

News and views

Industrial Atomic Power

New Legislation Proposed by AEC

A number of years ago, in a speech delivered before a Boston audience, David Lilienthal noted that if the Atomic Energy Commission's course "in putting the atom to work is to be sound and fruitful of the best results, we need council and criticism and discussion from the whole of American business and industry". By that standard the future of atomic-electric power development in the United States would now seem assured. An abundance of such council, criticism, and discussion has suddenly become available and it is freely predicted in Washington that legislative action will soon clear the way for private atomic power development by those industries willing to take the plunge.

An important step in this direction was taken last year by the Security Resources Board in recommending that the Atomic Energy Act be amended to reduce the extent of the Federal Government's atomic energy monopoly. Even more important has been the position taken by the Atomic Energy Commission itself. From its inception, the AEC has consistently pursued a policy of cooperation with industry, partly through the ever-increasing extent of its contractual arrangements with companies to carry out AEC research and development projects, and partly by its policy of encouraging industrial groups to consider seriously the desirability and feasibility of industrial atomic-electric power development. Aside from the occasional criticism that information vital to such development has been buried in the limbo of the AEC's classified files, there have been few serious complaints against the Commission, and it has placed itself on record as having an attitude of heart-felt cooperation with American industry within the limits set by the Atomic Energy Act.

On May 26th, the Joint Congressional Committee on Atomic Energy released the following "Statement of Policy on Nuclear Power Development" which had been submitted by the Atomic Energy Commission together with the draft of an AEC-sponsored bill proposed in the form of a separate act rather than as a series of individual amendments to sections of the Atomic Energy Act.

An AEC Policy Statement

"1. We believe the attainment of economically competitive nuclear power to be a goal of national importance. Reactor technology has progressed to the point

where realization of this goal seems achievable in the foreseeable future if the nation continues to support a strong development effort. It would be a major setback to the position of this country in the world to allow its present leadership in nuclear power development to pass out of its hands.

"2. Accordingly, we recognize it as a responsibility of the Commission to continue research and development in this field and to promote the construction of experimental reactors which appear to contribute substantially to the power reactor art and constitute useful contributions to the design of economic units.

"3. In addition, it is the conviction of the Commission that progress toward economic nuclear power can be further advanced through participation in the development program by qualified and interested groups outside the Commission.

"4. We recognize the need for reasonable incentives to encourage wider participation in power reactor development and propose the following moves to attain this end:

"a. Interim legislation to permit ownership and operation of nuclear power facilities by groups other than the Commission.

"b. Interim legislation to permit lease or sale of fissionable material under safeguards adequate to assure national security.

"c. Interim legislation which would permit owners of reactors to use and transfer fissionable and by-product materials not purchased by the Commission, subject to regulation by the Commission in the interest of security and public safety.

"d. The performance of such research and development work in Commission laboratories, relevant to specific power projects, as the Commission deems warranted in the national interest.

"e. More liberal patent rights than are presently granted to outside groups as may seem appropriate to the Commission and consistent with existing law.

"f. Consideration of a progressively adjusted code for safety and exclusion area requirements as may appear reasonable in the light of operational experience with reactors. Competent state authorities will be encouraged to assume increasing responsibility for safety aspects of reactor operation. Financial responsibility associated with reactor operation will be assigned to the owners, in keeping with normal industrial practice.

"g. Giving full recognition to the importance of reactor technology to our national security, a progressively liberalized information policy in the power reactor field as increasing activity justifies.

"5. It is the objective of this policy to further the development of nuclear plants which are economically independent of Government commitments to purchase weapons-grade plutonium.

"6. We view the next few years as a period of development looking toward the realization of practical nuclear power. On this basis we conclude that the time is not yet at hand for the report called for in Section 7(b) of the Atomic Energy Act of 1946." *

* [Section 7 requires that "whenever in its opinion any industrial, commercial, or other nonmilitary use of fissionable material or atomic energy has been sufficiently developed to be of practical value," the Commission shall submit a report to this effect to the President including its own recommendations for supplemental legislation.]

