ANTITRUST POWERS OF THE AEC

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I. Introduction

The field of atomic energy presents legal problems which are unique both in their nature and in their magnitude. Because of this unique character, an historical approach to these problems may be more fruitful than in those areas of the law which have a greater precedential background. The singular nature of atomic energy problems was rather dramatically stated in the first court decision dealing with the problem of monopoly in atomic energy when the court began its opinion by stating: "On August 6, 1945 some four square miles of a city were destroyed by a blast from a bomb with the explosive force of 20,000 tons of TNT."\(^1\)

This article is directed toward an interpretation of the Atomic Energy Act of 1954\(^2\) as it concerns the authority of the AEC to consider the antitrust implications incident to its licensing functions. This inquiry will include an examination of the respective responsibilities of the AEC and the Justice Department in meeting the anti-competitive possibilities of the nuclear industry.

The article's approach will be twofold: (1) to sketch the general background of the original monopoly provisions of the Atomic Energy Act of 1946\(^3\) and the changes in Atomic Energy Act of 1954, and (2) to compare the actual industrial and legal developments in this area since 1954 to those contemplated at the time of passage of the 1954 Act in order to clarify some of the apparent contradictions and to suggest a more effective legal approach to these problems.

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II. Historical Background

A. The 1946 Act and the Baruch Plan

1. The International Context

The Atomic Energy Act of 1946 became law on August 1, 1946. Because the international aspects of atomic energy regulation were discussed in considerably greater depth during that year than were the domestic aspects, reference to the international proposals in many instances provides the clearest insight in determining the intentions underlying the domestic legislation. It is clear that, in broad outline, this domestic legislation concerning control of atomic energy was coordinated with the international proposals of the United States that had been submitted by Mr. Bernard Baruch to the United Nations Atomic Energy Commission in 1946.

The United States' international proposals, known as the Baruch Plan, provided for a United Nations International Atomic Development Authority (ADA) possessing quite comprehensive powers. The authority of the ADA was to include ownership of all reactors within member nations, except small research reactors.

The international proposals made it clear that all facilities for production of electrical power from nuclear fuels would be the property of the ADA. The United Nations Atomic Energy Commission recommended that:

When the technique of the industrial utilization of atomic power has been sufficiently developed, the international agency within the limits imposed by security should make power available on an equitable basis to any nation which may require it.

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4B. Bechhoefer, Post-War Negotiations for Arms Control 41-82 (1961).
7See Growth Of A Policy, supra note 6, at 42.
8Id. at 94.
This position was taken because the reactors would produce plutonium or U-233, both of which are weapons materials considered "too dangerous for national exploitation." All reactors would be owned by the Atomic Energy Commission until they were turned over to the ADA. This ownership and control arrangement provoked much criticism. Some thought that the international proposals of the Acheson-Lilienthal Report, which was the basis of the Baruch Plan as well as the domestic legislation, were merely a public power scheme.

At one point in the United States' preparation of the Baruch Plan, a licensing procedure, including certain safeguards, was recommended to govern reactors capable of producing weapons materials. This proposal was emphatically rejected. The Soviet suggestions for national ownership of reactors with international safeguards were likewise rejected. Not until 1952 did the United States acknowledge the possibility of an international inspection system in lieu of international ownership of the production facilities.

2. Domestic Legislation

The original May-Johnson Bill and the later McMahon Bill, which developed into the Atomic Energy Act of 1946, caused bitter debate on many topics, including the role of the military in the control of atomic energy. However, the proper role of private enterprise in the field of nuclear power was one issue that received scant attention. The attention that it did receive led to the development of rather ironic positions:

The McMahon Bill's provisions for controlling materials had even more critical implications. Within the realm of atomic energy, the bill seemed to contradict some of the

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9 Id. at 42.
10 At that time, there were only three plutonium production reactors at Hanford.
11 See R. Hewlett, supra, note 5, at 411.
12 See L. Lilienthal, supra note 6, at 40.
13 See R. Hewlett, supra, note 5, at 571.
14 Id. at 575.
15 See B. Bechhoefer, supra note 4, at 61, and R. Hewlett, supra note 5, at 571.
most sacred traditions of the American economic system. That the bill created a state monopoly of atomic energy was unusual enough. What was even more surprising was that this did not seem to offend the conservative majority on the committee. Newman later wrote of "the curious paradox that conservative men, actuated by the most profoundly conservative of all emotions, the desire to achieve security, were forced to resort to the radical expedient of state socialism."  

However, the free enterprise system was not without its advocates:

The classic approach to free enterprise was to minimize government controls. George E. Folk, speaking for the National Association of Manufacturers, could not reconcile Sections 4 and 5 with the stated purpose of the bill "to insure the broadest possible exploitation of the field" of atomic energy. If the bill was to fulfill the stated policy of "strengthening free competition among private enterprises so far as practicable," Folk advocated that "the Commission should be given only such authority as is, or may become, conducive to public safety and public health, with the least possible Government interference."  

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18See R. Hewlett, supra note 5, at 493-494.

Section 5 made the commission sole owner of all source materials after mining, all fissionable materials, all devices for producing fissionable materials, and all atomic weapons and weapon parts. The commission would acquire all existing materials and devices from other Government agencies by transfer and from companies or individuals by purchase or condemnation. There were similar provisions in the May-Johnson bill, but S. 1717 went further in one respect. It declared that the commission should be "the exclusive producer of fissionable materials, except production incident to research and development activities." § 4 provided that existing production contracts could continue in effect for not more than one year, by which time the commission would "arrange for the exclusive operation of the facilities employed in the manufacture of fissionable materials by employees of the Commission."

19id.
The early discussions of domestic legislation largely ignored those areas beyond weapons and national security. Indeed, the impetus to include legislative provisions concerning peaceful uses of the atom arose from the efforts of the late James R. Newman long after the introduction of the original May-Johnson bill. Newman and Bryan Miller, a former attorney for the Office of Price Administration, reasoned that:

The nation must ... develop atomic energy not only for military security, but also to improve public welfare, raise the standard of living and strengthen free competition in private enterprise.

