

Duquesne Law Review

Volume 14
Number 4 *Symposium on Energy and the
Environment: Is Coal the Key to the Solution?*

Article 6

1976

The Future of the Coal Substitution Option

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Stuart M. Rosenblum, *The Future of the Coal Substitution Option*, 14 Duq. L. Rev. 581 (1976).
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The Future of the Coal Substitution Option

*Stuart M. Rosenblum**

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I. THE BEGINNINGS OF COAL SUBSTITUTION

A. *Foreword*

In the wake of the oil embargo of 1973-1974, Congress recognized the need to redirect the nation's energy reliance to coal as a substitute for imported petroleum and scarce natural gas. By that time, however, efforts to mandate coal substitution had to surmount formidable legal, economic and technical obstacles that favored continued reliance on oil and natural gas. In these circumstances, Con-

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gress established a pilot program that could, by definition, achieve only limited coal substitution; it intended that the program would help to determine the scope of future coal substitution efforts.

This article concentrates on the coal substitution program that was created by the Energy Supply and Environmental Coordination Act of 1974 (ESECA).¹ That Act, which attempts to reconcile energy needs and environmental protection, authorizes the Federal Energy Administration (FEA) to order powerplants and "major fuel burning installations" to substitute coal for oil or gas as their boiler fuel. This article describes the complex resolution of public policies that led to ESECA and identifies the major actions taken by FEA to implement the Act.

In the eighteen months that FEA has worked with the ESECA legislation, it has found that, while efforts to increase coal use are constrained by technical and economic problems, legal policies—in the form of direct regulation, disincentives and uncertainties about the scope and cost of future regulation—have played a primary role in reducing the nation's capacity for short-term, large-scale coal substitution. As part of the assessment of the potential for coal substitution, this survey identifies the legal constraints to greater coal use, the impact of germane legislation, and the public policy issues that require resolution if coal is to replace imported oil or natural gas in significant amounts.

The subject is of more than passing interest, for Congress recently extended ESECA until 1985,² thereby assuring that FEA's coal substitution program will continue and will affect an increasing number of facilities. During the current legislative session, Congress is also considering legislation to amend the Clean Air Act of 1970³ and to create a large-scale coal substitution program.⁴

Because of the long leadtimes that will be necessary to develop synthetic fuels from coal, and the difficulties inherent in expanding coal to entirely new markets, coal substitution in the utility and industrial sectors appears to be the most viable option for increasing the use of our most abundant fossil fuel resource. It is hoped that this article will serve as a research tool for further investigation of

1. Pub. L. No. 93-319, 88 Stat. 246 (codified at 15 U.S.C. §§ 791-98 (Supp. IV, 1974), as amended (Supp. V, 1975) and in scattered sections of 42 U.S.C.).

2. Energy Policy and Conservation Act, Pub. L. No. 94-163, § 101, 89 Stat. 875 (1975).

3. 42 U.S.C. §§ 1857-571 (1970), as amended (Supp. V, 1975).

4. See notes 200-72 and text accompanying *infra*.

this developing area of energy law and focus attention both on the fuel substitution program that is being implemented by FEA and on the legislation that is presently being considered in Congress.

B. *The Drift to Oil*

As early as 1961, Senator Randolph of West Virginia called attention to this nation's increasing dependence on foreign oil and warned his colleagues:

[I]t is a small source of comfort and security to Americans . . . that what might become an anti-American land has in her earth unlimited quantities of the same kind of energy fuels that are the very lifeblood of America. What guarantees do we Americans have that the African continent, or Venezuela, or Kuwait or any of the other prolific oil areas of the world will constantly make their riches available to us? . . . Every year that passes, in which we become more and more dependent on foreign oil to buttress our national economy and security perhaps, is 1 year nearer disaster.⁵

Through 1950, the United States was self-sufficient in energy and, although demand was growing, needs were being met by domestic coal, oil, gas and hydropower.⁶ Thereafter, while demand for energy grew at an accelerating rate⁷ and more than doubled from 1950 to 1970,⁸ exploitation of domestic sources slowed.⁹ By 1959, exploration for new domestic oil had peaked, and the United States was importing 19 percent of the petroleum it consumed.¹⁰ By 1971, coal furnished only 18 percent of total American energy consumption, while

5. *Hearings on National Fuels Study Before the Senate Comm. on Interior and Insular Affairs*, 87th Cong., 1st Sess., at 13 (1961).

6. FEDERAL ENERGY ADMINISTRATION, PROJECT INDEPENDENCE: A SUMMARY 17 (1974) [hereinafter cited as PIAS].

7. FORD FOUNDATION, A TIME TO CHOOSE 5-20 (1974) [hereinafter cited as A TIME TO CHOOSE]; PIAS, *supra* note 6, at 17.

8. American energy consumption increased from approximately 33 quadrillion Btu's per year in 1950 to approximately 68 quadrillion Btu's in 1970. FEDERAL ENERGY ADMINISTRATION, PROJECT INDEPENDENCE REPORT 7 (1974) [hereinafter cited as PIR]. The energy policy project of the Ford Foundation confirmed this view of expanding demand, and estimated 1973 American energy use at 75 quadrillion Btu's. A TIME TO CHOOSE, *supra* note 7, at 5. The Senate Finance Committee report, converting all United States energy use into the equivalent of barrels of oil, indicates that energy consumption increased from 11.00 million barrels of oil per day in 1930 to 11.80 in 1940, 16.62 in 1950, 21.06 in 1960, 31.69 in 1970, and 35.28 in 1973. STAFF OF SENATE COMM. ON FINANCE, 94TH CONG., 1ST SESS., ENERGY STATISTICS 16 (1975).

9. PIR, *supra* note 8, at 75-76; PIAS, *supra* note 6, at 17.

10. PIR, *supra* note 8, at 76.

petroleum furnished 44 percent;¹¹ to meet these needs, oil imports had risen to 26 percent of the amount of oil used.¹² By 1973, dependence on foreign sources had increased to 35 percent of petroleum consumed.¹³

During this period, while the absolute tonnages of coal being consumed increased, coal's share of the rapidly growing energy market declined. Although there had been major shifts in coal use patterns since 1935, a consistent trend toward greater demand had been apparent since the late 1960's,¹⁴ and domestic coal consumption of 551.3 million tons in 1974 nearly equalled the peak consumption of coal in 1946.¹⁵ However, while overall energy demand more than doubled from 1950 to 1970, annual domestic consumption of coal increased by only about 60 percent and actually declined in some sectors.¹⁶

In the post-World War II period, coal's decline was largely attributable to the loss of three of its largest markets—the railroads,¹⁷ home heating¹⁸ and the chemical industry¹⁹—which converted al-

11. SENATE COMM. ON INTERIOR AND INSULAR AFFAIRS, ELECTRIC UTILITY POLICY ISSUES, S. DOC. NO. 45, 93d Cong., 2d Sess. 111 (1974). This trend continued until the embargo. Overall 1973 energy consumption was furnished by oil (46%), natural gas (31%), coal (18%), hydro-power (4%) and nuclear generation (1%). A TIME TO CHOOSE, *supra* note 7, at 5.

12. PIR, *supra* note 8, at 76; PIAS, *supra* note 6, at 17.

13. PIAS, *supra* note 6, at 17.

14. SENATE COMM. ON INTERIOR AND INSULAR AFFAIRS, FACTORS AFFECTING COAL SUBSTITUTION FOR OTHER FUELS IN ELECTRIC POWER PRODUCTION AND INDUSTRIAL USES, S. DOC. NO. 17, 94th Cong., 1st Sess. 21 (1975) [hereinafter cited as FACS]. According to the report, domestic coal consumption has risen from 430.9 million tons in 1940 to 454.2 million tons in 1950, 380.4 million tons in 1960, 459.1 million tons in 1965 and 517.1 million tons in 1970.

15. *Id.* According to the report, more coal was consumed in 1945 (559.5 million tons) than in 1973 (556 million tons).

16. *Id.*

17. SENATE COMM. ON INTERIOR AND INSULAR AFFAIRS, FACTORS AFFECTING THE USE OF COAL IN PRESENT AND FUTURE ENERGY MARKETS, S. DOC. NO. 9, 93d Cong., 1st Sess. 2 (1973) [hereinafter cited as FAU]. Because of increasing dieselization, between 1945 and 1950, railroads reduced their use of coal by 50% (from 125 to 61 million tons); by 1960, railroad use was down to two million tons. "In terms of total consumption, the railroads, which represented almost 25 percent of the total consumption of 560 million tons in 1945, dropped to about 12 percent of total consumption in 1950, to 4 percent in the late 1950's, and to less than one percent in the early 1960's." *Id.*

18. *Id.* at 4. Introduction of the welded pipeline, and the convenience and cleanliness of oil and gas for space heating, caused home heating use of coal to decline from 119 million tons in 1945 (21 percent of total domestic coal consumption) to 11 million tons in 1971 (slightly more than 2 percent of total consumption).

19. FACS, *supra* note 14, at 21. Since 1945, the chemical industry has switched almost entirely from coal-based raw materials (acetylene) to gas and oil-based raw materials (ethylene).

most entirely to other fuels. Since 1945, with the exception of continued steel industry demand for high quality metallurgical coke,²⁰ coal has become a "one market" product aimed at electric utilities.²¹ The postwar "energy explosion" has imposed enormous demands on the electric generating industry which, since 1947, has increased consumption of energy from all sources by more than 400 percent. From 1945 to 1974, the utilities met this demand by burning increasing amounts of oil (which rose from 4 percent of utility base fuel in 1945 to 18 percent in 1974), natural gas (from zero to 17 percent) and nuclear energy (from zero to 6 percent).²² The utilities also increased their consumption of coal from 72 million tons in 1945 (13 percent of total domestic coal consumption) to 391 million tons in 1974 (70 percent); however, coal's share of the utility market declined from 52 to 44 percent.²³ Coal's position in the utility sector deteriorated in the late 1960's, as fewer new fossil fuel fired powerplants were built to burn coal,²⁴ and increasing numbers of existing coal fired plants were converted to oil.²⁵ A report prepared for the Senate Interior Committee concluded that this decline in coal growth was most pronounced on a regional basis, particularly on the East Coast, and that this was largely due to state and local air quality control standards.²⁶

20. *Id.* at 22. High quality metallurgical or coking coals, which are used in steel making, are low in sulfur content and premium priced; in consequence, coking coal is not generally competitive in the steam coal market. See also FEDERAL ENERGY ADMINISTRATION, PROJECT INDEPENDENCE BLUEPRINT, FINAL TASK FORCE REPORT ON COAL 13, 41 (1974) [hereinafter cited as PIB], which indicates that approximately one-third of United States coking coal production is exported for steelmaking overseas.

21. FACS, *supra* note 14, at 21.

22. *Id.* at 22, 23.

23. *Id.*

24. The Congressional Research Service noted in 1973 that "increasingly, much of the new generating capacity in the last 20 years has turned to oil or gas, rather than coal, for fuel because of price competitiveness (including regulated price of interstate gas) and most recently air pollution control (primarily sulfur) requirements." FAU, *supra* note 17, at 4. According to FEA, by 1970 "only 40 percent of new boiler orders provided for coal firing capability. However, in response to the increased price of oil and natural gas shortages, by 1974, 97 percent of new boiler orders provided for coal firing capacity." 121 CONG. REC. 7421 (daily ed. May 5, 1975).

25. Between 1965 and 1973, 398 utility boilers with a total nameplate capacity of 28,785 megawatts converted from coal to oil. FACS, *supra* note 14, at 24-25.

26. *Id.* In 1973, while oil provided 94 percent of the total energy input to fossil fuel fired powerplants in New England, coal provided 93 percent of total utility energy input in the East North Central (Illinois, Indiana, Michigan, Ohio, and Wisconsin) and East South Central (Alabama, Kentucky, Mississippi and Tennessee) regions. The Congressional Research Service reports that while in 1965 coal supplied 70 percent of the fuel for 100 coal burning power

During this period, other legal, economic and policy decisions eroded coal's position in the utility market. A Supreme Court decision in 1954 that upheld the Federal Power Commission's authority to regulate prices in interstate markets,²⁷ and economic conditions that favored exploration and development,²⁸ combined to allow cheap regulated natural gas to provide strong competition for coal.²⁹ Since 1950, the natural gas share of the growing utility market increased from 13 to 17 percent; since 1953, utilities increased their boiler fuel use of natural gas by almost 400 percent.³⁰ In 1966, largely because of demand fostered by New York City's stringent new clean air requirements,³¹ the import quota on residual oil was lifted in Petroleum Administration District (PAD) I (East Coast). As a consequence, residual oil imports rose from 27 million barrels in 1964 to 555 million barrels in 1971. After 1966, it actually became cheaper for New England plants to import low-priced residual oil than to buy and transport coal from the nearby Appalachian fields.³² For this reason, the Penn Central Railroad's East Coast coal traffic dropped dramatically, by some 33 million tons.³³

The trend away from utility coal use was reinforced by the beginnings of environmental regulation in the mid-1960's, particularly in the Northeastern cities.³⁴ In the West, the construction of generating plants was banned in Los Angeles, which entered into long-term contracts for electricity generated from coal in the Four Corners area (New Mexico, Colorado, Arizona and Nevada) at considerable added costs and with energy losses from long range transmission.³⁵

plants in the New England, Middle Atlantic and South Atlantic regions, by 1972, coal was supplying only 19 percent of the fuel to 27 coal burning plants in this area. *Id.* The report states that this East Coast fuel switching "is attributed primarily to the necessity for complying with air pollution control requirements." *Id.* at 4.