North American Aviation's Pilot Plant

Also on May 26th, a press conference was held in New York City by officials of North American Aircraft, Inc., to announce that a single purpose atomic power generator had been designed and that the company was ready to build a pilot plant (for ten million dollars) to demonstrate and study the economic and practical aspects of atomic-electric power production for industrial and domestic uses. "North American is not in the business of selling electrical power, nor does it intend to enter the field," said board chairman J. H. Kindelberger, "but we are ready to work with industry or an industry-Government combination on this project to make atomic power generators practical and feasible for those who are in that business."

The company had originally carried on a study to investigate the feasibility of atomic propulsion for rockets and aircraft, but abandoned the project because it was felt that nuclear reactor development had not reached the stage where such applications would be feasible. Early in 1948, under contract with the AEC, North American began working in the general field of nuclear reactor technology with the particular goal of developing power reactors.

"Frankly," said Mr. Kindelberger, "we are in the market for customers. We realize that the identity of the customers will depend upon determinations of national policy now in the making. I specifically disclaim any intention of trying to influence policy actions by this demonstration of the model of our design for an electrical power plant."

Four Feasibility Reports Made Public

On May 30th, the AEC released the declassified reports of four industrial groups on the results of their independent studies of the feasibility of their designing, constructing, and operating power reactors. The participating companies were Dow Chemical and Detroit Edison, Commonwealth Edison and Public Service Company of Northern Illinois, Monsanto Chemical and Union Electric, and Pacific Gas and Electric and the Bechtel Corporation. According to the Commission's introduction, "All four groups concur in the belief that dual-purpose reactors are technically feasible and could be operated in such a fashion that the plutonium credit would reduce the cost of power. Conversely, all agree that no reactor could be constructed in the very near future which would be economic on the basis of power generation alone. As a final comment, all four groups expressed a willingness and a desire to continue their efforts with more detailed studies and component development."

The Dow Chemical-Detroit Edison report noted that "A commercial future for atomic power appears to be dependent on the development of breeder reactors. . . . From an economic viewpoint, the potential net gain in fuel in the breeder reactors promises a margin to offset the high investment cost of nuclear reactors as a source of power."

Breeder Reactor a Success

AEC Chairman Gordon Dean, in an address before the Edison Electric Institute in Atlantic City on June 4th (a week after the foregoing AEC policy statement was released), announced that the Experimental Breeder Reactor in Idaho has been used to demonstrate successfully the principle of breeding plutonium at a rate at least equal to the rate at which the reactor's U-235 fuel is consumed.

The possibility of a dual-purpose reactor that would serve not only as a source of useful power but also as a source of fissionable plutonium has been one of the brightest hopes of those advocating a greatly expanded effort in the direction of atomic power development. In spite of the great advances that have been made in reactor technology during the past years, it appears that commercial power reactors still cannot compete on an economic level with conventional hydroelectric or fuel-burning power plants in most regions unless plutonium produced as a by-product can be sold at a rate high enough to make the venture profitable. Some industry spokesmen have expressed doubt as to the desirability of such an arrangement, pointing out that the Federal Government provides the only possible market for plutonium, and that at some time in the future the national plutonium stockpile can be expected to be sufficient for defense needs. Under such circumstances, it is argued, the Government would be in the position of buying more plutonium solely as a means of subsidizing nuclear power plant operators.

It has been suggested, however, that a possible solution might be found in some sort of "close-out" arrangement whereby the Government would pay a predetermined sum to the contracting company if an agreement should be cancelled because no more plutonium were needed. It has also been indicated that the current AEC program is placing considerably more emphasis on the production of U-235 than on the production of plutonium, thus setting the stage for a guaranteed market for industry-produced plutonium.

Congressional Hearings Scheduled

The Joint Congressional Committee on Atomic Energy was expected to begin hearing testimony in late June on the atomic power question, with the probability of additional hearings in the fall. Meanwhile, at least one member of the Committee, Representative Chet Hollifield (D. California), indicated his opposition to any "giveaway" program where atomic power development is concerned. Charging that certain "self-serving" industrialists were attempting to turn the atomic energy program into a "profit-making" venture of their own at the taxpayers' expense, Mr. Hollifield said that the "primary if not exclusive beneficiaries" of the proposed new legislation would be the industries now holding AEC contracts. AEC Chairman Gordon Dean, in his Atlantic City talk on June 4th, sharply rejected the charge: "I have noted with considerable interest and some disappointment that a few people

have already labeled these policy recommendations as the atomic giveaway program. This is simply not true. It is not a giveaway program; it is not even a sell-away program. Under it the Commission gives nothing away. It doesn't even sell any of its own facilities. All it would do would be to permit others to own what they themselves have built and paid for, or, in the case of materials, bought and paid for, or manufactured. It seems ridiculous to me for one agency of the Federal Government to attempt to exclude others forever from a promising new field whose main significance will be to the overall economy, not to any particular segment of it."