Moreover, the international negotiations provided the most comprehensive treatment of the criteria to govern peaceful uses of atomic energy. A Department of the State Memorandum stated that:

"The Control of Dangerous" activities should be carried out to the greatest extent

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20 Newman became an adviser to Senator McMahon late in October 1945.
21 Indeed, the original suggestion for a preambular reference to peaceful uses came from Mr. Benjamin V. Cohen, Counsel, of the State Department. See R. Hewlett, supra note 5, at 417.
22 Id. at 441.
23 On June 14, 1946, in his initial speech to the U.N. Atomic Energy Commission, Mr. Baruch described the peaceful uses as follows:

**Non-Dangerous Activities.** A function of the Authority should be promotion of the peacetime benefits of atomic energy.

Atomic research (except in explosives), the use of research reactors, the production of radioactive tracers by means of non-dangerous reactors, the use of such tracers, and to some extent the production of power should be open to nations and their citizens under reasonable licensing arrangements from the Authority. Denatured materials, whose use we know also requires suitable safeguards, should be furnished for such purposes by the Authority under lease or other arrangement. Denaturing seems to have been overestimated by the public as a safety measure.

**Definition of Dangerous and Non-Dangerous Activities.** Although a reasonable dividing line can be drawn between dangerous and non-dangerous activities, it is not hard and fast. Provision should, therefore, be made to assure constant reexamination of the questions and to permit revision of the dividing line as changing conditions and new discoveries may require.
possible through direct operation by the Authority. In its primary purpose of preventing illicit use of fissionable materials, the Authority can do this most certainly, most easily, and with least interference with political institutions and industrial operations if it is the sole manufacturer and owner of such fissionable materials.

... The Authority would thus have control of the locations of primary production plants and of any stockpiles of materials.... With the sole right to manufacture in the Authority's hands, "any attempt by others to carry on such operations, or to seize the Authority's facilities, whatever the announced intent, would, of itself, constitute a grave violation."

The Atomic Energy Act of 1946, like the Baruch Plan, differentiated between dangerous uses which were prohibited and

Those present at the hearings seemed to agree that extraordinary Government controls were justified, but was it necessary to give the Government sole right of ownership and to go so far as to require operation of the plants by Government employees? That depended upon how one interpreted the purposes of control. One aim was to keep atomic energy firmly under the Government's thumb until international controls were established. A second was to prevent the atomic revolution from swamping the free enterprise system. Virtually all the controversy occurred in the second context.

Operations of Dangerous Activities. Any plant dealing with uranium or thorium after it once reaches the potential of dangerous use must be not only subject to the most rigorous and competent inspection by the Authority, but its actual operation shall be under the management, supervision, and control of the Authority. See GROWTH OF A POLICY, supra, note 6 Appendix 13 at 145. [Emphasis added].

As a part of the background and evolution of a possible role for private power, it should be pointed out that the first Chairman of the AEC was Mr. David Lilienthal, the head of TVA, the chief proponent of public power. In 1947, when the AEC appointed its first Industrial Advisory Committee to advise on increased participation by industry in atomic energy, Mr. Lilienthal was initially shocked by the designation of John C. Parker, a representative of the Association of Edison Illuminating Companies, and Walker Cisler of Detroit Edison as members of the Committee on the ground that private power had no interest or concern with nuclear power. JOURNALS OF DAVID E. LILIENTHAL, supra note 6, at 245.

peaceful uses which could be licensed. While section 4 of the Atomic Energy Act of 1946 prohibited private ownership of reactors,\textsuperscript{25} section 7 of the Act provided procedures for the licensing of "utilization of atomic energy" (e.g. isotope utilization, irradiation), although not for its private production or utilization in reactors.\textsuperscript{26} Section 7(b) made a finding by the Commission that a peaceful "manufacture, production, export or use" had a "practical value" a prerequisite to the issuance of a license.\textsuperscript{27} After the procedural prerequisites of section 7(b) have been met, section 7(c) stated that the Commission was authorized to issue licenses for such uses on a "non-exclusive basis," subject to the limitation that:

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\ldots \text{Where activities under any license might serve to maintain or to foster the growth of monopoly, restraint of trade, unlawful competition, or other trade position inimical to the entry of new, freely competitive enterprises in the field, the Commission is authorized and directed to refuse to issue such license or to establish such conditions to prevent these results as the Commission, in consultation with the Attorney General, may determine. The Commission shall report promptly to the Attorney General any information it may have with respect to any utilization of fissionable material or atomic energy which appears to have these results.\ldots} \textsuperscript{28}
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\textsuperscript{25}42 U.S.C. § 1808 (1946).
\textsuperscript{26}42 U.S.C. § 1807 (1946).
\textsuperscript{27}42 U.S.C. § 1807 (1946).
\textsuperscript{28}Section 7 states further:

(c) \textit{Issuance of Licenses}.—After such ninety-day period, unless hereafter prohibited by law, the Commission may license such manufacture, production, export, or use in accordance with such procedures and subject to such conditions as it may be by regulations establish to effectuate the provisions of this Act. The Commission is authorized and directed to issue licenses on a nonexclusive basis and to supply to the extent available appropriate quantities of fissionable material to licensees (1) whose proposed activities will serve some useful purpose proportionate to the quantities of fissionable material to be consumed; (2) who are equipped to observe such safety standards to protect health and to minimize danger from explosion or other hazard to life or property as the
Possible monopolistic control of a revolutionary application of atomic energy was the underlying motivation of the licensing restrictions of Section 7:

The counterapproach to free enterprise was to inhibit monopolies. *Specifically, this meant keeping Manhattan District contractors from cornering atomic energy technology and exploiting its civilian uses.* Newman and Miller had criticized the May-Johnson bill for providing inadequate protection against this threat. They had emphasized the antimonopoly theme in drafting the McMahon bill, and no member of the committee had yet objected publicly to this feature.