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

28. *PIR*, *supra* note 8, at 86.

29. *FACS*, *supra* note 14, at 22-23.

30. *Id.* at 27. However, in December 1974, natural gas supplied only 12.5 percent of the energy input for utilities, while coal supplied 45 percent, oil supplied 19 percent, hydropower supplied 15 percent and nuclear reactors supplied 8 percent.

31. *See FACS*, *supra* note 14, at 24.

32. *Id.* at 5, 11, 24.

33. *FAU*, *supra* note 17, at 11.

34. *FACS*, *supra* note 14, at 24. Starting in 1964, New York and other Northeastern cities established sulfur limits which forced the use of low sulfur fuels for burning. After the residual oil import quota was lifted in 1966, low sulfur coal could not compete economically with imported residual oil. *FAU*, *supra* note 17, at 11.

35. *Hearings on Problems of Electrical Power Production in the Southwest Before the Senate Comm. on Interior and Insular Affairs*, 92d Cong., 1st Sess. ser. 16, pt. 7, at 7 (1971)

Other state and local regulations were enacted during this period to require reduction of visible smoke plumes and sulfur and particulate emissions; this, too, favored the use of cleaner natural gas and oil over coal.³⁶ The Federal Clean Air Act amendments of 1970,³⁷ which established ambitious schedules to reduce emission of coal related pollutants, also expedited fuel switching. In response to the increasing costs of pollution control, utility conversions from coal to oil rose dramatically from 9 conversions in 1965 to 63 in 1970, 87 in 1971, and 85 in 1972.³⁸ The Congressional Research Service specifically attributed these fuel conversions to "the requirement for meeting Federal and State air quality standards."³⁹

This drift to increased dependence on imported oil caused little alarm. An oil embargo imposed by the Arab states after the Six-Day War of 1967 had no impact on relatively energy-independent America, although it did cause hardship, rationing and price increases in import-dependent Western Europe.⁴⁰ By the early 1970's, however, some energy planners began to share Senator Randolph's concern about the effects of increasing dependence on imported oil. In May 1971, the Senate authorized the members of three committees to make a full and complete investigation and study of national fuels and energy policies.⁴¹ In 1972, the Office of Emergency Preparedness expressed concern that increased reliance on foreign petroleum could affect national security and the balance of payments;⁴² later that year, regional shortages of natural gas drew some attention to the need for energy planning.⁴³ In January 1973, the Federal Power Commission inventoried 725 fossil fuel fired powerplants to identify facilities that could convert to coal if oil supplies proved inad-

(submission of New Mexico Citizens for Clean Air and Water). See also *Christian Science Monitor*, Jan. 27, 1971, at 178, col. 1.

36. FACS, *supra* note 14, at 12.

37. Clean Air Amendments of 1970, Pub. L. No. 91-604, 84 Stat. 1676 (codified at 42 U.S.C. §§ 1857-571 (1970), as amended (Supp. V, 1975)). As shown more fully below, the 1970 amendments provided, *inter alia*, for promulgation and achievement of national primary ambient air quality standards for certain pollutants as expeditiously as practicable.

38. FACS, *supra* note 14, at 25.

39. FAU, *supra* note 17, at 68.

40. PIAS, *supra* note 6, at 12.

41. S. Res. 45, 92d Cong., 1st Sess., 117 CONG. REC. 13227 (1971). These committees, which exist today, played a very active role in the passage of ESECA, and prepared the hearings, the background material and the proposed legislation for S. 1777, discussed *infra*.

42. FACS, *supra* note 14, at 24. See also U.S. Dep't of Commerce, Office of Emergency Preparedness, *The Potential for Energy Conservation: Substitution for Scarce Fuels* (1973).

43. PIR, *supra* note 8, at 86.

quate.⁴⁴ By April, some oil companies were refusing to accept new customers. Congress then passed the Economic Stabilization Act Amendments of 1973,⁴⁵ which authorized the President to order allocations of gasoline to assure that essential needs were met at equitable prices. On April 18, 1973, in his "Energy Message to Congress," President Nixon recognized that increased petroleum imports were making the nation "dependent" on others and warned, "If present trends continue unchecked, we could face a genuine energy crisis."⁴⁶ As part of a "comprehensive program . . . to minimize risks to national security of supply interruptions," he urged that "highest national priority" be given to developing coal, that industry voluntarily choose to use coal instead of oil,⁴⁷ and that there be some relaxation of Clean Air Act standards.⁴⁸ The President additionally urged the states to ensure utilities a "rapid and fair return on pollution control equipment," and Congress to pass legislation defining the environmental parameters of surface mining.⁴⁹

The oil embargo, imposed on the United States beginning on October 17, 1973, deprived the nation, by January 1974, of 2.7 million barrels of oil per day and reduced petroleum supplies to 14 percent below expected consumption. During the embargo, oil prices jumped from three dollars per barrel in September 1973 to more than eleven dollars per barrel in January 1974. Although massive social and economic disruptions were avoided, FEA estimates that the embargo, which was lifted in March 1974, and the accompanying oil price hikes reduced the United States Gross National Product by \$10 to \$20 billion, caused unemployment for 500,000

44. Federal Power Commission, *The Potential for Conversion of Oil-Fired and Gas-Fired Electric Generating Units to Coal* (1973).

45. Pub. L. No. 93-28, 87 Stat. 27, *amending* Economic Stabilization Act of 1970, Pub. L. No. 91-379, §§ 201-06, 84 Stat. 799 (set out in note under 12 U.S.C. § 1904 (Supp. V, 1975)).

46. BNA ENERGY USERS REP. REFERENCE FILE 21:0101.

47. *Id.* The President did not seek mandatory coal substitution authority nor did he ask Congress to act. Instead, he urged only voluntary action: "Present and potential users who are able to choose among energy sources should consider the national interest as they make their choice. Each decision against coal increases petroleum or gas consumption, compromising our national self-sufficiency and raising the cost of meeting our energy needs." *Id.*

48. *Id.* at 21:0104. In order to encourage coal use, the President suggested that the Clean Air Act be implemented "in a judicious manner, carefully meeting the primary, health-related standards, but not moving in a precipitous way toward meeting the secondary standards." *Id.*

49. *Id.* The President urged passage of such legislation with dispatch because "[u]ntil the coal industry knows the mining rules under which it will have to operate . . . under-utilization of . . . coal will be the result."

workers, and was responsible for one-third of the 9.8 percent increase in consumer prices.⁵⁰

C. *Response to the Embargo*

In the context of increasing energy concern, the embargo elicited a prompt response from the executive and legislative branches, which began to act before the oil supply interruption impacted on the United States. On November 8, 1973, the President delivered an "Emergency Energy Message" to Congress, in which he urged prompt passage of an "emergency energy bill" that would, *inter alia*, authorize him to order coal substitution for powerplants and major installations,⁵¹ and allow the Environmental Protection Agency (EPA) to relax federal and state air and water quality laws and regulations.⁵² The President also promised that the executive branch would take immediate administrative action so that coal burning plants "will be prevented from converting to oil," and that "[e]fforts will also be made to convert powerplants from the use of oil to the use of coal."⁵³ On November 13, Congress passed the Trans-Alaska Pipeline Authorization Act,⁵⁴ which expedited pipeline construction by declaring adequate the pertinent environmental impact statement, which was then being disputed in the courts. The following day, Congress passed the Emergency Petroleum Allocation Act⁵⁵ which was implemented by the Energy Policy Office and its successors, the Federal Energy Office and FEA.⁵⁶ During this period, Congress was considering coal substitution provisions as part of the larger "emergency energy bill" that had been requested by the President.

50. PIAS, *supra* note 6, at 18. For an excellent analysis of the widespread social and economic impacts of the embargo, see PIR, *supra* note 8, at 283-304.

51. SENATE COMM. ON INTERIOR AND INSULAR AFFAIRS, EXECUTIVE ENERGY MESSAGES, S. DOC. NO. 22, 94th Cong., 1st Sess. 95, 97 (1975) [hereinafter cited as EXECUTIVE ENERGY MESSAGES]. The President asked for authority, "where practicable, to order a power plant or other installation to convert from the use of a fuel such as oil to . . . coal and to make such equipment conversions as are necessary." *Id.* at 97.

52. *Id.* The President requested that the "emergency energy bill" contain provisions authorizing the EPA to grant "exemption or . . . waivers of stationary sources from federal and state air and water quality laws and regulations." *Id.*

53. *Id.* at 95.

54. Pub. L. No. 93-153, §§ 201-06, 87 Stat. 584 (1973) (now codified at 43 U.S.C. §§ 1651-55 (Supp. V, 1975)).

55. Pub. L. No. 93-159, 87 Stat. 627 (1973) (now codified at 15 U.S.C. §§ 751-56 (Supp. V, 1975)).

56. Exec. Order No. 11,748, 3 C.F.R. 376 (1974).

On November 27, 1973, the Energy Policy Office took the administrative action promised in the President's "Emergency Energy Message," by issuing EPO regulation 2,⁵⁷ which prohibited powerplants and large industrial installations from converting from high to low sulfur fuels. It provided that "[n]o petroleum products shall be sold . . . to or accepted by any person for burning under power generators that were not using petroleum products" on December 7, 1973.⁵⁸ On January 23, 1974, President Nixon delivered his State of the Union Address, in which he urged passage of an omnibus energy bill containing provisions for fuel conversion and amendments to the Clean Air Act. He also urged creation of a "Federal Energy Administration" to organize the federal government's "many energy programs . . . in the best possible manner," and to direct the government's efforts under "Project Independence."⁵⁹

By this time, the "voluntary program" of coal substitution was beginning to register modest gains. In response to requests from the President and from Federal Energy Office Administrator William Simon, 14 boilers at 9 utility generating stations had voluntarily reconverted from oil to coal by mid-January 1974.⁶⁰ By March 1 of that year, a total of 22 boilers at 11 East Coast generating stations had voluntarily converted, substituting approximately 13,000 tons of coal per day for 53,000 barrels of oil.⁶¹ After the oil embargo ended in late March 1974, however, environmental pressures for reconversion made themselves felt. In early April 1974, Congress learned that, because the air quality variances would expire on May 15, all of the converted facilities would have to reconvert to oil.⁶² In mid-April, for example, Connecticut ordered Northeast Utilities to reconvert to oil when it had consumed its coal,⁶³ and other environmental authorities also ordered "voluntary" plants to reconvert.⁶⁴ In

57. 38 Fed. Reg. 32577 (1973).

58. *Id.* EPO Reg. 2, which has been adopted by the FEA, 10 C.F.R. pt. 215 (1976), will be discussed further *infra*.

59. State of the Union Address by President Nixon, Jan. 23, 1974, *quoted in* BNA ENERGY USERS REP. REFERENCE FILE 21:0462-66.

60. FACS, *supra* note 14, at 25. *See also* 120 CONG. REC. 8020 (daily ed. May 14, 1974) (remarks of Senator Randolph).

61. FACS, *supra* note 14, at 25.

62. On April 10, 1974, former Administrator William Simon so informed the House Government Operations Committee. 120 CONG. REC. 8020 (daily ed. May 14, 1974) (remarks of Senator Randolph).

63. FACS, *supra* note 14, at 26.

64. On May 14, 1974, Senator Randolph reported the case of a Massachusetts utility that had secured "waivers" from the state and purchased 500,000 tons of coal, only to be told, by

May, Senator Randolph warned that the conversion program was jeopardized and added that while the utilities and the domestic coal industry had responded to the national energy crisis, "now that the crisis is over we are returning to oil ways—imported oil."⁶⁵ Although oil prices had tripled since the embargo began, by July, under pressure of environmental regulation, 7 of the 11 generating stations that had converted to coal as part of the "voluntary program" had reconverted to oil.⁶⁶

II. THE ENERGY SUPPLY AND ENVIRONMENTAL COORDINATION ACT OF 1974

A. Background

On October 18, 1973, Senators Jackson, Randolph and Magnuson introduced S. 2589,⁶⁷ which, *inter alia*, authorized the President to (1) order powerplants to convert from oil or gas to coal, and (2) grant "temporary variances" from air quality standards. The coal substitution provisions authorized the President, "in time of actual or impending emergency fuel shortage" to "require that . . . powerplants which now burn petroleum or natural gas and which have the capability to reconvert to coal shall convert the necessary plant equipment and revert to burning coal as their primary energy source."⁶⁸ In addition, this bill, reflecting the need for dispatch, authorized the President to grant "temporary variances from air

the federal EPA, that "the reconversion could not move forward, even for a temporary period of time." 120 CONG. REC. 8017 (daily ed. May 14, 1974). On May 1, Congresswoman Abzug noted with approval, "The New York City Environmental Protection Administration revoked a short-term variance to Consolidated Edison to burn coal and high sulphur oil once it realized that the shortage of oil conforming to State and local pollution control standards was far less than expected and this is so all over the country." 120 CONG. REC. 3436 (daily ed. May 1, 1974).

65. 120 CONG. REC. 8020 (daily ed. May 14, 1974). The Senator also read into the record a letter of April 24 from Carl Bagge, president of the National Coal Association, to President Nixon, asserting that elimination of the "voluntary program" would "constitute a serious breach of faith with the coal industry. At the request of [government officials] . . . earlier this year, major coal producers agreed to invest in equipment needed to expand production so that the fuel requirements of the converted powerplants could be met. Yet now they face the prospect of having the coal but not the markets." *Id.*

66. FACS, *supra* note 14, at 26.

67. S. 2589, 93d Cong., 1st Sess. (1973) (National Emergency Petroleum Act of 1973), reprinted in *Hearings on Energy Emergency Legislation Before the Senate Comm. on Interior and Insular Affairs*, 93d Cong., 1st Sess., ser. 22, pt. 1, at 3-14 (1973) [hereinafter cited as *Energy Emergency Legislation Hearings*].

68. *Energy Emergency Legislation Hearings*, *supra* note 67, at 9.

quality emissions standards . . . for the duration of the fuel shortage only . . . if the only available coal, when burned, will exceed air quality standards.”⁶⁹ On November 8, the Senate revised S. 2589 to tighten the conditions under which environmental variances could be granted. The revised bill authorized EPA—rather than the President—to grant variances to converting plants, and allowed EPA to do so only upon receipt of a detailed application from a plant explaining why the variance was needed and a commitment from the plant to employ “control systems” to meet environmental standards, and only after holding a public hearing. Further, the revised bill forbade the granting of a variance where coal-related emissions “would result in violation of any national primary ambient air quality standard or would have any adverse impact on public health, safety or well-being.” Finally, the revised bill limited the effective period of any variance to six months.⁷⁰ These revised coal substitution provisions⁷¹ and Clean Air Act amendments⁷² were contained in S. 2589 when it was passed by the Senate on November 19.⁷³ After complex maneuvering related to the petroleum pricing portions of the bill, Congress, on February 27, 1974, passed S. 2589 as the Energy Emergency Act.⁷⁴ On March 6, President Nixon vetoed the bill, primarily because of its domestic oil price rollback provisions; he did not object to the bill’s coal substitution provisions. The Senate sustained the veto the same day.⁷⁵

On March 28, 1974, Congressman Staggers, Chairman of the House Committee on Interstate and Foreign Commerce, introduced another omnibus energy bill,⁷⁶ which contained coal substitution⁷⁷

69. *Id.*

70. *Id.* at 21-25.

71. 119 CONG. REC. 37626 (1973).

72. *Id.* at 37629-30.

73. *Id.* at 37624.

74. 120 CONG. REC. 1242-43 (daily ed. Feb. 27, 1974).

75. 120 CONG. REC. 2883-84, 2900, 2907-26 (daily ed. Mar. 6, 1974).

76. H.R. 13834, 93d Cong., 2d Sess. (1974) (Standby Energy Emergency Authorities Act), reprinted in *Hearings on Standby Energy Emergency Authorities Act Before the House Comm. on Interstate and Foreign Commerce*, 93d Cong., 2d Sess., ser. 70, at 3-96 (1974) [hereinafter cited as *Standby Energy Emergency Authorities Act Hearings*].

77. *Standby Energy Emergency Authorities Act Hearings*, *supra* note 76, at 17-19. Section 105(a) authorized the soon-to-be created FEA to prohibit “major fuel burning installations” and powerplants from burning natural gas or petroleum as their “primary energy source” to the extent practicable and consistent with the objectives of this Act . . . after balancing on a plant-by-plant basis the environmental effects of use of coal against the need to fulfill the purposes of this Act . . . [if the plant] on the date of enactment

and allocation provisions,⁷⁸ and which would have amended the Clean Air Act in a manner similar to that proposed in the vetoed S. 2589.⁷⁹ On April 3, Administrator William Simon of the Federal Energy Office advised the Staggers Committee that because conditions had eased, an omnibus energy bill was no longer required; instead, he urged that Congress give prompt attention to a number of individual legislative proposals, including the coal substitution provisions of the earlier bills.⁸⁰

In order to expedite passage of the coal substitution provisions, the House Interstate and Foreign Commerce Committee, on April 26, reported H.R. 14368, which split the coal substitution and clean air provisions from the more controversial provisions of the omnibus bill.⁸¹ The House passed this bill on May 1.⁸² On May 14, Senator Muskie introduced as an amendment to H.R. 14368 a new Senate version of the bill.⁸³ As amended, H.R. 14368 limited coal substitution by narrowing the scope of the Clean Air Act extensions that would be available. The bill sought to achieve an "environmental protection" purpose by (1) adding highly protective "regional limitation" provisions, (2) making implementation plan revisions

of this Act, has the capability and necessary plant equipment to burn coal A prohibition on use of natural gas and petroleum products under this subsection shall be contingent upon the availability of coal, coal transportation facilities, and the maintenance of reliability of service in a given service area.

Section 105(a) also required FEA to order that fossil fuel fired powerplants in the "early planning process" be designed to burn coal.

78. *Id.* at 65-72.

79. The new amendments to the Clean Air Act, which represented a quantum leap in complexity, would have made the granting of clean air extensions a more lengthy, involved and uncertain process, and would have required greater commitments from plants seeking an extension to burn coal. Section 201 foreshadowed section 3 of ESECA by allowing EPA to suspend federal, state and local air pollution requirements until January 1, 1979, for facilities receiving FEA orders; by requiring public hearings and "high commitment" compliance schedules; by exempting facilities with FEA orders from new source performance standards; by making special provisions for "early phaseout" powerplants; and by allowing EPA to make "fuel exchange designations." In addition, section 201 would have allowed state and local authorities, as well as EPA to (1) prohibit coal use "likely to materially contribute to a significant risk to public health" and (2) require use of available coal with specific pollution characteristics. Section 202 foreshadowed section 4 of ESECA, but went further, by allowing EPA to require that a state revise its implementation plan for air quality control regions in which coal conversion had taken place. Section 205(c) prescribed NEPA requirements for coal conversion orders similar to those in section 7(c) of ESECA. *Id.* at 65-82, 85-87.

80. *Standby Energy Emergency Authorities Act Hearings, supra* note 76, at 132.

81. H.R. 14368, 93d Cong., 2d Sess. (1974), 120 CONG. REC. 3345 (daily ed. April 29, 1974).

82. 120 CONG. REC. 3462 (daily ed. May 1, 1974).

83. 120 CONG. REC. 8012 (daily ed. May 14, 1974).

(aimed at fostering coal burning) voluntary on the part of the states instead of mandatory, and (3) providing that FEA's authority to order coal substitution would expire on June 30, 1975.⁸⁴ Senator Muskie noted that the new bill, which was introduced almost two months after the end of the embargo, was not crisis-related; he predicted that, in view of the provisions inserted to protect the environment, near-term coal substitutions "may be as few as a dozen, but these conversions can and will take pressure off the oil market without endangering public health."⁸⁵ No opposition was voiced to Senator Muskie's bill and the Senate passed it the day it was introduced.⁸⁶ At the House-Senate conference, the Senate's more restrictive version generally prevailed; following enactment, the bill, entitled "The Energy Supply and Environmental Coordination Act of 1974" (ESECA), was signed into law by the President on June 22, 1974.⁸⁷

B. Summary of Provisions

ESECA established a mandatory federal coal substitution program. As will be shown below, the Act authorized FEA to: (1) order certain existing powerplants and "major fuel burning installations" to convert from oil or gas to coal for steam generation; (2) order powerplants in the "early planning process" to build in coal-burning capability; and (3) allocate coal. In addition, the Act (4) mandated procedures that have the effect of preventing or delaying coal substitution in many cases. In order to provide an overview of the coal substitution program as it is being implemented, and to avoid repetition, the following summary combines three levels of analysis.

84. *Id.* at 8009-12.

85. *Id.* at 8013. The changed focus of the amendments was indicated by Senator Muskie, who stated: "We are not, under the threat of crisis, abandoning our environmental goals, but we are trying to propose a mechanism which will balance those environmental goals with what we perceive to be the long-term energy needs of the country." *Id.* at 8012-13. The Senator restated his steadfast adherence to environmental goals by noting that "the enactment of limited amendments to the Clean Air Act at this time will be of value" and he stated that the Senate bill created a "limited program" which "can and will be initiated while the Congress continues to review the Clean Air Act and examines the need for broader authority to reduce dependency on foreign fuels." *Id.*

86. *Id.* at 8032.

87. Pub. L. No. 93-319, 88 Stat. 246 (codified at 15 U.S.C. §§ 791-98 (Supp. IV, 1974), as amended (Supp. V, 1975) and in scattered sections of 42 U.S.C.) The President took the opportunity to state that while the bill represented a step in the right direction, the limited conversion authorities fell short of what was needed and that additional Clean Air Act amendments would be required. EXECUTIVE ENERGY MESSAGES, *supra* note 51, at 153.

Each of the major provisions is discussed as it appeared in the Act, as elucidated in the legislative history (where necessary), and as reflected in FEA's regulations.

1(a). *Conversion of Existing Plants*

ESECA authorizes FEA to prohibit existing powerplants⁸⁸ or "major fuel burning installations"⁸⁹ from burning petroleum products or natural gas as their "primary energy source"⁹⁰ in individual boilers.⁹¹ FEA may issue "prohibition orders" having this effect only if it can make four required findings. First, FEA must find that the plant or installation had the "capability and necessary plant equipment to burn coal" as of June 22, 1974, the date of enactment of ESECA.⁹² While this criterion confines ESECA to *reconversion* of existing plants, it does not restrict the statute's application to plants that had 100 percent "push-button" coal burning capability on the date of enactment. The conferees made it clear that "capability" is not an absolute standard, and that the absence, on the relevant date, of any one or a number of the items of equipment that are necessary to burn coal is not grounds for exemption.⁹³

88. A "powerplant" is defined in the Act to mean "a fossil-fuel fired electric generating unit which produces electric power for purposes of sale or exchange." ESECA § 2(e)(1), 15 U.S.C. § 792(e)(1) (Supp. V, 1975).

89. While this term was used in the Act, Congress left it undefined. FEA's regulations define "major fuel burning installation" (MFBI) as "an installation or unit other than a powerplant that has or is a fossil-fuel fired boiler, burner, or other combustor of fuel . . . at a single site . . ." 10 C.F.R. § 305.2 (1976). The FEA set a higher threshold in its regulations, *id.* § 305.4(b)(1), by providing that prohibition orders would be issued only to MFBI's that have "a design firing rate of 100 million Btu's per hours [*sic*] or greater . . ."

90. While Congress used this term but did not define it in the Act, FEA defined "primary energy source" in its regulations as

the fuel that is or will be used for all purposes except for the minimum amounts required for startup, testing, flame stabilization and control; and except for such minimum amounts required to enable [the source] . . . to comply with applicable primary standard conditions prescribed by EPA . . .

10 C.F.R. § 305.2 (1976). In the preamble to its regulations, 40 Fed. Reg. 20462 (1975), FEA explained the reasons for this approach: "The purpose of ESECA is to encourage the burning of coal to the greatest extent practicable, and it would be inconsistent with this purpose to permit more than the minimum uses of petroleum products and natural gas specified in the regulations."

91. ESECA § 2(a), 15 U.S.C. § 792(a) (Supp. V, 1975).

92. *Id.*

93. The conference report, after listing equipment necessary to burn coal, stated:

It is not intended, however, to imply that the absence of any one or combination of these facilities or equipment would be grounds for concluding that the facility lacked capability or necessary plant equipment to burn coal. Nor is it intended that this

Second, ESECA requires that FEA find that "coal . . . will be available during the period the order is in effect,"⁹⁴ which period could, under the recent amendments, be until December 31, 1984.⁹⁵ Because coal is relatively "boiler specific,"⁹⁶ FEA interprets this criterion to require a finding that coal will be available whose specifications—including ash fusion temperature and heat content—make it appropriate for burning under the boiler in question.⁹⁷ In addition, because ESECA contains no authority to order that a sale be made,⁹⁸ FEA makes a finding only that coal with the correct specifications will be available in the general geographic area.⁹⁹ ESECA also requires FEA to find that "coal transportation facilities will be available" during the period that FEA's order will be in effect.¹⁰⁰ The practical nature of this requirement is readily apparent; in addition, the conferees hoped to stimulate a revival of rail and barge traffic, as well as the development of coal slurry pipelines.¹⁰¹

Third, ESECA requires an FEA finding that each conversion will be "practicable" and "consistent with the purposes of [the] Act."¹⁰² While Congress stated the purposes of ESECA,¹⁰³ it did not

condition be applied in an overly rigid or strict fashion which would frustrate the intent of the section to encourage burning of coal in lieu of petroleum products or natural gas. H.R. REP. NO. 1085, 93d Cong., 2d Sess. 25 (1974). The definition of "capability and necessary plant equipment" in FEA's regulations reflects this approach. See 10 C.F.R. §§ 305.3(6)(1), 4(b)(1) (1976).

