COAL CONVERSION AND THE POWERPLANT AND INDUSTRIAL FUEL USE ACT OF 1978

Faced with the uncertain supply and spiraling costs of imported oil and domestic natural gas, Congress enacted the National Energy Act (NEA) in 1978. NEA's purpose is to reduce dependence on these sources of energy by encouraging the use of more abundant domestic fuels, development of solar and renewable energy resources, and conservation measures.

The Powerplant and Industrial Fuel Use Act of 1978 (PIFUA) is one of the statutes contained in NEA. The purpose of PIFUA is to encourage greater national energy self-sufficiency by conserving domestic supplies of natural gas and reducing the need for imported petroleum while fulfilling applicable environmental requirements. To achieve this purpose PIFUA requires certain new and existing electric powerplants and major fuel burning installations to switch from gas and oil to coal and other alternate fuels as their primary energy sources. The Department of Energy (DOE) estimates that by 1985 coal conversion alone will reduce the need for imported oil by 300,000 barrels a day.

This Development discusses the provisions of PIFUA that may affect environmental quality and briefly reviews the environmental hazards accompanying the production and combustion of coal. It concludes that PIFUA itself will not cause serious degradation of the environment.

I

PROVISIONS OF PIFUA

Prior to enactment of PIFUA, the Federal Government adminis-
tered a coal conversion program under the Energy Supply and Environmental Coordination Act of 1974 (ESECA), but its administration was cumbersome, slow, and ineffective. The Act required DOE to identify each facility it proposed to convert to coal, and to make three findings before it could prohibit a powerplant from burning oil or gas. DOE had to find that each plant conversion to coal combustion would be practicable and consistent with the purposes of ESECA, that the necessary coal and coal transportation facilities would be available, and that the reliability of utility service would not be impaired. In addition to these cumbersome review procedures, DOE was faced with unduly intricate regulations, an unworkable managerial structure, and internal conflicts, all of which added to delay. As of July 1977, the program had "yet to save a single drop of oil or cubic foot of natural gas."

In contrast to ESECA, PIFUA contains across-the-board prohibitions on the use of gas and oil by new facilities. The Act limits exemptions, placing the burden of justifying an exemption with the facility. The Act also employs a streamlined procedure for ordering existing facilities to convert to coal.

**A. Prohibitions**

With certain exceptions, PIFUA prohibits the use of gas or oil as a primary fuel source for new electric powerplants and certain new major fuel burning installations. The Act defines new powerplants and installations to include both facilities for which construction or acquisition is initiated after passage of the Act and facilities for which

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8. ESECA refers to "any" powerplant or fuel burning installation. See, e.g., 15 U.S.C. §§ 792(a)-792(c) (1976). DOE interpreted the Act to require separate identification of each plant. Committee Print, supra note 2, at 20.
11. Id. at 179, U.S. CODE CONG. & AD. NEWS 8619.
12. 42 U.S.C.A. §§ 8311, 8312 (West Supp. 1978). PIFUA defines electric powerplants as "any stationary electric generating unit, consisting of a boiler, a gas turbine, or a combined cycle unit, which produces electric power for purposes of sale or exchange." The facility must consume fuel at a rate of at least 100 million Btu's per hour (or, if combined with additional units, an aggregate of at least 250 million Btu's per hour) and not be either a cogeneration facility or subject to Nuclear Regulatory Commission jurisdiction. Id. § 8302(a)(7). PIFUA defines major fuel burning installations as "a stationary unit consisting of a boiler, gas turbine, combined cycle unit, or internal combustion engine" that consumes fuel at a rate of at least 100 million Btu's per hour (or, if combined with additional units, an aggregate of 250 million Btu's per hour) and is not an electric power plant or used solely in the production, gathering, transmission, storage, or distribution of gases or liquids. Id. § 8302(a)(10).
construction began between April 20, 1977, and passage of the Act, unless DOE finds that compliance would be technically or financially infeasible.\textsuperscript{13}

PIFUA further grants DOE the authority to require existing coal-capable\textsuperscript{14} powerplants and installations to convert to coal or alternate fuels.\textsuperscript{15} DOE may order facilities, individually or by category,\textsuperscript{16} to convert to coal or alternate fuels if it finds that conversion is financially feasible and that the facility has the technical capability to convert without substantial physical modification or reduction in its capacity.\textsuperscript{17} PIFUA also restricts the use of natural gas by existing powerplants. Existing plants that used natural gas as a primary energy source in 1977 may continue to use gas until 1990, but in no greater proportion than the average quantities used in the years 1974 through 1976.\textsuperscript{18} After January 1, 1990, PIFUA prohibits all plants from using natural gas as a primary energy source.\textsuperscript{19}

B. Exemptions

PIFUA authorizes both temporary and permanent general exemptions to its broad prohibitions upon a demonstration that, despite "diligent good faith efforts," a facility cannot use coal or alternate fuels due to site limitations, inadequate or unreliable supplies of alternate fuels, or applicable environmental requirements.\textsuperscript{20} Applicable environmental requirements include any standard or requirement established by federal or state laws applicable to the emission of environmental pollutants or solid waste residue, as well as any other standard established by the Clean Air Act, the Clean Water Act, the Solid Waste Disposal Act, or the National Environmental Policy Act of 1969.\textsuperscript{21} While this definition also includes any subsequent federal or state legislation, it does not cover local requirements that are more stringent than either the federal or state standards.\textsuperscript{22}

Although the Environmental Protection Agency (EPA) is required

\textsuperscript{13} Id. § 8302(a)(8), (11).
\textsuperscript{14} A coal-capable unit is one originally designed to burn coal but that is now burning oil or natural gas. Committee Print, supra note 2, at 21.
\textsuperscript{15} 42 U.S.C.A. §§ 8341(b), 8342(a) (West Supp. 1978).
\textsuperscript{16} Id. § 8343. Although the Act does not define "categories," the Secretary of Energy must consider such factors as the size, location, age, and intermittent use of the plant or installation when issuing category prohibitions. Id. § 8343(b)(3).
\textsuperscript{17} Id. §§ 8341(b), 8342(a).
\textsuperscript{18} Id. § 8341(a)(3)(A). Primary energy source refers to all fuel except start up, testing, flame stabilization, control-use, and fuel used to prevent or alleviate power outages. Id. § 8302(a)(15).
\textsuperscript{19} Id. § 8341(a)(1).
\textsuperscript{20} Id. §§ 8321(a), 8322(a), 8351(a), 8352(a).
\textsuperscript{21} Id. § 8302(a)(17).
\textsuperscript{22} S. REP. NO. 988, 95th Cong., 2d Sess. 71 (1978).
by the Clean Air Act to oppose coal conversions that would cause a violation of the ambient air quality standards, EPA would not necessarily oppose increased coal use in every locality within an air quality control region that is in violation of the air quality standards.\textsuperscript{23} Rather, EPA will examine the emissions from each proposed facility or conversion with respect to the pollution levels in only that part of the region affected by the facility.\textsuperscript{24} EPA would allow placement of a new facility or conversion in a nonattainment air quality region if the facility is placed in a locality within that region that is meeting the ambient air standards.\textsuperscript{25} This flexibility, coupled with EPA's belief that nearby alternative locations will "frequently" be available,\textsuperscript{26} should allow increased coal use in nonattainment regions.

In addition to the general exemption, the Act also contains miscellaneous exemptions. These exemptions are available when a facility lacks adequate financing, the manufactured product or the manufacturing process requires gas or oil, utility service may be less reliable with coal, or the facility has plans to use synthetic fuels, mixtures of coal and natural gas or oil, or other innovative technologies.\textsuperscript{27} Reflecting a concern for the environment, DOE may exempt a facility that is unable to burn coal "due to certain state and local requirements."\textsuperscript{28} This provision covers situations outside the scope of the "applicable environmental requirements" exemption;\textsuperscript{29} it allows DOE to exempt a facility if local environmental standards are more stringent than federal or state requirements.\textsuperscript{30} The granting of this exemption is discretionary, however, allowing DOE to ignore local regulations enacted solely to evade the policies of PIFUA by precluding the use of coal or alternate fuels.\textsuperscript{31}

II

THE ENVIRONMENTAL HAZARDS OF INCREASED COAL USE

PIFUA seems to require a substantial increase in the use of coal. Estimates indicate that coal consumption will increase by 200 million tons per year by 1985 as a direct result of the implementation of NEA.\textsuperscript{32} This increase requires close examination of the substantial en-

\begin{itemize}
\item \textsuperscript{24} Id.
\item \textsuperscript{25} Id.
\item \textsuperscript{26} Id.
\item \textsuperscript{27} 42 U.S.C.A. §§ 8321(b)-(e), 8322(b)-(j), 8351(b)-(h), 8352(b)-(1) (West Supp. 1978).
\item \textsuperscript{28} Id. §§ 8322(b), 8352(b).
\item \textsuperscript{29} S. REP. No. 988, 95th Cong., 2d Sess. 76-77 (1978).
\item \textsuperscript{31} S. REP. No. 988, 95th Cong., 2d Sess. 77 (1978).
\end{itemize}
environmental hazards associated with all stages of coal use—extraction, transportation, and combustion.