What stirred the committee, however, to advocate unprecedented Government intervention in the economic process was the anticipation of substantial if not spectacular innovations in nonmilitary uses of atomic energy... Who would be sure that someone would not invent a pill which could be dropped in a pail of water to heat a house or even a community for a year? Could the Government permit such a revolutionary invention to remain in the hands of a single individual or company...

Section 7 clearly reflected the "pill in the pail" philosophy. Basically, the section prohibited manufacturing or operating any de-
vice utilizing atomic energy or fissionable material without a license from the Commission. To this provision, Newman and Miller attached two long paragraphs describing the procedures for licensing civilian uses [section 7(b) procedural prerequisites]. . . . In case someone contrived a “pill in the pail” invention, Congress would presumably have time to pass appropriate legislation before the Commission issues a license.29 [Emphasis added].

Moreover, since the production of electrical power through nuclear reactors was deemed in 1946, and for a number of years thereafter, to be a use of atomic energy that could not be licensed, sections 7(b) and 7(c) of the 1946 Act related only to other peaceful uses of atomic energy. In light of the prohibition on the licensing of electrical power uses and the safeguards of section 7(b), the remarkable feature of the 1946 Act was that it contained any provisions relating to monopoly.30 In light of the extremely narrow area of possible private participation, the measures in the 1946 Act to prevent the monopoly “had a fairly hollow ring.”31

29R. Hewlett, supra note 5, at 494-5.
As noted, these provisions were largely the result of the broad gauged creative approach of specific individuals such as Benjamin V. Cohen and James R. Newman, whose span of vision sought to comprehend the total impact of nuclear fission on world developments.
The firms that had responsibility for managing the various nuclear installations (Los Alamos, Hanford, Oak Ridge) which resulted in the development of the atomic bomb were figuratively known as the Manhattan District Contractors. These firms included General Electric, Westinghouse, Allied Chemical, Union Carbide and others.

30When atomic fission flashed on the world in 1945, at Hiroshima, atomic energy production facilities and all of its potential peacetime uses were both a wartime military secret and a government monopoly. Their transfer to civilian control in the McMahon Act of 1946 . . . with a Civilian Atomic Energy Commission . . . large preserved the government monopoly in what has been described as an “island of socialism” from most parts of which private enterprise was excluded.

31Id. at 103.
B. The 1954 Act

1. Licensing Considerations

On December 8, 1953, President Eisenhower, in a speech to the General Assembly of the United Nations, made it clear that the United States was embarking on policies which would result in declassifying much information concerning nuclear fission and in encouraging participation of private industry in the future development of peaceful uses of nuclear energy. Significantly, many large corporations that had supplied materials and services to the classified military programs of the United States Government, had, by late 1953, developed expertise which would be used when the production of electric power by the utilization of nuclear fuels was opened to private industry.

The Atomic Energy Act of 1954 constituted the main legislative effort to modify and diminish the controls on private industry to make possible a large nuclear development program. This article, as stated, is concerned only with those provisions of the 1946 and 1954 Acts which relate to the subject of monopoly. Sections 7(b) and 7(c) of the 1946 Act evolved into section 102 (Finding of Practical Value), section 103 (Commercial Licenses), section 104 (Medical Therapy and Research and Development), and section 105 (Antitrust Provisions) of the 1954 Act.

a. Section 102

Section 102 introduces into the 1954 Act the phrase "practical value" which was used in section 7(b) of the 1946 Act. However, section 102 calls for a finding of practical value by the AEC whenever a "type of utilization or production facility has been sufficiently developed to be of practical value for industrial or commercial purposes." [Emphasis added] As pointed out previously, this type of facility could not have been the subject of a

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32 Address by President Dwight D. Eisenhower, General Assembly Of The United Nations, Dec. 8, 1953. The Atom For Progress And Peace (Department of State Pub. No. 5403, General Foreign Policy Series No. 88, 1953).
determination of value under the 1946 Act since that Act prohibited the licensing of such facilities.\(^{35}\) Furthermore, the requirement of a finding of practical value under the 1954 Act is confined to the uses which would require facility licenses.

By 1954, it had become clear that “production and utilization facilities”\(^{36}\) would not constitute sufficiently dangerous uses so that government ownership would be required. Nevertheless, such uses of atomic energy would still require the somewhat less complex facility licensing procedures prescribed by the 1954 Act which were designed to assure full consideration of health, safety, and national security problems. This change in policy led to the gradual abandonment between 1952 and 1954 of the Baruch proposals\(^{37}\) in the field of international arms control.\(^{38}\)

### b. Sections 103 and 104

Section 103 furnishes the procedures for commercial licenses after a finding of practical value, while section 104 provides somewhat simpler procedures for licenses in medical therapy and in the conduct of research and development activities leading to the demonstration of practical value of facilities for industrial or commercial purposes, and in the conduct of certain types of research and development activities.\(^{39}\)

Under the 1946 Act, it would probably not have been possible to license any of the activities which can be licensed under sections 103 and 104 of the 1954 Act. The most important difference between the procedures under section 103 and those under section 104 is that, under the latter, the AEC’s primary consideration is whether the granting of a license would promote the common defense and security and protect the health and safety of the

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\(^{35}\)See text accompanying notes 25-27 supra.

\(^{36}\)These facilities would include reactors as well as chemical processing plants and, for the future, isotope separation plants, and possibly some type of fuel fabrication plants utilizing highly enriched uranium or plutonium.

\(^{37}\)B. BECHHOEFER, supra note 4.

\(^{38}\)Id. at 215-9.

\(^{39}\)42 U.S.C. § 2134(b) & (c) (1954).
public. In addition, under section 104, the license should be "compatible with the regulations and terms of license which would apply in the event that a commercial license were later to be issued pursuant to Section 103 for that type of facility."\(^{40}\)

In contrast, the license procedures of section 103 provide certain additional criteria, the most important of which is that the proposed activity should "serve a useful purpose proportionate to quantities of special nuclear material or source material to be utilized."\(^{41}\) As is pointed out in the Statesville decision,\(^{42}\) this guideline rested upon a distinction between commercial licenses (§ 103) and research and demonstration licenses (§ 104) which has "ceased to be realistic. The fuel supplies so jealously guarded in the past have been found to be relatively abundant."\(^{43}\)

2. Monopoly Considerations: Section 105

When the differentiation between commercial projects and research and demonstration projects largely disappeared with the discovery of abundant fissionable material, the sole remaining distinction between the two types of licenses rested in the different procedures for dealing with questions of monopoly. Section 105(a) specifically affirms the applicability of the various antitrust laws to the field of atomic energy. This result may have been implicit in the 1946 Act, but only in the 1954 Act was the specific provision included. Section 105 (b) requires the Commission to "report promptly to the Attorney General any information which it may have with respect to any utilization of special nuclear material or atomic energy which appears to violate or tend towards a violation of Congressional Acts governing monopoly," or to restrict free competition in private enterprise.\(^{44}\)

\(^{41}\)U.S.C. § 2133(b) (1954). The implication of section 103 was that competitive hearings would be held among applicants for power reactors to determine which projects would be most useful to the public in relation to the amounts of fissionable material required and which applicants should thus be permitted to utilize the limited supplies.
\(^{42}\)City of Statesville v. Atomic Energy Comm'n., 38 U.S.L.W. 2326.
\(^{43}\)38 U.S.L.W., at 2326.
\(^{44}\)42 U.S.C. § 2135 (b) (1954). In the scope of the requirement to report such conditions, section 105(b) roughly parallels section 7(b) of the 1946 Act which provides for comprehensive reports from the Commission to the President, and from the president to the Congress, of the "social, political, economic, and international effects" of the uses of atomic energy. 42 U.S.C. § 1807 (1946).
This requirement extends to all uses of atomic energy: those licensed under sections 103 and 104 as well as those which may require material licenses or no licenses at all.

Section 105(c) has no parallel in the earlier Act. This provision requires the Commission, before it issues any commercial license, to "notify the Attorney General of the proposed license and the proposed terms and conditions thereof, except such classes or types of licenses as the Commission, with the approval of the Attorney General, may determine . . . would not significantly affect the licensee's activities under the anti-trust law. . . ."\(^{45}\) The Attorney General, within a reasonable time not exceeding ninety (90) days, "shall advise the Commission whether insofar as he can determine, the proposed license will tend to create or maintain a situation inconsistent with the anti-trust laws, and such advice will be published in the Federal Register."\(^{46}\)

This provision differs in substance from section 7(c) of the 1946 Act in at least two respects. First, the requirement of mandatory referral to the Attorney General applies only to section 103 licenses. This limitation, however, does not prevent the Commission from referring research and demonstration (§ 104) licenses to the Attorney General under section 105(b). Indeed, section 105(b) places a duty on the Commission to report any information attendant to section 104 license applications to the Attorney General if it appears to violate, or tend toward the violation of, any of the acts, or to restrict free competition in private enterprise.\(^{47}\)

Far greater legal problems are created by the second substantive difference between sections 7(c) and 105(c).\(^{48}\) While not

\(^{45}\)42 U.S.C. § 2135(c) (1954).

\(^{46}\)42 U.S.C. § 2135(c) (1954).


\(^{48}\)See § 7(c) in text accompanying note 28 supra.
completely free of ambiguity, the mandate of section 7(c) is comparatively straightforward; if the Attorney General made an adverse finding, the Commission was to refuse the license. In contrast, section 105(c) does not stipulate what action is to be taken by the Commission after an adverse ruling on a monopoly question by the Attorney General in response to either a mandatory request under section 103, or to a voluntary request under section 104.49 This legislative system has spawned a series of problems, most of which Mr. Austern foresaw in his 1955 article.50 If the Antitrust Division of the Justice Department makes an adverse ruling concerning a commercial (§103) license application, it is unclear whether the Commission is required to reject the license application, or whether it may determine that the benefits arising from the facility override the antitrust considerations. Furthermore, if the Attorney General's ruling is ambiguous, it is unclear what action the Commission is to take. This also poses a problem for the applicant. It is unclear whether the applicant, as a practical matter, will be in a position to proceed with the construction of the facility after an ambiguous response from the Justice Department in light of the fact that the Commission's construction permit and license would not protect the applicant from legal action brought by other government agencies.

Finally, in a section 104 license application, if the Justice Department advises the Commission that the license might tend to create or maintain a situation in violation of the antitrust laws, it is unclear whether the Commission must refuse to issue the license on this ground, or whether it could ignore the advice entirely.

As will be pointed out, these ambiguities came before the court in the Statesville litigation. Before embarking on further analysis of these issues, however, it is essential to mention some of the main industrial developments in the field of atomic energy since 1954 and their monopolistic implications.

49It is clear from the legislative history of this provision that the omission was deliberate. Senator Hubert Humphrey had proposed, and the Senate had accepted, an amendment which would have made the advice of the Attorney General binding upon the AEC. The Conference Committee rejected this amendment because the Attorney General's advice became a decision binding upon both the Commission and the applicant without a hearing. See Austern, supra note 30, and City of Statesville v. Atomic Energy Comm'n, 38 U.S.L.W. 2326.

50Austern, supra note 30.
III. Post-1954 Monopoly Developments in the Nuclear Industry

A. The Events

In December 1968, the results of a study [the Little Report] commissioned by the Federal Government entitled “Competition in the Nuclear Power Supply Industry” were presented to the United States Atomic Energy Commission and to the United States Department of Justice.\(^{51}\) In order to clarify the issues raised in the first legal treatments of the problems of monopoly in the nuclear industry, it seems desirable to describe the chief areas in which monopoly problems have arisen since 1954 and the administrative action taken to deal with them.\(^{52}\)

The confinement of the Little Report to the nuclear power supply industry reflected the fact that substantially all, if not all, of the problems of monopoly in the nuclear field have arisen in that particular segment of the industry. This fact confirms, to a certain extent, some of the predictions made prior to enactment of the 1946 Act when there was no nuclear industry. As mentioned above, two areas where monopoly might develop had been early recognized: “pill in the pail” (where an unanticipated breakthrough might revolutionize living conditions), and “Manhattan District Contractors . . . cornering atomic technology.”\(^{53}\) The former possibility has not occurred. On the other hand, most of the potential monopoly situations dealt with by the Little Report arose from the vast research efforts of various companies into the use of nuclear energy.

Even before enactment of the Atomic Energy Act of 1954, it became apparent that immediately after the Act’s passage private industry would be supplying small reactors for research purposes, somewhat larger reactors for materials testing, and, a few years later, large reactors to produce electric power. This development would require the participation of private industry both in manufacturing reactors and in other stages of the nuclear fuel cycle.\(^{54}\)

\(^{51}\)Little Report, supra note 47.

\(^{52}\)It is not feasible in this article to abstract the findings and conclusions of the Little Report, since they are based on a technical analysis of the fuel cycle, and even in summary form would be twice the length of this article.

\(^{53}\)See text accompanying note 29 supra.

\(^{54}\)These additional stages included mining uranium for fuel elements; fabrication of the fuel elements; in the future, chemical processing of spent fuel elements; and still further in the future, enrichment of the uranium incorporated into the fuel elements.
It was clear, even in 1954, that for at least the next decade, an overwhelming proportion of the power industry's expenditures would be for the purchase of reactors. The fuel itself was still leased from the AEC. Its conversion into the form required for fuel elements, fabrication of the fuel elements, and the various engineering and other services required to install the nuclear plants, while calling for substantial expenditures, would nevertheless involve relatively small sums in comparison to the cost of the reactors. Therefore, the critical line in monopoly depended upon competition in the manufacture of reactors.

Prior to 1954, a substantial number of companies headed by the "Manhattan District Contractors" had obtained to a certain degree the expertise required to manufacture nuclear reactors as a result of their contracts with the United States Government. Partly as a deliberate government policy, and partly through bureaucratic inertia, multiple sources of reactor supply continued after the time when limitations on the number of suppliers might have produced lower prices and more efficient production. For example, in 1954, some ten companies were capable of manufacturing small research reactors and possibly the considerably larger materials-testing reactors, which were the earliest commercial reactors.\textsuperscript{55} When a market developed in the 1960's for the larger power reactors, however, most of these companies found that they were unable to compete. In 1963, General Electric contracted to supply to Jersey Central Power and Light Co. with a large power reactor which, without any research support from the Federal Government, was to produce power at a price competitive with conventional fuels. Indeed, by 1963, many utility companies began to plan power projects. Two types of light water reactors, both using low enriched uranium, had by that time proved feasible: boiling water reactors constructed by General Electric and pressurized water reactors constructed by Westinghouse Electric. These light water reactors possessed characteristics which made them more desirable than other types of reactors. From 1963 to 1965, other companies seeking to break into the nuclear reactor market were unable to match the terms offered by General Electric and Westinghouse Electric.\textsuperscript{56} Thus it


\textsuperscript{56}Id. at 131.
appeared likely that the manufacture of power reactors would become a duopoly shared by these two corporate giants. This did not occur, however, primarily because the demand for light water reactors was so great that General Electric and Westinghouse were simply unable to fill all the orders. As a result, in 1966 and 1967, other companies received orders for a substantial number of reactors.\(^5\)

In 1968 and 1969, however, orders for light water reactors diminished, largely because of delays encountered in their licensing and construction. The power companies could not afford such delays in light of the rapid increase in demand for power caused by the growing urban areas. Furthermore, technological improvements in fossil fuel power plants resulting from intensified competition between the suppliers of nuclear power and coal contributed to this downturn in demand. During this period, as the orders for General Electric and Westinghouse reactors slackened, the orders for other companies' reactors virtually disappeared.\(^5\)

This market change raises the possibility that the competitive situation will again deteriorate from oligopoly to duopoly in the near future. This possibility, however, is not particularly alarming since the light water reactors will gradually be replaced by more advanced reactors that should provide cheaper nuclear power and that should use less uranium in the process.

The Atomic Energy Commission has encouraged and contributed financially to several extensive research programs designed to speed the development of both advanced converters and breeder reactors. The great cost of these research programs, as well as their technological problems, makes it essential that potential competitors participate at an early stage in these research programs in order to acquire the expertise necessary to compete. Initially, only General Electric was developing the breeder reactor. The AEC, in order to avoid a monopoly situation, has assisted four major research programs developed by private industry and a fifth in Commission laboratories. Thus, through administrative action, the Atomic Energy Commission has sought to insure that no one or even two companies shall dominate the business of manufacturing nuclear power reactors.


\(^5\)Babcock & Wilcox Company received three orders, and Combustion Engineering Company received one.
B. Analysis of the Developments

One dangerous side-effect of the development of monopoly or duopoly in the manufacture of reactors is that these manufacturers would be able to eliminate competition in other areas of the fuel cycle through vertical integration. For example, General Electric and Westinghouse Electric became the chief customers for fuel elements. If they supplied their own initial fuel elements, however, the other suppliers, some ten in number, would be left with very few customers. Moreover, if General Electric and Westinghouse succeeded in supplying users with fuel loadings subsequent to those required to commence reactor operations, the other suppliers would be largely excluded from the supply market. They could further discourage the competition of independent suppliers by terminating the warranties on the initial loading if a customer-power company contracted to purchase the second load from an independent contractor. Similarly, General Electric or Westinghouse, by entering the field of chemical processing of spent fuel elements and simultaneously embarking on a policy of “cradle to grave” contracts furnishing the fuel elements and reprocessing services as well as the reactors, could leave only a very small market for independent chemical reprocessors. Thus, the dominant position of the two chief suppliers of reactors led to the clear possibility of monopolistic development through vertical integration. This vertical integration was further encouraged by the comparative financial weakness of many of the suppliers of the auxiliary services and materials.

The Little Report pointed out two ways to combat this danger: (1) strengthening the independent suppliers by permitting them to integrate vertically; and (2) preventing vertical integration by the large suppliers of reactors by prohibiting expansion, at least through merger, into other areas of the fuel cycle. These methods have, in fact, been employed, partly by design and partly because of the financial needs of the smaller suppliers. A number of the large petroleum companies, initially interested solely in the production and supply of uranium, have expanded their facilities mainly through mergers to other phases of the fuel cycle including

59The companies were Atlantic Richfield, Gulf, Getty, Kerr-McGee, and Standard Oil of New Jersey.
the manufacture of reactors. All of these companies have adequate resources to compete successfully with the two giant manufacturers of reactors, and thus they provide a potential check on the expansion of General Electric and Westinghouse. Moreover, the Antitrust Division has not, to date, opposed this type of vertical integration.

The first instance of vertical integration in which the Justice Department did raise objections resulted from an attempt by Combustion Engineering, one of the smaller reactor manufacturers, to take over United Nuclear Company, one of the few independent suppliers of fuel elements that currently has orders from the utilities, through a tender offer. It is entirely possible that a merger of United Nuclear and Combustion Engineering would have increased, rather than diminished, competition since Combustion Engineering has only a small percentage of the reactor business and does not appear to be a prospective supplier of the next, and more advanced, generation of reactors. However, allowance of such a merger would have breached the Federal Government's policy of preventing monopolistic or duopolistic development in the reactor industry through prohibition of expansion of reactor manufacturers into other phases of the fuel cycle. Accordingly, the takeover bid was frustrated, and the merger fell through.

A potential monopoly arose when the AEC entered into a fuel load contract with Nuclear Fuel Services, Inc. (NFS) to supply government fuel for reprocessing in the first commercial chemical processing plant. The Commission was fully aware that NFS would have a monopoly until the construction of other chemical processing plants created a sufficient demand for additional suppliers. When NFS received its construction permit in 1963, the commercial load was insufficient to justify commercial processing. Therefore, the Commission furnished government fuel load to NFS and inserted complex terms in its contract to assure that NFS would furnish services on a nondiscriminatory basis to any

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60LITTLE REPORT, supra 47, at 70.
62NFS was then a subsidiary of W.R. Grace & Co.; today it is a subsidiary of Getty Oil Company.
Commercial customer and that NFS would not realize undue profits. As a result, NFS has had a limit on its earnings during the period of the contract, like a public utility. Unlike a public utility, however, it has had no assurance of a rate which would permit a reasonable return on its investment. Furthermore, the Commission, in awarding the fuel load to NFS, specifically set aside an equal amount of fuel load which could be furnished to a competitor if such competitor should appear on the scene. The Commission brought these arrangements to the attention of the Justice Department pursuant to section 105(c) of the 1954 Atomic Energy Act, and the Justice Department rendered an opinion that the fuel load contract with NFS "should not be deemed impermissible from the standpoint of antitrust law or policy." In light of the safeguards taken by the Commission, this opinion is not surprising. In fact, the Commission has found it unnecessary to furnish a government fuel load contract for any competitors of NFS since General Electric, Allied Chemical, and Atlantic Richfield subsequently decided to enter the field without such support, even though for the next few years substantial losses seem certain, and even though the potential capacity of these three plants plus that of NFS far exceeds the materials available for processing.

Thus, in the sixteen years since 1954, the nuclear power supply industry has produced a number of situations which might have led to monopoly. Moreover, the vast sums of money required to participate in the important phases of the industry will continue to limit the number of participating commercial firms. Maximum competition will arise only through an oligopoly structure of the industry rather than a monopoly or duopoly structure. Both the Justice Department and the AEC have recognized this and have walked a tightrope to encourage the development within the industry of six or seven competitors with large capital resources. This has been accomplished primarily by spreading research and other benefits among a number of companies, and by allowing vertical integration except where a reactor manufacturer wished to combine with a company participating in some other area of the nuclear fuel cycle.

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63Letter from William H. Orrick, Jr., supra note 47.
IV. Monopoly Regulation Under the 1954 Act

A. Judicial Challenge of AEC Antitrust Power

In the latter part of 1966 and in the early part of 1967, three separate groups of municipal power plants sought to participate in the ownership of large nuclear power plants for which privately owned power companies were requesting facility licenses from the AEC. Certain North Carolina municipalities intervened in the application of Duke Power Company for a facility license (the Statesville case), the Power Planning Committee of the Massachusetts Electrical Association and others attempted to intervene in the application of Vermont Yankee Nuclear Power Corporation for a facility license (the Massachusetts Municipality case), and certain Pennsylvania municipalities attempted to intervene in the case of Philadelphia Electric Company. The monopoly issue in all three cases had its origin in the sudden realization by the municipal power plants that, despite their tax advantages and their low cost borrowing, they could not compete with the huge nuclear or fossil fuel power plants which would be constructed in increasing numbers in the late sixties. All three cases ultimately came on appeal to the United States Court of Appeals for the District of Columbia. The petition to review the AEC order in the Philadelphia Electric case was dismissed on February 10, 1970 on purely procedural grounds not involving antitrust problems. The petitions to review the orders of the AEC in the Statesville and Massachusetts Municipal Electric cases were denied by the court in a joint decision rendered on December 5, 1969. The court did not premise its holding on antitrust grounds, but the majority and concurring opinions raised the entire problem of the respective responsibilities of the AEC, the Antitrust Division of the Justice Department, and other agencies enforcing federal laws against monopoly in the nuclear