94. ESECA § 2(b)(1)(B), 15 U.S.C. § 792(b)(1)(B) (Supp. V, 1975).

95. ESECA § 2(f)(2), 15 U.S.C. § 792(f)(2) (Supp. V, 1975).

96. Although usually some latitude is allowed for fuel quality when designing a given boiler unit, there are definite limits to how much the fuel quality can vary. For example, cyclone furnaces must use a coal with a low ash-fusion temperature because they are designed for removal of ash in molten form and won't work with a coal having a high ash-fusion temperature.

PIB, *supra* note 20, at 40.

97. 10 C.F.R. §§ 305.3(b)(3)(i), 4(b)(3)(i) (1976).

98. The ESECA coal allocation provisions do not explicitly authorize FEA to order that a sale actually be made, nor do they authorize FEA to control prices or order that transportation be made available.

99. See, e.g., 40 Fed. Reg. 20492-93 (1975) (findings in support of proposed prohibition orders, Ames Electric Utility Powerplant 7).

100. ESECA § 2(b)(1)(B), 15 U.S.C. § 792(b)(1)(B) (Supp. V, 1975).

101. For a statement of the problems perceived by Congress in this area, see FACS, *supra* note 14, at 8-9. For a detailed analysis of the problems confronting greater use of coal slurry pipelines, see *Hearings on Coal Slurry Pipelines Before the Subcomm. on Minerals, Materials and Fuels of the Senate Comm. on Interior and Insular Affairs*, 93d Cong., 2d Sess., ser. 228, at 92-98, 169-72 (1974).

102. ESECA § 2(b)(1)(A), 15 U.S.C. § 792(b)(1)(A) (Supp. V, 1975).

103. The purposes of ESECA include, *inter alia*, provision "for a means to assist in

elucidate upon the contents of this finding, and FEA has interpreted its mandate as requiring two separate findings.¹⁰⁴ According to FEA's regulations, a prohibition order is "consistent with the purposes" of ESECA, first, if it serves to discourage the use of natural gas and petroleum products and second, if it requires protection of the environment "to the fullest extent practicable" while burning coal.¹⁰⁵ The substitution of coal under an FEA order fulfills the first "purpose" of ESECA; the second "purpose" is satisfied when EPA approves coal burning in compliance with relevant clean air requirements, and FEA completes a satisfactory environmental analysis.¹⁰⁶ Congress did not define "practicability" in ESECA, nor did it indicate at what point it intended that FEA find a prohibition order to be "impracticable." Although it is cheaper to purchase coal than oil, because of the possible need for environmental controls, it does not always follow that it will be cheaper to burn coal. However, ESECA does not require that FEA issue orders only to plants that will profit by converting to coal; indeed, if profitability were the sine qua non of coal substitution there would be no need for legislation to mandate coal use. While Congress did not draw this line with precision, it is clear that practicability does entail an economic test, and FEA's regulations so provide.¹⁰⁷ In addition, in evaluating a plant's ability to pay for conversion, FEA evaluates the impact, if any, of coal substitution on consumer rates.¹⁰⁸

Fourth, ESECA requires that FEA find, in the case of a powerplant (but not a major fuel burning installation), that a prohibition order will not "impair the reliability of service in the area served by such plant."¹⁰⁹ FEA was to implement the congressional intent by consulting with the Federal Power Commission in analyzing "reliability"¹¹⁰ and by performing a detailed technical analysis in each

meeting the essential needs of the United States for fuels, in a manner which is consistent, to the fullest extent practicable, with existing national commitments to protect and improve the environment" ESECA § 1(b), 15 U.S.C. § 791 (Supp. V, 1975).

104. See 10 C.F.R. § 305.3(b)(2) (1976) (for powerplants); *id.* § 305.4(b)(2) (for MFBI's).

105. *Id.* § 305.3(b)(2)(ii) (for powerplants); *id.* § 305.4(b)(2)(ii) (for MFBI's).

106. *Id.*

107. *Id.* § 305.3(b)(2)(i) (for powerplants); *id.* § 305.4(b)(2)(i) (for MFBI's).

108. Federal Energy Administration, Press Release No. E-75-215, July 1, 1975.

109. ESECA § 2(b)(1)(C), 15 U.S.C. § 792(b)(1)(C) (Supp. V, 1975).

110. While ESECA does not require FEA consultation with the Federal Power Commission, the conferees encouraged such consultation because conversion "may have implications respecting adequacy and reliability of bulk power supply, matters within the FPC's jurisdiction under the Federal Power Act." H.R. REP. No. 1085, 93d Cong., 2d Sess. 28 (1974).

case,¹¹¹ which would culminate in a finding of whether conversion of a powerplant to coal would mean "a significant increase in the probability of loss of load" by the dispatching system, resulting in a "substantial hazard to commerce or the public health and safety."¹¹²

1(b). *Prohibition Orders*

FEA's own regulations establish the procedures by which it issues a prohibition order. First, FEA issues to the plant, and publishes in the *Federal Register*, a notice of intent which states the grounds that FEA believes justify issuance of a prohibition order. The notice informs the plant and the public of FEA's proposed action, invites comment on the facts therein, and sets the date for a public hearing.¹¹³ Second, FEA conducts a hearing, at which the utility and the public are invited to comment upon and, if necessary, correct FEA's proposed findings. At this proceeding, which resembles a non-adjudicatory hearing under section 553 of the Administrative Procedure Act,¹¹⁴ participants may submit questions, make oral presentations and speak in rebuttal.¹¹⁵ Third, if FEA determines after analysis of comments and the hearing that it can still make the findings required by ESECA, it issues a written, detailed prohibition order to the plant in question.¹¹⁶ Fourth, plants receiving an FEA order must meet with EPA to arrive at an acceptable method of burning coal in compliance with air pollution requirements.¹¹⁷ After EPA approves the compliance plan, it notifies FEA of the earliest date upon which the plant can burn coal.¹¹⁸ Fifth, FEA issues an environmental assessment or impact statement, which details the environmental effects of the order.¹¹⁹ Sixth, if environmental considerations do not require material alteration of its order, FEA issues a notice of effectiveness establishing the date on which the order takes effect.¹²⁰ Thereafter, the plant may request that FEA either

111. 10 C.F.R. § 305.3(b)(4)(i) (1976).

112. *Id.* § 305.3(b)(4)(ii).

113. *Id.* § 303.34(b).

114. 5 U.S.C. § 553 (1970), *as amended* (Supp. V, 1975).

115. *See, e.g.*, 40 Fed. Reg. 20491-92 (1975).

116. 10 C.F.R. § 303.37 (1976).

117. ESECA § 3(c)(2)(A)(iii), 42 U.S.C. § 1857c-10(c)(2)(A)(iii) (Supp. V, 1975).

118. ESECA § 3(d)(1)(B), 42 U.S.C. § 1857c-10(d)(1)(B) (Supp. V, 1975).

119. 10 C.F.R. § 305.9 (1976).

120. *Id.* §§ 303.10(b), .37(b).

modify or rescind its order¹²¹ or grant an exception or exemption,¹²² or the plant may appeal FEA's order.¹²³ The plant may seek judicial review only after administrative remedies have been exhausted.¹²⁴

1(c). *ESECA and the Clean Air Act*

In relation to existing plants, ESECA amended the Clean Air Act and authorized EPA to cooperate with FEA in the coal substitution effort. The Clean Air Act, which establishes ambitious timetables to eliminate air pollution and provides for the adoption of state emission limitations that are even more stringent than required to protect public health, has been a major constraint to increased coal use. The ESECA amendments to the Clean Air Act were intended to ease some of these restrictions so that, while yet preserving the public health, increased coal burning would be fostered. Briefly, the Clean Air Act directs EPA to identify pollutants that have an adverse effect on health and welfare,¹²⁵ and prescribe for each a "primary ambient air quality standard" to protect public health¹²⁶ and a "secondary ambient air quality standard" to protect public welfare and economic values.¹²⁷ The Act directs the states to adopt, with EPA approval, state implementation plans (SIP's) which contain emission limitations and compliance schedules to attain primary standards by July 1, 1975, and secondary standards within a "reasonable time" thereafter.¹²⁸ The Clean Air Act specifically allows the states, in their SIP's, to adopt emission limitations and controls that are more stringent than needed to achieve the ambient air quality standards prescribed by EPA,¹²⁹ and, since 1970, many states have done so. These limitations have created a demand for clean fuel or its equivalent which exceeds the national supply such that, if the original compliance timetables were maintained, it was estimated that by 1975 more than half of the domestic coal con-

121. *Id.* §§ 303.140-.148.

122. *Id.* §§ 303.70-.86.

123. *Id.* §§ 303.100-.110.

124. *Id.*

125. Clean Air Act § 108(a)(1), 42 U.S.C. § 1857c-3(a)(1) (1970).

126. *Id.* § 109(b)(1), 42 U.S.C. § 1857c-4(b)(1) (1970). The "primary ambient air quality standard" establishes air quality levels which, "allowing an adequate margin of safety, are adequate to protect the public health." *Id.* (emphasis added).

127. *Id.* § 109(b)(2), 42 U.S.C. § 1857c-4(b)(2) (1970).

128. *Id.* §§ 110(a)(1), (2), 42 U.S.C. §§ 1857c-5(a)(1), (2) (1970), as amended (Supp. V, 1975).

129. *Id.* § 116, 42 U.S.C. § 1857d-1 (1970), as amended (Supp. V, 1975).

sumed by utilities would be unsuitable for further use without costly environmental control equipment.¹³⁰ If emission limitations become even more stringent, bulk fuel users will, if unconstrained, seek out limited supplies of low-sulfur coal or switch to natural gas or imported oil. While it may be possible to use available high-sulfur coal in conjunction with stack gas-scrubbing devices, "scrubbers" are expensive, regarded by some as technologically unproven, and require 3 to 5 years to install.¹³¹

The ESECA Clean Air Act amendments provide that for plants that receive FEA orders but cannot secure coal to meet all SIP requirements,¹³² EPA may issue "compliance date extensions" that protect public health but do not require the plant to meet more stringent SIP requirements until December 31, 1978.¹³³ In order to receive an extension, the plant must meet "primary standard conditions"¹³⁴ and applicable "regional limitations,"¹³⁵ and it must submit an approvable plan to comply with these conditions throughout the extension and to meet SIP requirements thereafter.¹³⁶ EPA may revoke the extension at any time if the plant fails to meet the primary standard condition, the regional limitation, or the "significant risk" provisions¹³⁷ of ESECA, or if it fails to follow its approved compliance plan. At such time, FEA's prohibition order ceases to be effective.¹³⁸

2. *New Plants: Construction Orders*

ESECA also authorizes FEA to require, with certain exceptions, that a powerplant in the "early planning process" be designed and constructed so as to be capable of using coal as its primary energy source.¹³⁹ Congress limited FEA's authority in relation to new plants by exempting combustion gas turbines and combined cycle units; it also barred issuance of a construction order if FEA determines

130. FEDERAL ENERGY ADMINISTRATION, THE CLEAN FUELS DEFICIT: CLEAN AIR ACT PROBLEM 2 (1974).

131. *Id.* See also PIB, *supra* note 20, at 66, and sources cited therein.

132. Clean Air Act § 119(c)(2)(A), 42 U.S.C. § 1857c-10(c)(2)(A) (Supp. V, 1975).

133. *Id.* §§ 119(c)(1), (c)(2)(C), 42 U.S.C. §§ 1857c-10(c)(1), (c)(2)(C) (Supp. V, 1975).

134. *Id.* § 119(d)(2)(A), 42 U.S.C. § 1857c-10(d)(2)(A) (Supp. V, 1975).

135. *Id.* § 119(c)(2)(D), 42 U.S.C. § 1857c-10(c)(2)(D) (Supp. V, 1975).

136. *Id.* § 119(c)(2)(C), 42 U.S.C. § 1857c-10(c)(2)(C) (Supp. V, 1975).

137. *Id.* § 119(d)(3)(B)(iii), 42 U.S.C. § 1857c-10(d)(3)(B)(iii) (Supp. V, 1975).

138. *Id.* §§ 119(d)(2)(C), (d)(3)(A), (B), 42 U.S.C. §§ 1857c-10(d)(2)(C), (d)(3)(A), (B) (Supp. V, 1975).

139. ESECA § 2(c), 15 U.S.C. § 792(c) (Supp. V, 1975).

that: "(1) . . . to do so is likely to result in an impairment of reliability or adequacy of service, or (2) an adequate and reliable supply of coal is not expected to be available."¹⁴⁰ In addition, before issuing an order, Congress directed FEA to consider "the existence and effects of any contractual commitment for the construction of such facilities and the capability of the owner to recover any capital investment made as a result of any requirement imposed under this subsection."¹⁴¹ While ESECA does not define the "early planning process" except by referring to it as "the design stage,"¹⁴² Congress clearly intended to reach plants that are not yet far along in the construction process.¹⁴³ Based upon construction and capital commitment practices in the utility industry, FEA defined the "early planning process" as beginning ten years before the planned start of commercial operation and ending at a named stage at the beginning of powerplant construction.¹⁴⁴

FEA's construction orders are effective upon issuance.¹⁴⁵ These orders require no EPA certification, and recipient plants are subject to "new source performance standards" under the Clean Air Act.¹⁴⁶ FEA expects to achieve substantial oil and gas savings by assuring that these large new powerplants, which have long operating lives ahead of them, use coal. The original ESECA, however, did not assure this salutary result, for while FEA could order the installation of coal burning equipment—which is often installed as part of a dual-fired boiler—it could not require that the powerplant actually use this capability to burn coal. As will be shown more fully below, the recently enacted Energy Policy and Conservation Act (EPCA)¹⁴⁷ rectified this situation by authorizing FEA to order that construction order recipients burn coal when they come on line.

3. *Allocations*

ESECA authorizes FEA, by rule or order, to "allocate coal (1) to any powerplant or major fuel burning installation to which [a pro-

140. *Id.*

141. *Id.*

142. See H.R. REP. No. 1085, 93d Cong., 2d Sess. 24 (1974).

143. 40 Fed. Reg. 20663-64 (1975).

144. 10 C.F.R. § 307.2 (1976).

145. 40 Fed. Reg. 5455 (1975).

146. See H.R. REP. No. 1085, 93d Cong., 2d Sess. 29 (1974).

147. Pub. L. No. 94-163, 89 Stat. 871 (1975) (amending scattered sections of 15, 42 U.S.C. and adding 42 U.S.C. §§ 6201-6422 (Supp. V, 1975)).

hibition order] has been issued, or (2) to any other person to the extent necessary to carry out the purposes of this Act."¹⁴⁸ In addition, ESECA allows EPA to issue "fuel exchange designations" where necessary to avoid or minimize the adverse impact on public health and welfare of any prohibition order or allocation of fuel.¹⁴⁹ Thereafter, unless FEA determines that the exchange will cause excessive costs or consumption of fuel, FEA is directed to require that the exchange of fuel be effective no later than 45 days after the date of such designation.¹⁵⁰ Finally, ESECA provides that any FEA allocation program "shall, to the maximum extent practicable, include measures to assure that available low sulfur fuel will be distributed on a priority basis to those areas of the United States designated by [EPA] as requiring low sulfur fuel to avoid or minimize adverse impact on public health."¹⁵¹ The Act does not, however, explicitly authorize FEA to order that a sale or contract be made, or to dictate prices, or to assign transportation to carry coal. On June 30, 1975, FEA issued regulations governing the allocation of coal.¹⁵² To date, EPA has issued no "fuel exchange designations."

4. *Ancillary Provisions*

As we have seen, during the eight months that Congress considered coal substitution legislation, the oil embargo ended and the legislative sense of urgency about the "energy crisis" abated. Senator Muskie declared that the final bill was not "crisis-related" as was its predecessor,¹⁵³ but with regard to air quality was intended to "modify" and "narrow" the coal conversion provisions originally reported by the House "to assure, at a minimum, protection of the public health."¹⁵⁴ In the bill as finally enacted, FEA's coal substitution authority is subject to several qualifications and limitations which affect the size and timing of oil and gas savings attainable by the program. By limiting FEA's coal substitution authority over existing plants to those which had coal burning capability on the

148. ESECA § 2(d), 15 U.S.C. § 792(d) (Supp. V, 1975).

149. ESECA § 3(j)(1), 15 U.S.C. § 751(j)(1) (Supp. V, 1975). *See also* Clean Air Act § 119(j)(1), 42 U.S.C. § 1857c-10(j)(1) (Supp. V, 1975).

150. ESECA § 3(j)(2), 15 U.S.C. § 751(j)(2) (Supp. V, 1975). *See also* Clean Air Act § 119(j)(2), 42 U.S.C. § 1857c-10(j)(2) (Supp. V, 1975).

151. ESECA § 7(a), 15 U.S.C. § 793(a) (Supp. V, 1975).

152. 40 Fed. Reg. 28420-29 (1975).

153. 120 CONG. REC. 10407 (daily ed. June 12, 1974).

154. 120 CONG. REC. 8012 (daily ed. May 14, 1974).

date of enactment, and for which FEA can make the other findings required in the Act, Congress severely circumscribed the universe of conversion candidates.¹⁵⁵ The provision that prohibition orders must be rescinded or modified if any of the required findings is no longer met¹⁵⁶ mandates the creation of FEA review procedures, may give plants the right to demand periodic re-readings of the ESECA criteria, and creates uncertainty about the duration of FEA's orders. The requirement that FEA conduct public hearings before it issues an order¹⁵⁷ and that EPA hold similar hearings at various stages in its proceedings for coal burning¹⁵⁸ has built administrative delays into the initial steps of the conversion process. By originally limiting FEA's authority to issue orders to June 30, 1975,¹⁵⁹ and providing that the orders would be enforceable only until December 31, 1978,¹⁶⁰ ESECA reduced the size of attainable oil and gas savings, in large part because the procedural and technical leadtimes for conversion would have absorbed much of the order period. However, the EPCA amendments which extend these deadlines can be expected to remedy this drawback.

Other impediments to the efficient exercise of coal substitution authority are contained in ESECA. The Act's dual agency approach, at a minimum, delays conversion to coal by mandating cumbersome FEA-EPA and EPA-source procedures. Thus, when FEA issues its original order, it must base its "practicability" finding, in part, on the cost of the equipment that it estimates EPA will require the plant to utilize.¹⁶¹ Since FEA makes this finding before EPA formally addresses the issue, it could be subject to revision.¹⁶² In addition, the ESECA requirement that the plant not burn coal until it secures EPA approval¹⁶³ injects procedural delay because of the leadtimes necessary to formulate standards and arrive at a satisfactory compliance plan. Where a compliance date extension is

155. ESECA § 2(a), (b), 15 U.S.C. § 792(a), (b) (Supp. V, 1975).

156. *Id.* § 2(b)(1), 15 U.S.C. § 792(b)(1) (Supp. V, 1975).

157. *Id.* §§ 2(b)(2)(A), (3)(A), 15 U.S.C. §§ 792(b)(2)(A), (3)(A) (Supp. V, 1975).

158. *E.g., id.* §§ 3(b)(1), (c)(4), 42 U.S.C. §§ 1857c-10(b)(1), (c)(4) (Supp. V, 1975).

159. *Id.* § 2(f)(1), 15 U.S.C. § 792(f)(1) (Supp. IV, 1974), *as amended* (Supp. V, 1975).

160. *Id.* § 2(f)(2), 15 U.S.C. § 792(f)(2) (Supp. IV, 1974), *as amended* (Supp. V, 1975).

161. *Id.* § 2(b)(3)(B), 15 U.S.C. § 792(b)(3)(B) (Supp. V, 1975).

162. In the preamble to its final coal conversion regulations, FEA recognized that this possibility existed, and that it could, in the case of "substantial changes," give rise to a motion to modify or rescind the underlying prohibition order. 40 Fed. Reg. 20465 (1975).

163. ESECA §§ 3(c)(2)(A)(iii), (d)(2)(A), 42 U.S.C. §§ 1857c-10(c)(2)(A)(iii), (d)(2)(A) (Supp. V, 1975).

needed, the beginning of coal burning—and of oil and gas savings—is delayed by the necessity for EPA to hold public hearings.¹⁶⁴ Finally, ESECA's environmental protections give rise to uncertainties because, at any time during the duration of a compliance date extension, the coal burning source is subject to charges, a public hearing, revocation of its extension, and an enforcement proceeding.¹⁶⁵

C. Implementation of ESECA: The First Year

From the outset, FEA's objective in implementing ESECA was to "achieve as many of the oil savings realiz[able] under the provisions of ESECA as possible" at the earliest time. FEA concentrated on achieving near-term savings by converting those existing oil and gas fired powerplants that were most readily convertible under the terms of the Act. In addition, FEA secured larger long-term savings by issuing orders to powerplants in the "early planning process." Because of the low priority assigned by Congress, and the formidable task of candidate identification, FEA did not issue orders to any major fuel burning installations in 1975. The major program milestones of that year were reached when FEA prepared environmental documents, issued regulations, held hearings and issued orders to a number of powerplants.¹⁶⁶

On January 31, 1975, FEA issued a draft environmental impact statement identifying the foreseeable effects of the coal substitution program on the environment if different numbers of plants were converted.¹⁶⁷ After a public hearing and analysis of comments, FEA issued a final programmatic environmental impact statement on April 25, 1975.¹⁶⁸ On February 5, 1975, FEA published proposed regulations for the ESECA program in the *Federal Register*.¹⁶⁹ After public hearing and analysis of comments, FEA, on May 9, 1975, published the final procedural and substantive regulations for the ESECA program.¹⁷⁰ Between May 9 and June 9, 1975, FEA issued notices of intent and held hearings on prohibition orders for 74 boil-

164. *Id.* § 3(c)(4), 42 U.S.C. § 1857c-10(c)(4) (Supp. V, 1975).

165. *Id.* § 3(d)(3)(A), 42 U.S.C. § 1857c-10(d)(3)(A) (Supp. V, 1975).

166. 120 CONG. REC. 7420-22 (daily ed. May 5, 1975) (FEA report to Congress).

167. 40 Fed. Reg. 4777 (1975).

168. *Id.* at 18215. As mentioned in the text, *supra*, FEA is continuing environmental analysis in this respect.

169. *Id.* at 5452-57.

170. *Id.* at 20462-90.

ers at 32 utility generating stations. After analysis of the arguments and comments in each case, FEA issued prohibition orders to all of these powerplants.¹⁷¹ FEA and Senator Randolph estimate that, when all of these orders are put into effect, the nation will save more than 287 million barrels of oil per year and 104 billion cubic feet of natural gas, and that 6.5 million additional tons of coal will be substituted therefor.¹⁷² On June 20, 1975, FEA issued notices of intent to issue construction orders to 74 boilers at 46 planned utility generating stations in the "early planning process" and on June 30, 1975, issued construction orders to all of these plants.¹⁷³ Because of the long construction leadtimes, FEA has been unable to estimate the expected savings in oil and gas use from these orders.

Contrary to some earlier predictions, no companies or citizen groups sued to enjoin FEA from issuing orders prior to its initial June 30, 1975, ESECA deadline.¹⁷⁴ As of this writing, no suits have been brought to test in court FEA's exercise of its ESECA authority, although this may be because of the leadtimes built into FEA's appeals system and the requirement that administrative remedies be exhausted. During this period, FEA also took the initial steps toward converting "major fuel burning installations" (MFBI's) to coal. FEA's regulations define MFBI's as facilities capable of burning 100 million Btu's or more per hour.¹⁷⁵ In order to identify MFBI's that had coal burning capability on June 22, 1974, FEA began to compile the first government inventory of MFBI equipment and energy consumption. Based on preliminary analysis of responses to its questionnaire, FEA estimated in June 1975 that there were approximately 4,000 MFBI's in the nation and that conversion of eligible candidates under ESECA would yield "perhaps the equivalent of 300,000 bbls/day."¹⁷⁶ FEA Administrator Zarb observed, "This

171. *Id.* at 20491, 21516, 22171, 22305, 23522, 23530, 23926, 28430.

172. 122 CONG. REC. 5897-901 (daily ed. April 26, 1976).

173. 40 Fed. Reg. 28430 (1975). See also Federal Energy Administration, Press Release No. E-75-216, July 1, 1975; *Joint Hearings on the National Fuels and Energy Policy Study Before the Senate Comm's on Interior and Insular Affairs and Public Works Pursuant to S. Res. 45, 94th Cong., 1st Sess., ser. 18, at 2454 (1975)* [hereinafter cited as *Joint Hearings on S.1777*].

174. See *Platt's Oilgram*, Wall Street Journal, May 12, 1975, at 7, col. 1.

175. 10 C.F.R. § 305.4(b)(1) (1976). FEA Administrator Zarb explained that these plants fit within the parameters of the Act because they "are large enough to yield substantial oil or gas savings, and their size makes it probable that they would best be able to afford the initial costs of conversion." See *Joint Hearings on S. 1777, supra* note 173, at 1672.

176. *Joint Hearings on S. 1777, supra* note 173, at 1672.

inventory will prove invaluable for future planning efforts, and will serve us especially well should another oil embargo be imposed."¹⁷⁷

D. *Existing Coal Burners: Part 215*

As indicated above, as early as November 8, 1973, President Nixon promised "administrative action" to prevent plants that were burning coal from converting to oil or natural gas. On November 27, 1973, the Energy Policy Office issued EPO regulation 2, which went into effect on December 7, 1973.¹⁷⁸ That regulation, which is now part 215 of FEA's regulations, prevents certain conversions from coal by prohibiting the sale or use of petroleum for burning under power generators that were not using petroleum on December 7, 1973.¹⁷⁹ Part 215 allows affected plants to seek an exception if the state certifies that the use of petroleum is "essential" to meet primary ambient air quality standards¹⁸⁰ or if compliance would cause "special hardship, inequity, or unfair distribution of burdens."¹⁸¹ As of January 1976, FEA had denied 13 applications to convert to oil use, but had granted the relief requested, in whole or in part, in 11 other cases.¹⁸² Due to the recent EPCA amendments, part 215 could remain in effect until September 30, 1981.¹⁸³

E. *ESECA Extension*

On January 30, 1975, President Ford submitted to Congress amendments to broaden FEA's coal substitution jurisdiction and to extend its authority to issue orders until June 30, 1977.¹⁸⁴ Subsequently, on three occasions, Congress passed extensions of FEA's ESECA authority as part of broader bills; these bills were vetoed by the President.¹⁸⁵ After prolonged consideration, Congress then

177. *Id.*

178. 38 Fed. Reg. 32577 (1973).

179. 10 C.F.R. § 215.3 (1976).

180. *Id.* § 215.6(a).

181. *Id.* § 215.6(b).

182. See CCH Fed. Energy Guidelines Exc. & App. Dec. 80409 (1975); *id.* at 20016 (1974).

183. 15 U.S.C. § 760g (Supp. V. 1975).

184. *Hearings on the Economic Impact of President Ford's Energy Program Before the Senate Comm. on Interior and Insular Affairs*, 94th Cong., 1st Sess., ser. 6, at 380, 405-06 (1975) [hereinafter cited as *Hearings on President Ford's Energy Program*].

185. S. 1849, 94th Cong., 1st Sess. (1975)(Emergency Petroleum Allocation Extension Act of 1975), 121 CONG. REC. 15609 (daily ed. Sept. 9, 1975); H.R. 4035, 94th Cong., 1st Sess. (1975) (Petroleum Price Review Act), 121 CONG. REC. 7202 (daily ed. July 22, 1975); H.R. 25, 94th Cong., 1st Sess. (1975)(Surface Mining Control and Reclamation Act of 1975), 121 CONG. REC. 4405 (daily ed. May 20, 1975).

passed¹⁸⁶ the omnibus Energy Policy and Conservation Act (EPCA) which the President signed into law on December 22, 1975.¹⁸⁷ With regard to coal substitution, EPCA (1) extends FEA's order issuance authority until June 30, 1977, and the duration of orders until December 31, 1984,¹⁸⁸ (2) authorizes FEA to issue prohibition orders to new classes of plants,¹⁸⁹ and (3) expands FEA's authority to issue construction orders to "major fuel burning installations."¹⁹⁰ By renewing FEA's authority to issue orders, the EPCA amendments assure continuation of the federal coal substitution program, and provide the long leadtimes that are sometimes necessary to convert to coal within the purview of an ESECA order. The expansion of FEA authority to new classes of plants will yield additional savings of oil and gas, and the extension of orders until 1985 will increase the savings from each order that is issued.

F. *ESECA and the National Energy Effort*

In the years since the oil embargo, the national energy debate has focused primarily on petroleum and natural gas issues, the role of nuclear power, and the development of conservation strategies to dampen demand for all energy. During this period, there have been exhortations to increase the use of our most abundant fossil fuel resource, but, as Arnold Miller, president of the United Mine Workers of America observed, "each piece of legislation offered to deal with the energy crisis has coal playing second fiddle to oil and other more exotic and unproven forms of energy."¹⁹¹

In ESECA, Congress intended to create a limited program to increase the use of domestic coal; it recognized that the relatively modest savings of oil and gas that can be achieved within the framework of the Act will not alone solve our energy problems. However,

186. 121 CONG. REC. 21487 (daily ed. Dec. 9, 1975).

187. Pub. L. No. 94-163, 89 Stat. 871 (1975) (amending scattered sections of 15, 42 U.S.C. and adding 42 U.S.C. §§ 6201-6422 (Supp. V, 1975)).

188. *Id.* § 101(a), 89 Stat. 875, amending 15 U.S.C. § 792(f) (Supp. IV, 1974) (now codified at 15 U.S.C. § 792(f) (Supp. V, 1975)).

189. *Id.* § 101(b), amending 15 U.S.C. § 792(a) (Supp. IV, 1974) (now codified at 15 U.S.C. § 792(a) (Supp. V, 1975)). EPCA extends FEA's original ESECA jurisdiction to include powerplants and major fuel burning installations that acquired coal burning capability after June 22, 1974, or are eligible for, or receive, a "construction requirement under subsection (c)." *Id.*

190. *Id.* § 101(c), amending 15 U.S.C. § 792(c) (Supp. IV, 1974) (now codified at 15 U.S.C. § 792(c) (Supp. V, 1975)).

191. *Joint Hearings on S. 1777, supra* note 173, at 1453.

because of the long leadtimes needed to change energy use patterns and develop new energy sources, FEA Administrator Zarb has recognized that the ESECA program and development of the Naval Petroleum Reserves are "the only supply actions that can have much effect during the next two to three years."¹⁹²

In practice, FEA has found that compliance with the environmental criteria in ESECA will substantially delay substitution of coal, for a number of technological reasons. Approximately 75 percent of powerplant candidates will need new air pollution control equipment to burn coal, and coal substitution will be delayed by the long leadtimes needed to install electrostatic precipitators (28 to 32 months) and flue gas desulfurization equipment (3 to 5 years).¹⁹³ While many air pollution requirements could be met by burning low sulfur coal, because it takes 3 to 5 years to open a new underground coal mine, short-run coal substitution (1975-1977) will be limited by the availability of such coal from existing mines. In 1975, FEA concluded that an adequate supply of low-sulfur coal will support substitution requirements in the long-term (1977-1980) if "a clear long-term market for coal exists so that mine operators will be willing to invest the required capital in new mine development."¹⁹⁴

FEA has found that the long leadtimes needed to meet environmental restrictions cause the major delay for coal substitution and that out of 80 "prime" powerplant candidates which would be able to burn coal by 1980, only 7 boilers would have been able to use coal as of May 1975, and only 24 would be able to use coal by 1977.¹⁹⁵ The impact of ESECA's environmental restrictions is expressed in FEA's and EPA's recommendations that the "regional limitation"—which will delay many switches to coal—be deleted from the Act.¹⁹⁶ If that provision is deleted, public health would continue to be protected, while reduced equipment procurement problems would accelerate boiler conversion to coal use. For example, in the absence of the regional limitation, 19 boilers (instead of just 7) could have converted as of May 1975 and 37 boilers (instead

192. *Hearings on President Ford's Energy Program*, *supra* note 184, at 12.

193. *Joint Hearings on S. 1777*, *supra* note 173, at 227.

194. 121 CONG. REC. 7421 (daily ed. May 5, 1975) (FEA report to Congress).

195. *Id.* at 7420.

196. *Hearings on Implementation of the Clean Air Act Before the Subcomm. on Environmental Pollution of the Senate Comm. on Public Works*, 94th Cong., 1st Sess., ser. H10, pt. 1, at 149, 334 (1975) [hereinafter cited as *Senate Clean Air Act Hearings*].

of 24) would be able to convert by 1977.¹⁹⁷

The EPCA extension will allow FEA to continue to order coal substitution within the environmental constraints of ESECA. Based on preliminary data, FEA Administrator Zarb has estimated that the extension will allow FEA to issue orders both to existing and new powerplants, and to major fuel burning installations that will yield between 600,000 and 900,000 barrels of oil savings per day by 1985.¹⁹⁸ This substitution, which would allow petroleum and natural gas to be reordered to higher uses than steam production, would require the additional production of from 55 to 82 million tons of coal per year by 1985.¹⁹⁹

However, ESECA, as extended by the EPCA amendments, will not create a dramatic large-scale demand for coal. In relation to existing plants, ESECA remains reconversion legislation, and FEA's role is to identify and issue orders to plants that meet the criteria in the Act. While ESECA provides some leeway, FEA is basically without authority to order a plant to take steps to make itself qualify for a conversion order. Under ESECA, FEA is also without authority to deal with the underlying constraints to increased coal use. Instead, if large-scale coal substitution is to be a serious national goal, new efforts must be made to address the constraints to increased coal use and to encourage plants to take affirmative steps to burn coal. It is to consideration of a bill offered for that broader purpose, S. 1777, that we now turn.

III. CURRENT DEVELOPMENTS

A. S. 1777

1. Purpose

On May 20, 1975, Senators Randolph, Jackson and Magnuson introduced S. 1777, the "National Petroleum and Natural Gas Conservation Act of 1975." In his introductory statement, Senator Randolph stressed that "energy independence" problems continued in the wake of the embargo and that part of the solution lay in in-

197. 121 CONG. REC. 7420 (daily ed. May 5, 1975).

198. *Joint Hearings on S. 1777*, *supra* note 173, at 331, 333.

199. FEA estimates that one ton of coal is the energy equivalent of approximately 4-1/3 barrels of oil. PIB, *supra* note 20, at 3.

creased reliance on domestic coal. Based upon FEA's experience under ESECA, the senators introduced S. 1777 and conducted extensive hearings to determine the feasibility of substituting coal for oil and gas in a broader range of utility and industrial boilers.²⁰⁰ After amassing a wealth of material about the potential for increased coal use, the Senate issued a revised draft of S. 1777 which is summarized below.

Even before introduction of S. 1777, Ford Administration and congressional energy planners had called for huge increases in coal production and use by 1985. According to Senator Randolph, these projections will be met only by aggressive government action in pursuit of an overall program and S. 1777 is an initial step toward a "definitive National Coal Policy from the mine face to the ultimate energy user."²⁰¹ While S. 1777 does not attempt to address coal supply-related issues such as surface mining, coal leasing policies or the use of coal for synthetic fuels, the bill does go far toward addressing the "demand" side of the coal development equation.

2. Summary of Provisions

S. 1777 would require "new"²⁰² fossil fuel fired powerplants²⁰³ or "major industrial installations" (MII's)²⁰⁴ to make themselves capable of burning coal as their "primary energy source"²⁰⁵ in compliance with environmental requirements.²⁰⁶ New facilities may not use gas after January 1, 1979,²⁰⁷ or petroleum after January 1, 1989,²⁰⁸ unless

200. *Joint Hearings on S. 1777, supra* note 173, at 15-17, 19-20.

201. *Id.* at 16, 21.

202. S. 1777, 94th Cong., 1st Sess. § 102(h) (1975) defines "new" powerplant or installation as a "facility which was in the early planning process, as . . . defined [in ESECA] . . . as of the date of enactment of this Act." S. 1777 is reprinted in STAFF OF SENATE COMM. ON PUBLIC WORKS, 94TH CONG., 1ST SESS., S. 1777 (Staff Working Print No. 2, 1976).

203. An "electric powerplant" is defined as a fossil fuel fired unit that produces electric power for sale or exchange, and that has design capability of firing at a heat-rate of 100 million Btu's per hour or greater; or a combination of units that are capable in the aggregate of being fired at 250 million Btu's per hour or greater; or smaller units where FEA finds inclusion under the Act to be "practicable." S. 1777, 94th Cong., 1st Sess. § 102(f) (1975).

204. The definition of "major industrial installation" is similar to that of "electric powerplant," *supra* note 203, except that there is no requirement that the facility produce electricity for sale or exchange. *Id.* § 102(g).

205. "Primary energy source" is defined as all fuel used by a facility except for amounts required (1) for "boiler start-up, testing, flame stabilization, control uses, and fuel preparation"; or (2) "to alleviate acute short-term air quality emergencies"; or (3) "to alleviate any emergencies directly affecting the public health, safety, and welfare which would be caused by electric power outages." *Id.* § 102(j).

206. *Id.* § 108(b).

207. *Id.* § 104(b).

208. *Id.* § 104(c).

they pay a civil penalty²⁰⁹ levied on a graduating scale over time.²¹⁰

After January 1, 1979, existing powerplants or MII's may operate only if they burn coal in conformity with environmental requirements or if they are capable of using only oil or gas and FEA finds that conversion to coal is not "practicable."²¹¹ After that date, existing facilities may use gas only if FEA finds that conversion to coal or oil is not practicable²¹² or if they pay a penalty;²¹³ the same treatment is accorded to oil burning facilities after January 1, 1985.²¹⁴ In addition, after January 1, 1985, no facility may operate on oil or gas unless FEA finds that conversion to coal in conformity with applicable environmental requirements is not practicable.²¹⁵

S. 1777 would authorize FEA to grant "compliance date extensions,"²¹⁶ temporary "exemptions,"²¹⁷ and permanent exemptions (if conversion is not practicable)²¹⁸ from the requirements listed above. The bill attempts to mitigate the effects of losing a favorable fuel contract²¹⁹ and establishes a system whereby plants must procure "certifications of conformance"²²⁰ with applicable environmental requirements from the EPA or the state.²²¹ It would also require FEA to use its ESECA coal allocation authority in certain circumstances.²²² Finally, S. 1777 would amend ESECA to allow FEA to order powerplants and major industrial installations to convert from natural gas to oil if conversion to coal is impracticable and if certain findings can be made.²²³

209. *Id.* § 111(g).