Coal extraction seriously disturbs land surfaces through mining, erosion, and solid waste disposal.\textsuperscript{33} The resulting runoff can pollute surface and ground water.\textsuperscript{34} The need for increased coal transportation will require expansion of railroad capacity and greater use of the nation's waterways by barges and ships.\textsuperscript{35} The extent of the ensuing damage to land and aquatic ecosystems is unclear.\textsuperscript{36}

In addition to producing a significant amount of solid waste,\textsuperscript{37} the combustion of coal releases a variety of atmospheric pollutants, including compounds of sulfur and nitrogen, particulates, trace elements, hydrocarbons, and carbon dioxide.\textsuperscript{38} Although the Clean Air Act regulates the emission of sulfur oxide, it ignores sulfates.\textsuperscript{39} Sulfates, often transported great distances in the air, contribute to the growing problems of acid rain.\textsuperscript{40} Nitrogen oxides contribute to both acid rain and photochemical smog.\textsuperscript{41} While electrostatic precipitators, or "scrubbers," can control most particulate emissions, very small particles still escape.\textsuperscript{42} These minute particles may serve as condensation nuclei for toxic materials emitted from the smokestack, permitting the toxic chemicals to penetrate deeply into the lungs.\textsuperscript{43} The potential climatic effects of carbon dioxide also raises an environmental concern. Recent studies warn of the potential "greenhouse" effect resulting from increasing levels of carbon dioxide in the atmosphere.\textsuperscript{44} Switching from gas or oil to coal exacerbates this problem because coal combustion produces seventy percent more carbon dioxide per unit of energy than does gas or oil.\textsuperscript{45}

\footnotesize{from natural growth in supply and demand. \textit{Id.} But see notes 53-55 \textit{infra} and accompanying text.


34. \textit{Id.}
36. \textit{Id.}
37. \textit{Id.} at 311.
38. \textit{Environmental Challenges}, \textit{supra} note 33, at 17.
39. \textit{Id.} at 21, 28.
40. \textit{Id.} at 21.
41. \textit{Id.} at 28-29.
42. \textit{Id.} at 18.
43. \textit{Id.}
44. \textit{Id.} at 35-38.
45. \textit{Id.} at 36.
Assessing the environmental impact of conversion to coal is an uncertain venture. Although PIFUA's firm commitment to protecting the environment by incorporating all applicable environmental requirements is reassuring, this commitment is only as effective as the underlying environmental legislation. Current environmental requirements fail to control satisfactorily several known hazards, such as sulfates, as well as several potential hazards, such as the "greenhouse" effect.

Equally disturbing are suggestions that conversion to coal and compliance with environmental standards may not be mutually achievable goals. Industry representatives maintain that federally required coal conversion "runs smack into" the demands of the Clean Air Act requirements. Whether the Act can withstand increased attacks in the future is unclear.

Despite these pressures, PIFUA by itself will not cause severe environmental degradation. First, a coal facility equipped with "best available control technology"—currently interpreted to require the use of an electrostatic precipitator—will satisfy the demands of the Clean Air Act. EPA claims that burning coal cleanly will not interfere with conversion efforts. The existence of adequate technology to permit compliance with current environmental standards and the environmental bases for exemptions from PIFUA's coal conversion requirement indicate that significant environmental degradation is not a likely consequence of the Act.

Second, the environmental impacts resulting from PIFUA will be
only marginally different than if the Act had not been adopted. EPA estimates that the nationwide level of nitrogen oxide and sulfur oxide will be only one to two percent greater under a federal policy of coal conversion than in the absence of such a policy because the majority of the new coal use mandated by PIFUA would have occurred anyway. PIFUA simply reinforces the existing market pressure to use coal instead of gas or oil in new plants. Prior to the Act, utilities were planning to add little gas or oil capacity between now and 1985 and none after 1985, apparently because of soaring prices and uncertain supplies of these fuels.

It is not likely that PIFUA will force many otherwise unplanned conversions of existing facilities. Industry figures indicate that as of 1976, less than fifteen percent of the total gas and oil capacity could be converted to coal without complete physical reconstruction; the remaining eighty-five percent is not subject to PIFUA's conversion requirement. Finally, utilities and industry are voluntarily converting some existing coal-capable plants in response to the price advantage gained by using coal, rather than in response to PIFUA.

CONCLUSION

In large part, the Act does little more than reinforce market pressures that have already forced utilities and industry to convert to coal. It makes explicit the requirement that these conversions conform to applicable environmental requirements. The increased use of coal, however, presents hazards beyond the scope of current environmental standards, and by establishing a national policy favoring coal conversion, PIFUA provides more support for industry's attempt to weaken air pollution standards.

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