64The only relationship of this development to atomic energy was that the first huge plants with extremely low power costs utilized nuclear fuels. The development of huge power plants utilizing fossil fuels with analogous cost savings took place subsequently as the results of the competition between nuclear and fossil fuels. It must be emphasized, however, that size and not nuclear fuel created this problem.


field. The court was, in effect, seeking to guide the AEC in its future procedures. The majority opinion, both concurring opinions, and even the partial dissent agreed that their decision would not necessarily prevent the municipal power plants from raising antitrust questions in other contexts, such as those situations in which the power company obtained its operating commercial license under section 103.

The analysis of the respective responsibilities in the nuclear energy monopoly field of the AEC and the Justice Department in the Statesville decision necessarily requires an examination of the Congressional intent regarding the AEC's discretionary powers under sections 103 and 104.

A noteworthy feature in the municipalities cases resulted from a misinterpretation of sections 102 and 103. The attorneys for the municipalities apparently concluded that the competitive hearing prescribed by section 103 had some relation to the problem of monopoly and would result in full hearings on this matter. This misconception led to their contention that the AEC was required to proceed under section 103, and that it lacked jurisdiction to issue a construction permit to the Duke Power Company under section 104. However, as the court subsequently pointed out in the Statesville and Massachusetts Municipalities cases, the purpose of the competitive hearings was to provide a proper allocation of uranium and, when it became apparent that the uranium sources were not limited, the competitive hearing's purpose disappeared although the requirement continued. The AEC's posi-

67 See Austern, supra note 30. These issues were the same ones raised by Austern earlier in his article.

68 For a thorough analysis of the factual situations coming before the Court, including the practical problems of sharing power with municipalities, see Horn & Grigg, Antitrust Aspects of Atomic Power Licensing Proceedings, ABA Annual Report Section of Public Utility Law 1968, at 72.

69 If a hearing on the antitrust issues had taken place in either the Statesville or Massachusetts Municipalities cases, none of the economic data would have had any relationship to the economic problems of the nuclear industry. The issues would have related to the larger problem of bringing the economics of large-scale nuclear and fossil generators to the small distribution systems. This is the type of problem usually dealt with by Federal and State Power Commissions. Id. at 83. In contrast, the full scale hearing on monopoly issues which might have arisen from the licensing of General Electric's chemical processing plant would have produced economic data on problems familiar to the Commission, such as the effects of vertical integration on competition in other phases of the fuel cycle.

70 City of Statesville v. Atomic Energy Comm'n., 38 U.S.L.W. 2326.
tion was that section 104, rather than 103, applied to this case because no demonstration of the practical value of the nuclear power facilities for industrial or commercial purposes had been made, and the court agreed with this position.

An implausible feature of the cases stemmed from the fact that these interventions coincided with a broad campaign to subject nuclear power to certain limitations relating to thermal pollution which were not applicable to power plants utilizing fossil fuels. The *Massachusetts Municipalities* cases in their earlier stages raised not only the problem of monopoly, but also the question of thermal pollution. The AEC took the position that it had no jurisdiction to pass on the question of thermal pollution.\(^7\) Regardless of whether the Commission was correct in so limiting its own jurisdiction in this situation, a different decision would have unquestionably imposed requirements upon nuclear power projects that could not be imposed on fossil fuel projects.\(^2\)

As well as taking the position that it lacked jurisdiction over the thermal pollution issue, the AEC also ruled that it had no authority to consider possible antitrust violations when granting a section 104(b) license as was involved in this case. The misconceptions and implausible aspects of this case may partially explain the extraordinary limitations which the AEC imposed on its own jurisdiction and may furnish the rationale for the court's thorough consideration of the respective responsibilities between the AEC and the various government agencies, particularly the Justice Department.

**B. Alternative Courses for Regulating Monopoly**

The AEC's self-imposed jurisdictional limitations concerning antitrust matters should be viewed in light of the alternative courses for regulating monopoly in the nuclear field which confronted the Congress in 1954 and which remain relevant both in

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\(^2\)Theoretically, the municipalities might have raised the monopoly problem against either nuclear facilities or facilities utilizing fossil fuels through the courts, the Department of Justice, or the Federal Trade Commission. It was far simpler procedurally to seek to intervene in a license application pending in the Atomic Energy Commission.
the interpretation of existing law and in any pattern for future
legislation.

The first alternative would have been to give the AEC "complete and continuing authority to safeguard against... insistent antitrust apprehensions."\[^{73}\] [Emphasis added] If this course had been followed, the decision of the AEC to grant a facility license would have fully protected the applicant from actions based on antitrust considerations by other branches of the Federal Government.\[^{74}\] It is clear that the Congress did not wish to give the AEC such authority since it specifically provided for the applicability of all antitrust legislation to the atomic energy industry, including the right of Government agencies having jurisdiction to proceed against violators in the nuclear field. It is logical to expect that the Congress will not reverse this position since a large portion of the problems of monopoly in the nuclear field parallel the problems outside that field where uniform treatment seems desirable.

The second and diametrically opposite course of action would have been for Congress to make clear that:

> anti-trust considerations were not directly involved in atomic energy licensing and that the license should have afforded no protection against anti-trust prosecution or suits by the Attorney General or by a private party. In that event, conventional anti-trust rules would be applied by the Courts.\[^{75}\]

It seems clear that the Act of 1954 cannot be so construed since such an interpretation would require the AEC to issue a license pursuant to a section 103 application even if the Attorney General rendered an opinion that the license "would tend to create or maintain a situation inconsistent with the anti-trust law."\[^{76}\] This result seems inconsistent with the Atomic Energy Act of 1954, which, by implication, narrowly restricts any discretion which the AEC would possess concerning the issuance of a section 103 license because of the mandatory referral provision. It also seems

\[^{73}\text{Austern, supra note 30, at 7.}\]
\[^{75}\text{Austern, supra note 30, at 7.}\]
\[^{76}\text{42 U.S.C. § 2135(c)(1954).}\]
undesirable from the standpoint of the nuclear industry because of the uncertainty of constructing a nuclear plant without final approval from the Justice Department.

Since both extreme solutions can therefore be rejected, it appears that Congress has apportioned jurisdiction over antitrust problems in the nuclear field between the AEC and other agencies involved in enforcing antitrust laws. Two questions are: where has the split taken place, and where should that split take place?

The 1946 Act required the AEC to deny a license if the Attorney General's opinion on the question of monopoly was unfavorable to the applicant. An amendment to the 1954 Act that would have placed this same duty on the AEC was defeated. It is clear that Congress declined to include such a provision in the 1954 Act because the result would give the Attorney General final authority to act as both judge and jury in deciding whether the license should be granted or denied. It follows that the Commission presumably has greater discretion under the 1954 Act than it had under the 1946 Act. If the Commission does have discretion to grant, deny or impose conditions on a commercial license after an unfavorable ruling from the Justice Department concerning antitrust matters, a public hearing on monopoly issues before the Licensing Board of the AEC seems to be available since that would be the only method by which the Licensing Boards could exercise their discretion. Thus it seems that the AEC does have authority to consider antitrust violations under section 103 license proceedings.

The above analysis relates to section 103 rather than to section 104 cases. However, it is difficult to differentiate between these sections. The sole distinction between section 103 situations and section 104 situations is that reference to the Justice Department for an opinion on antitrust problems is mandatory under section 103 and is optional under section 104. Therefore, the discretion under the latter section is arguably greater than under section 103. However, Assistant Attorney General Zimmerman, in testimony before the Joint Committee on Atomic Energy of the Congress, pointed out that if the Justice Department rendered an

\textsuperscript{77}AUSTERN, supra note 30, at 9.
opinion in a section 104 case that the granting of the license or construction permit would tend to create or maintain a situation inconsistent with the antitrust laws, he did not anticipate that the Commission would regard such an opinion as "light reading." The Justice Department seems to take the position that, although the AEC has some discretion concerning antitrust considerations in a section 104 application, the AEC had best pay heed to the Justice Department's recommendation.

In the municipal cases, the majority opinion of the court supported the AEC position that it has no authority under the 1954 Act to consider monopoly problems in connection with section 104 licenses. The concurring opinion of Judge Leventhal in Statesville is to the contrary. Both the majority opinion and the concurring opinion recognize that the decision at the construction permit stage does not preclude antitrust questions being raised at the licensing stage by the Justice Department or others. The probabilities are that, in the absence of legislation, there will be a finding of practical value prior to the time that either Duke Power or Vermont Yankee are ready to obtain their licenses, and therefore a finding that they will receive section 103 licenses. Since the Attorney General's response at that time to the mandatory section 103 antitrust question might well be "perhaps," it is in the licensees' interest that the Commission prescribe in the license a series of conditions which would satisfy the Commission itself, the Justice Department, and the applicant. Such a policy would obviously depend upon a hearing by the Licensing Board on monopoly questions broader in scope than that contemplated by the AEC in its interpretation of its discretionary powers under sections 103 and 104.

V. Conclusion

The Commission has pursued a consistent policy of limiting the subject matter of hearings before a licensing board to matters which pertain to its role as the agency responsible for the development of atomic energy and in which it can furnish the expertise required to support the decision. A broadening of the scope of the issues to include, for example, a consideration of antitrust questions seems inevitable.
The recently enacted National Environmental Policy Act\textsuperscript{78}may provide a means for this expansion of scope. The Policy Act establishes a policy which would require the Commission to consider a number of issues in its licensing proceedings, such as thermal pollution, that go beyond radiological health and safety. By analogy, this might provide a basis for the AEC likewise to consider antitrust issues similar to those in the Statesville case. If the National Environmental Policy Act cannot be construed to furnish the Commission the authority to consider these issues, the Commission is required to propose further legislation which will give it such authority. The broadening of the issues that the Commission will consider must necessarily result in administrative changes which should give the licensing boards the capability of passing on questions beyond radiological health and safety and national security. However, it is beyond the scope of this article to consider the specific administrative steps inherent in this extension of the scope of the licensing provisions. These administrative steps might include a determination of whether the licensing function of the AEC should be turned over to a separate organization with no other functions in the field of atomic energy; how to establish parallel procedures for dealing with analogous problems not involving atomic energy; the exact limitations of the Commission's authority in such broadened hearings; and the possible changes in the expertise of the members of the licensing boards.\textsuperscript{79}

It therefore seems likely that the licensing procedure will include a full hearing on monopoly questions, whether the expansion of the hearings' scope be the result of judicial interpretation of the existing Act or of additional legislation. It appears that the achievement of a practical solution of antitrust problems in atomic energy has become too closely linked with related issues, such as thermal pollution and the necessity of


\textsuperscript{79}One possibility which deserves serious consideration for limiting the scope of the hearings would be to require a Commission hearing on monopoly problems only at the initiative of the Department of Justice. This might prevent undue delays in the licensing procedures without in any way interfering with the opportunity of the Government or any aggrieved group to have their day in Court. The recourse of the aggrieved groups would be to the Department of Justice or the Federal Trade Commission.
expeditious licensing proceedings to prevent prospective power shortages, to permit the resolution of the procedural problems through the leisurely process of judicial interpretation. The Commission has already suggested some amendments to sections 102, 103, and 104. Hopefully, the Congress will also amend section 105 to provide this essential reform.