210. *Id.* §§ 111(e), (f).

211. *Id.* §§ 105(a)(1), (a)(2), (3).

212. *Id.* § 105(b).

213. *Id.* § 111(e).

214. *Id.* § 105(c).

215. *Id.* § 105(d).

216. *Id.* § 106(a). This section allows FEA to extend deadlines for three years if (1) the extension is necessary to render conversion "practicable" and the facility is committed to a compliance plan; (2) "unexpected events" beyond the owner's control make retrofit not "practicable" or (3) despite good faith efforts, fuel, coal burning or pollution control equipment cannot be secured by the deadline.

217. *Id.* § 106(b). This section allows FEA to exempt facilities from deadlines for periods during which, despite good faith efforts, fuel or fuel transportation facilities are not available.

218. *Id.* § 107.

219. *Id.* §§ 109(a), (b).

220. *Id.* § 108.

221. Section 102(k) defines "applicable environmental requirements" to include "any" federal or state air or water "standard or limitation" and requirements relating to solid waste disposal. *Id.* § 102(k).

222. *Id.* § 112(a).

223. *Id.* § 202.

3. S. 1777 and ESECA

S. 1777 and ESECA both seek to increase coal use and production, by stimulating demand. However, S. 1777 is intended to be broader than its predecessor, and it would apparently affect more plants and create a different type of federal program—in contrast to the limited program created by ESECA, S. 1777 is aimed at achieving permanent, large-scale coal substitution.

First, S. 1777 goes beyond ESECA's reconversion objective to require that existing powerplants and industrial facilities install coal burning equipment, even on a first-time basis. The American Boiler Manufacturer's Association (ABMA) estimated that the 50 million Btu's per hour jurisdictional rate in the original S. 1777 would require conversion of approximately 100 megawatts of oil and gas fired powerplant boilers and as many as 42,000 boilers in 17,000 other facilities. ABMA estimated that it would be impossible to retrofit many of these boilers and that the replacement (not conversion) cost of boilers for these powerplants and facilities would be approximately \$98 billion.²²⁴ ABMA's "ballpark" estimate is admittedly on the high side because the number of plants actually affected would be reduced by (1) S. 1777's "practicability" exemption and (2) the standard in the revised bill which raises the jurisdictional size for boiler conversion to 100 million Btu's per hour firing rate.²²⁵ It is clear, however, that the broad nature of S. 1777's "practicability" criteria makes it difficult to determine the numbers of plants that would be required to substitute coal under the bill.

Second, in contrast to ESECA, which requires FEA to identify candidates and make four findings before ordering coal substitution, S. 1777 compels coal substitution or payment of fees unless FEA, upon application, grants an exception or an exemption. Even if a plant eventually does not have to convert, the action-forcing provisions of S. 1777 require all facilities that meet the size criterion to file exceptions and/or take steps to order boiler and pollution control equipment to meet the deadlines in the bill. Sizeable governmental programs would be needed to determine the validity of applications and to issue environmental certificates of compliance, and industry would be required to take a series of actions to achieve coal substitu-

224. *Joint Hearings on S. 1777, supra* note 173, at 1713, 1721.

225. *Id.* at 1729.

tion, including the filing of detailed progress reports with the government.²²⁶

Third, in contrast to ESECA, S. 1777 does not provide for extensions to meet environmental regulations or for federal preemption of state and local environmental standards. Facilities that convert would be required to meet Clean Air Act standards applicable to new plants, and to install equipment that is adequate to meet all applicable air, water and waste disposal regulations.²²⁷

Efforts to achieve energy independence via S. 1777 would strain domestic heavy machinery capacity because a sizeable number of plants would apparently have to install pollution control and coal burning equipment within a relatively short period of time. The demand generated by S. 1777 would compete for available steel with equipment needed to develop oil, gas and alternative fuels. This competition would be especially intense for equipment needed to burn coal since, as shown above, FEA's "new plant" construction orders already require that a large number of power plants scheduled to come on line within the next ten years be built with coal burning capability. S. 1777's requirement that existing plants be retrofitted to burn coal is especially arduous, for retrofit requires custom work and careful scheduling to avoid disruption of operations. In its "high" estimate of S. 1777's impact, ABMA estimated that it would take a "monumental effort, possibly exceeding the boiler industry's ship-propulsion World War II effort . . . to meet the coal conversion objectives of the bill within the timeframe constraints imposed."²²⁸

S. 1777 will also make substantial demands upon the utility industry, which has been in a weakened financial condition for the last five years. Even before ESECA, the utilities had embarked upon an enormous program of expansion to meet projected demand, which included planned construction of nuclear as well as fossil fuel fired powerplants. The utilities have had problems financing this construction because of the difficulty of attracting debt and equity capital in a tight money market. Utilities have had problems selling

226. To some degree, these administrative problems may be mitigated by S. 1777's novel "civil penalty" approach which, in contrast to the approach in ESECA, would allow a plant to continue to burn oil or gas without an extension if it pays a premium to do so. *See also* note 196 *supra*.

227. S. 1777, 94th Cong., 1st Sess. § 108 (1975).

228. *Joint Hearings on S. 1777, supra* note 173, at 1728.

common stock, which is often offered at depressed rates even below book value and, in many instances, utility bond ratings have been lowered. To compound these problems, fluctuating energy use patterns since 1974 have prevented the utilities from accurately forecasting future energy demand, which is the baseline from which the industry makes its plans to install new capacity.²²⁹

If S. 1777 is enacted in its present form, it can be expected to create many more jobs for Americans. UMW president Arnold Miller estimates that the mining force will increase from approximately 120,000 to nearly 350,000 miners by 1985 if S. 1777 is fully implemented.²³⁰ The program would also apparently stimulate investment and create jobs on the railroads and in the steel and equipment-producing industries that comprise the coal distribution infra-structure. On the other hand, the requirement that existing industrial installations be retrofitted to burn coal may also require temporary plant closures, and this could cause some loss of employment for affected employees.

In order to deal with the foregoing impacts, S. 1777 could itself generate demands for additional governmental intervention in the economic and social life of the nation. While the capital and job shifting impacts between sectors of the economy are potentially massive, the true effects of the program appear to be unquantifiable at this time. It is clear, however, that S. 1777 would expand the regulation of energy use, and government might be called upon to adjust and moderate the ripple effects of so broad a program on the nation.

S. 1777 has surfaced at a time when real questions are being raised about the merits of the "free market" versus the "regulatory" approach to all government activities, and to the energy field in particular.²³¹ The Ford Administration has shared Senator Randolph's view that we must increase our reliance on domestic coal and that

229. *Hearings on Electric Utility Policy Issues Before the Senate Comm. on Interior and Insular Affairs*, 93d Cong., 2d Sess., ser. 45, at 115, 120, 123-25, 137 (1974) (report on "Utility Financing Problems and National Energy Policy," by National Economic Research Associates, Inc., July 11, 1974). See also *N.Y. Times*, Oct. 4, 1975, at 33, col. 1.

230. *Joint Hearings on S. 1777*, *supra* note 173, at 1457.

231. For a useful analysis of the "free market" and "government intervention" approaches, with special reference to the "unique" situation in the minerals extraction industries, see PERMANENT SUBCOMM. ON INVESTIGATIONS OF THE SENATE COMM. ON GOVERNMENT OPERATIONS, MATERIALS SHORTAGES, S. DOC. NO. 338, 93d Cong., 2d Sess. 5, 11, 16 (1974) [hereinafter cited as MATERIALS SHORTAGES].

it is wasteful to use oil and gas for steam production purposes.²³² The Administration, however, generally has opposed additional government regulation of economic life,²³³ a view which is shared by influential legislative policy-makers in the field of energy.²³⁴ The Administration's many proposals for energy legislation have been structured to allow the "free market" to allocate goods and services and decide questions of individual energy use,²³⁵ the preferred vehicle to increased coal use being the pricing mechanism. It is intended that deregulation of coal's major competitors—oil and gas—will cause their prices to increase and thus make coal more attractive as a boiler fuel for steam generation purposes.²³⁶ To some degree, this appears to be happening already since, in apparent response to price differentials and supply reliability considerations, increasing numbers of utilities are planning to utilize coal in new powerplants.²³⁷ Industry witnesses at the hearings on S. 1777 also voiced support for the "free market" approach, which would allow for energy choices based on economic considerations and would avoid the panoply of legal and financial burdens that often accompany increased government regulation.²³⁸

On the other hand, some Congressional leaders are dubious about the value of the "pricing mechanism"²³⁹ and believe that integrated national planning and a regulatory approach will be necessary to solve the many problems associated with redirecting our energy reliance to coal.²⁴⁰ Indeed, there is a growing belief that the energy sector of the economy may be *sui generis*²⁴¹ and there is a question-

232. In his statement on S. 1777, FEA Administrator Frank Zarb noted that "while we vigorously support the basic goals of the bill, I have reservations about some of its detailed provisions and about its mechanisms of implementation." *Joint Hearings on S. 1777, supra* note 173, at 1671.

233. This position was restated recently by Paul MacAvoy, a member of the President's Council of Economic Advisers, who noted that "the considerable costs of regulation have been borne for too long," and that "the economic arguments for total deregulation are appealing, particularly in natural gas and transportation." *Weekly Energy Report*, Sept. 15, 1975, at 4.

234. See, e.g., *Hearings on President Ford's Energy Program, supra* note 184, at 44, 141.

235. *Id.* at 12.

236. *Id.* at 74-75.

237. See *Joint Hearings on S. 1777, supra* note 173, at 51. According to the National Coal Association, 48.2 percent of new utility capacity scheduled to come on line between 1975 and 1979 is coal-fired, while nuclear (32.5), oil (15.3) and gas (4.0) account for smaller shares of new capacity. *Id.*

238. *Id.* at 795.

239. See, e.g., *Hearings on President Ford's Energy Program, supra* note 184, at 2.

240. *Joint Hearings on S. 1777, supra* note 173, at 21-22.

241. See MATERIALS SHORTAGES, *supra* note 231, at 11. See generally D. SCHWARTZ, ENERGY

ing of the ability of the economic approach alone to meet the many problems associated with coal substitution in the next decade.²⁴²

In fact, for the last thirty years, there has not been a "free market" for energy resources; rather, there has been a hybrid system of regulation, incentives for special interests, and laissez faire.²⁴³ This system has not resulted in the optimal development of our domestic energy resources and, while this was not of major concern in the 1950's and 1960's, it has now become crucial to our national energy policy.

Coal has not been, and is not now, competing with oil or gas in a classic free market. Political realities make it questionable whether there will be deregulation of natural gas prices in the near future. History suggests that it is too early to predict whether oil will be subject to continuing regulatory constraints. In view of the many regulatory uncertainties affecting coal extraction and use, it is also questionable whether small price differentials will be sufficient to induce industry to choose coal over oil or gas. However, whether the "free market" or "regulatory" approach is finally adopted, in order to achieve this goal, a conscious national policy is needed to determine the role that coal should play in our national energy budget and to coordinate the myriad of laws and regulations governing its extraction and use to facilitate that end.

B. *Constraints to Increased Coal Substitution*

The United States has enormous reserves of coal, equal to one-fifth of the total world reserves.²⁴⁴ As shown above, in the wake of the embargo, both the President and congressional leaders have called for the virtual doubling of domestic coal production by 1985.²⁴⁵ However, witnesses at the hearings on S. 1777 questioned

CRISIS: THE MISSING LINK (1975).

242. *Joint Hearings on S. 1777, supra* note 173, at 1005.

243. *See A TIME TO CHOOSE, supra* note 7, at 7-11.

244. Until recently, the Department of Interior estimated that the United States possesses 3,200 billion tons of coal, of which 434 billion tons constituted a "demonstrated coal reserve base" (i.e., coal that was "minable with today's technology and economics"), FACS, *supra* note 14, at 3. As a result of expanded study and exploration, however, in October 1975, the Department's U.S. Geological Survey increased its estimate of total U.S. coal reserves to almost 4 trillion tons (3,968 billion), and decreased its estimate of readily recoverable reserves to 198 billion tons. *See Journal of Commerce*, Oct. 7, 1975, at 26.

245. The comprehensive congressional program on energy and the economy called for an increase of coal production from 695 million tons in 1975 (estimated production) to 1.4 billion tons by 1985. According to Senator Randolph, the program announced by President Ford in

whether adequate coal can be made available to support large-scale coal substitution in the near future, in view of the constraints dealt with below.²⁴⁶

Prospects for increasing coal substitution in the future hinge upon the coal industry's ability to attract the capital required to open new mines. Because of the large initial expenditures required and the long leadtimes necessary to recoup investment,²⁴⁷ needed capital will not be forthcoming unless there is an assured long-term demand for coal at prices high enough to encourage investment.²⁴⁸

The president of the National Coal Association, Carl Bagge, has stressed that coal has always been a risky investment, that demand has been subject to wide fluctuations, and that a production chart for the last 50 years resembles a "roller coaster."²⁴⁹ As mentioned earlier, in the past, these fluctuations were caused largely by direct competition for markets from newly developing fuels, such as oil, gas and nuclear energy. More recently, however, this situation has changed and coal development has been hampered not so much by direct competition from other fuels as by major uncertainties about government policies which affect the cost and demand for coal, such as those limiting its extraction and use, and by federal pricing policies.

Of course, every industry has doubts about long-term returns on investment and, as Justice Cardozo long ago observed, some uncertainty is endemic to all aspects of human intercourse that are touched by law.²⁵⁰ However, as Carl Bagge has pointed out, the uncertainties about future regulations affecting coal use are so numerous as to deter investment in new mines, and they have "been passed along to equipment manufacturers, coal hauling railroads

his 1975 State of the Union Message would require production of 1.1 billion tons by 1985. *Joint Hearings on S. 1777, supra* note 173, at 2.

246. *Id.* at 1002, 1012, 1014.

247. "A coal mine represents a 20 to 25 year investment which must be recovered, plus a return, over that period." FACS, *supra* note 14, at 10.

248. *Id.* See also PIB, *supra* note 20, at 57.

249. *Joint Hearings on S. 1777, supra* note 173, at 37.

250. See B. CARDOZO, *GROWTH OF THE LAW* 19 (13th ed. 1966) (quoting in part from Aristotle):

Overemphasis of certainty may carry us to the worship of an intolerable rigidity. If we were to state the law today as well as human minds can state it, new problems, arising almost overnight, would encumber the ground again. "As in other sciences, so in politics, it is impossible that all things should be precisely set down in writing; for enactments must be universal, but actions are concerned with particulars."

and the whole complex involved in expanding coal industry production and transportation."²⁵¹

First and foremost, industry witnesses at the S. 1777 hearings stressed that uncertainties about the costs of constantly changing environmental regulation are a major constraint to making a decision to burn coal. Since the late 1960's, the people of the United States have focused an extraordinary amount of attention on newly-perceived environmental problems, and Congress has responded with a flood of legislation. For example, 189 public laws were enacted during the 92d Congress to protect the environment and natural resources; this represents almost one-third of all legislation enacted by that Congress.²⁵²

As this article is being written, the laws that most affect coal substitution are being changed again, for Congress is working on far-reaching amendments to tighten the Clean Air Act.²⁵³ These include provisions requiring the "prevention of significant deterioration" of air quality²⁵⁴ and the use of "best available control technology,"²⁵⁵ which industry perceives as prohibiting or substantially increasing the cost of coal utilization and intensifying the "scrubber" controversy.²⁵⁶ Other amendments under consideration, such as those which would penalize sources that failed to meet ambient air quality standards by the dates required in applicable SIP's,²⁵⁷ also appear to fall most heavily on coal burning plants.²⁵⁸ In an amendment that can only confuse those who seek to ascertain a consistent direction in national policy, Congress is considering changing the rules concerning ESECA compliance date extensions. Although ESECA encourages coal burning by authorizing federal preemption of non-health related clean air standards, the pending bills would end this arrangement and if enacted could void any compliance extensions that EPA may issue—it has issued none to date for FEA orders since June 30, 1975—under the ESECA program before the amendments

251. *Joint Hearings on S. 1777, supra* note 173, at 54.

252. Dreyfus & Grundy, *Influence of the Energy Crisis Upon the Future of Environmental Policy*, 3 ENVIRON. AFFAIRS 253, 271 n.30 (1974).

253. S. 3219, 94th Cong., 2d Sess. (1976) [hereinafter cited as S. 3219]; H.R. 10498, 94th Cong., 2d Sess. (1976) [hereinafter cited as H.R. 10498].

254. S. 3219, *supra* note 253, § 5; H.R. 10498, *supra* note 253, § 108.

255. S. 3219, *supra* note 253, § 6.

256. *Weekly Energy Report*, Jan. 5, 1976, at 5.

257. S. 3219, *supra* note 253, § 9(b); H.R. 10498, *supra* note 253, § 104. *See also id.* § 105.

258. *See Senate Clean Air Act Hearings, supra* note 196, at 193-95, 197-98.

take effect.²⁵⁹ Upon convening in January of 1977, the 95th Congress will consider a conference report regarding these bills.²⁶⁰

In a related development, more uncertainty was injected into the coal demand picture when EPA revealed that it is investigating previously unsuspected health effects of coal-related substances, including "fine particulates," "fugitive dust," and sulfates, and might issue regulations requiring coal users to control these emissions.²⁶¹

The continuing uncertainty about coal and the environment, and its inhibiting effect on decisions to use coal, is well illustrated by the "scrubber" controversy. Flue gas desulfurization (FGD), or "scrubbing" equipment, is intended to remove sulfur dioxide (SO₂) from coal emissions and, if effective, would permit utilities and major installations to burn available high sulfur coal without violating air quality regulations for SO₂. In the June 1974 debates leading to passage of ESECA, Senator Baker questioned the reliability of scrubbers, observing that they experience problems of "scaling and clogging" and compound environmental problems by generating large amounts of waste sludge. He expressed the hope that EPA would not order powerplants to install scrubbers before they are proven "reliable, efficient and cost effective."²⁶² After additional study, the EPA, in May 1975, went on record before the Senate as stating that scrubbers had been demonstrated to be reliable, that the basic technological problems associated with FGD systems had been solved or were within the scope of current engineering and that FGD systems could be applied at reasonable costs.²⁶³

However, EPA Administrator Russell Train has admitted that scrubbers themselves impose an energy penalty, equal to 6 percent of emissions, on plants that use them, and that they would add as

259. The Senate amendment would end ESECA extensions by requiring new applications from all holders of extensions and by predicating the grant of new extensions on factors other than those applicable to ESECA order recipients. S. 3219, *supra* note 253, §§ 9(a), 15. The House amendments would permit any outstanding compliance date extensions for coal conversion to continue, but would terminate the central feature of ESECA—federal preemption of "overkill" SIP standards that discourage coal burning even where it does not violate health-related standards—by requiring that future extensions be granted only after the governor of the state in which the source is located gives his consent. H.R. 10498, *supra* note 253, § 106.

260. H.R. REP. No. 1742, 94th Cong., 2d Sess. (1976). The current text of the bills may be found at 122 CONG. REC. 10180-217 (daily ed. Sept. 16, 1976).

261. *Senate Clean Air Act Hearings*, *supra* note 196, at 144, 158, 166, 177.

262. 120 CONG. REC. 10426 (daily ed. June 12, 1974).

263. *Senate Clean Air Act Hearings*, *supra* note 196, at 194.

much as 20 percent to utility customers' bills. Illustrating EPA's view of "reasonable" costs, Mr. Train also admitted that the average cost of installing a scrubber on a 1000 megawatt powerplant would be approximately \$100 million, while construction of an entire new plant of this size would cost only \$300 million.²⁶⁴

In August 1975, the Court of Appeals for the Third Circuit held that scrubbers had not been demonstrated to be reliable or technologically feasible, that much of EPA's supporting data on scrubbers was itself unreliable, and that EPA had acted arbitrarily and capriciously by ordering their purchase and installation on a new coal-fired powerplant without taking into account the costs.²⁶⁵ While these issues remain unresolved and the EPA and industry are conducting further studies, it is widely believed in industry that the "best available control technology" amendments being considered by Congress will essentially force installation of costly scrubbers on plants that choose to burn coal, whether or not their emissions meet ambient air quality standards without scrubbers.²⁶⁶

Uncertainties about future environmental restrictions on coal extraction also discourage investment in that industry. Although 30 states have passed legislation to control problems from deep and surface mining, the lack of uniformity has led environmentalists, industry and government to request a workable national program.²⁶⁷ On May 5, 1975, Congress passed the "Surface Mining Control and Reclamation Act of 1975," which would have established minimum federal reclamation standards and a system of federal permits, and would have levied a fee on each ton of coal mined for use in a "reclamation fund" for orphan (abandoned) lands.²⁶⁸ On May 20, 1975, the President vetoed the bill, citing its adverse effects on jobs, consumers' utility bills, coal production and the oil import situation.²⁶⁹ At this writing, Congress is considering new surface mining legislation.²⁷⁰

The potential for coal development under federal mineral leases

264. *Id.* at 299-300, 302.

265. *Duquesne Light Co. v. EPA*, 522 F.2d 1186 (3d Cir. 1975). *But see* *Union Electric Co. v. EPA*, 96 S. Ct. 2518 (1976) (economic or technological infeasibility may not be considered by EPA Administrator or federal courts on review of SIP); *West Penn Power Co. v. Train*, 538 F.2d 1020 (3d Cir. 1976).

266. *Weekly Energy Report*, Jan. 5, 1976, at 5.

267. *FACS*, *supra* note 14, at 11.

268. H.R. 25, 94th Cong., 1st Sess., 121 CONG. REC. 7455 (daily ed. May 5, 1975).

269. 121 CONG. REC. 4405 (daily ed. May 20, 1975).

270. H.R. 9725, 94th Cong., 1st Sess. (1975) (Surface Mining and Control Act of 1975).

also breeds uncertainty, for investors that anticipate the ready availability of low-cost leases on coal-rich federal lands will withhold investment in new mines elsewhere. While the federal government owns approximately one-half of all coal lands in the contiguous United States and has statutory authority to lease vast rich holdings to industry for development and production,²⁷¹ a combination of environmental lawsuits and production problems under the Interior Department's regulations has led to a moratorium on new coal leasing and development of federal lands. The Ford Administration has actively attempted to resolve these problems and Congress is considering legislation to meet the goals of substantially increased coal production that were enunciated by President Ford.²⁷²

Finally, and perhaps most significantly, investment in coal production is inhibited by uncertainties about federal policies toward competing fuel sources. During the last decade, the federal government has influenced the price of petroleum by granting percentage depletion allowances and other tax incentives, and by subjecting oil to quotas, tariffs, price controls and allocations. Even after the passage of EPCA, it is unclear what actions the government will take that may affect the availability and price of petroleum. Similarly, it is too early to predict the outcome of efforts to deregulate the price of interstate natural gas, which many believe would result in increased gas prices, thus making coal a more attractive boiler fuel. In addition, after two decades of favored federal treatment, nuclear power is suffering from problems of regulatory lag, rising costs and citizen protest, and it is questionable whether the nuclear industry can expand to meet earlier optimistic projections for low cost electrical generation.

In this atmosphere of continuing uncertainty, it is unclear whether and how the nation will make greater use of its most abundant fossil fuel resource. It is clear, however, that the leadtimes needed to develop new surface mines and deep mines require that investment decisions must be made now if the nation is to meet its goal of large-scale coal substitution in the early 1980's.

271. 30 U.S.C. §§ 181-287 (1970), *as amended* (Supp. V, 1975) (originally enacted as Mineral Lands Leasing Act of 1920, ch. 85, 41 Stat. 437).

272. The Federal Coal Leasing Amendments Act of 1975, S. 391, 94th Cong., 1st Sess., was passed by the Senate, 121 CONG. REC. 14573 (daily ed. July 31, 1975) and is being considered by the House of Representatives.

IV. CONCLUSION

As shown above, efforts to substitute coal for petroleum and natural gas—so that the latter fuels may be redirected to higher, non-steam boiler uses—face a formidable array of constraints. On the one hand, technical problems involving long leadtimes and careful logistical coordination must be tackled by producers and consumers, and investments must be made well in advance of the actual extraction or use of coal. On the other hand, the wide variety of regulations affecting coal use and production, and national policies governing the price of competing fuels, are in a state of flux and the resultant uncertainties deter decisions to invest in coal use or production.

While the recent Energy Policy and Conservation Act goes far toward establishing a national oil policy, and other legislation grapples with long-range issues surrounding natural gas use, the nation does not have an integrated, coherent coal policy that harmonizes the congeries of laws governing the production and use of our most abundant fossil-fuel resource. Piecemeal environmental regulation, surface mining legislation and federal coal leasing policies all must be dealt with and harmonized if we are to have large-scale coal substitution by the 1980's.

S. 1777 is ambitious legislation. The extensive hearings and the issues identified have provided the impetus for extensive analysis of the potential for large-scale substitution of coal. However, the bill's economic and regulatory provisions and the effects of large-scale coal substitution on the environment may be more than the nation is willing to pay to achieve greater energy independence. After analysis and debate, it may be concluded that the more limited ESECA program, together with market forces, will bring coal use to a satisfactory level in the nation's energy budget.

It is clear, however, that since future coal substitution efforts will entail long leadtimes, decisions must be made *now* if the nation is to rely on increased coal use in the future. In determining the price we are willing to pay, the issue is, as stated by Senator Randolph at the beginning of this article, one of the extent and the strength of the national commitment to increased coal use. The answers given now by the Congress and Administration to the issues raised by S. 1777 and other coal-related programs will do much to determine the use of the coal substitution option in the next decade. For this reason, it is essential that we now develop a national policy for coal equivalent in scope to that provided for oil by EPCA.