serious problem and changes in public policy that address that problem has diminished. It took fifty years for policymakers to address the imperfection in the gas distribution market identified by Mill in 1848.²⁶⁹ Only eleven years elapsed between the publication of several studies that documented the adverse effects of producer price regulation²⁷⁰ and the near elimination of that source of massive regulatory distortion. In 1985, the courts and the FERC responded effectively to the distortions created by the prior inappropriate method of regulating gas pipelines within three years of the time academic studies first demonstrated the existence of significant problems.²⁷¹ Thus, the history of regulation of the gas industry provides cause for cautious optimism concerning both the future performance of the gas industry and the future ability of policymakers to select effective methods of achieving goals through government intervention.

268. See, e.g., STIGLER, *Do Economists Matter?*, in *THE ECONOMIST AS PREACHER* (1982); G. STIGLER, *THE ECONOMIST AND PUBLIC POLICY* (1982).

269. See *supra* text accompanying notes 7-10.

270. See, e.g., BREYER & MACAVOY, *supra* note 26.

271. See CLARK & CLARK, *supra* note 2; Pierce, *supra* note 27.