Scientific Manpower

New Data on Reservists

A general call-up of reservists by the armed forces would mean the withdrawal from civilian employment of a significant number of the nation's chemists and chemical engineers, according to information released on May 31st by the U. S. Department of Labor's Bureau of Labor Statistics. One out of six chemists listed in a report prepared in cooperation with the National Scientific Register, and one-fourth of the chemical engineers, were members of the reserve forces at the time they filled out questionnaires for the survey upon which the report is based.

An earlier study (*Manpower Resources in Physics, 1951*) indicated that about one physicist out of every seven is a reservist. In commenting on this aspect of the scientific manpower problem, the latter report pointed out that "the call-up of a substantial proportion of the physicists who are reservists might seriously handicap defense production and research, especially because the young men are concentrated in the two fields particularly important to the defense program—nuclear physics and electronics. Among the young men in the survey, particularly those who were in their late teens and early twenties during World War II, the proportion of reservists was found to be relatively high. It was 14 percent among the men physicists of all ages, 19 percent among those under 26 years of age, and 22 percent in the 26–34 year-old group. The proportion of reservists was still higher (26 percent) among the graduate students in the survey, the majority of whom are veterans."

The statistical data presented in these reports are from surveys conducted by the National Scientific Register with partial support from the National Science Foundation. The Register and its responsibilities for registration of scientists were transferred to the Foundation last January.

Loyalty and Security

FAS Committee Issues Statement

The Scientists' Committee on Loyalty Problems, formed by the Federation of American Scientists in the fall of 1948, has been succeeded by the Scientists' Com-

mittee on Loyalty and Security, centered in New Haven, Connecticut. Concerned "with security programs as they affect individual scientists, leaving to other groups the study of such programs with respect to civil liberties and democratic processes", the Committee is maintaining a file of up-to-date information on loyalty and security regulations and states that this information and informal advice is available to interested scientists on request, but that "the Committee does not attempt under any circumstances to judge the merits of individual cases".

Commenting on the executive order of April 27th establishing a new security program for Federal employees, the Committee has issued the following statement:

"The new Government employee security program represents an apparent major effort by the new administration to establish a workable program to clear up some of the confusion and shortcomings of the old system, and possibly arrest the trend toward ever-increasing investigations by Congressional committees. Briefly the new program abolishes the old Loyalty Review Board and replaces 'loyalty' by 'security' as a criterion of eligibility for Federal employment, leaves the agency head the final judge of eligibility, and extends the provisions of Public Law 733 (81st Congress, 2nd Session) to all departments and agencies of the Government.

"The Scientists' Committee on Loyalty and Security believes that the efforts of the administration to bring the enforcement of security safeguards under the executive branch of the Government, and to replace unwieldy loyalty criteria with those of security, may be steps in the right direction. The Committee is conscious, however, of the great responsibility which the new program places on department heads, and of the inequities and procedural differences which may arise unless the new program is administered with the greatest care. It remains to be seen how security standards will, in practice, be scaled to the actual requirements of an agency or of a particular project within an agency. The actual effect of the program on scientists in Government employment will not be clear until some procedural precedents have been established in the weeks and months ahead. For this reason, the Committee feels further comments at this time would be premature, but intends to review the program after it has passed through its initial phases and has achieved some stability.

"The Committee intends to continue its informal consultations with public officials, to offer constructive advice on how the program may best be administered in the interests of national security and how security standards may be scaled to the nature of the scientific work, and to call attention to injustices arising under the program. The Committee will welcome the views of responsible scientists on the new program, and is anxious to have cases of genuine injustice to scientists brought to its immediate attention. Correspondence should be addressed to the Scientists' Committee on Loyalty and Security, Box 2153 Yale Station, New Haven, Connecticut."

The membership of the Committee is as follows: