

PDR

Before the
UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION



In the Matter of Amending the
Commission's Regulations per-
taining to Nuclear Power Plant
Decommissioning

COMMENTS IN RESPONSE TO DOCKET NUMBER PRM 50-22

The Nuclear Regulatory Commission should establish rules requiring specific financial plans to meet the decommissioning costs of planned and premature shutdown of nuclear facilities operated by licensees under 10 C.F.R. 50. These specific financial plans should include: cost estimate of decommissioning specific to the mode(s) of decommissioning to be employed, and specific financial mechanisms designed to meet planned and premature shutdown.

BACKGROUND

On July 6, 1977, as supplemented October 7, 1977, and January 3, 1978, the Public Interest Research Group (PIRG), Arizona for Safe Energy, Citizens United Against Radioactive Environment (CURE), Community Action Research Group (CARG), Critical Mass Energy Project, Environmental Action, Inc., New Mexico Public Interest Research Group (NMPIRG), New York Public Interest Research Group (NYPIRG), North Anna Environmental Coalition, Texas Public Interest Research Group (TexPIRG), and National Consumer Law Center Energy Project, petitioned the Commission to initiate rulemaking to promulgate regulations for nuclear power plant decommissioning which would require Part 50 licensees to demonstrate in detail the financial capability to meet decommissioning costs. The PIRG petition offered a number of options. Among them were: prepayment of decommissioning costs into an escrow fund, the development of a sinking fund, posting of bonds to ensure the availability of funds to meet the decommissioning costs. On June 15, 1979, the Nuclear Regulatory Commission (NRC) denied petitioners' request to initiate rulemaking to im-

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plement a specific decommissioning funding plan, that is, nuclear power plant operators post surety bonds to ensure that funds will be available for proper and adequate isolation of radioactive material upon the decommissioning of nuclear power plants. The Commission granted petitioners' request to reconsider the adequacy of its regulations on decommissioning. These comments are in response to the Commission's invitation to PIRG, et al., to submit further arguments for the implementation of a rule requiring specific financial requirements to meet decommissioning costs by Part 50 licensees. The original petitioners have been joined by a number of other citizen's groups described below:

North Carolina Public Interest Research Group;
Ohio Public Interest Research Group;
Minnesota Public Interest Research Group;
West Virginians for a Non-Nuclear Future;
Palo Verde Truth Force.

PETITIONERS

The petitioners are active groups in Iowa, New York, New Mexico, North Carolina, Ohio, Minnesota, West Virginia and the District of Columbia. PIRG is a public interest organization based in Washington, D.C., whose activities advance the public interest in various public policy areas, including the development of national energy policy. PIRG has participated in other matters, including the GESMO proceedings and other rulemakings before this Commission. CARG is a non-profit citizens group based in Ames, Iowa, with activities in the areas of energy, housing, transportation and agriculture. CARG has participated in rulemaking procedures before Federal and state agencies, including those involving nuclear and electric utility issues. The group also serves as a clearinghouse for citizen groups in the Mid-West regarding the four above areas. Critical Mass Energy Project, a branch of Public Citizen, Inc., is a public interest orga-

nization dedicated to safe and efficient energy technology. The group publishes a monthly newspaper titled Critical Mass Journal, and maintains contacts with citizen groups around the country involved with nuclear energy issues. West Virginians for a Non-Nuclear Future is a state-wide citizen group opposed to nuclear development in West Virginia. NYPIRG is an independent public interest organization supported by contributions from college students in New York State. The group is active on a wide range of consumer issues, including nuclear energy and reactor decommissioning. Its approximate membership is 150,000. Likewise, New Mexico Public Interest Research Group, North Carolina Public Interest Research Group, Ohio Public Interest Research Group and Minnesota Public Interest Research Group are independent public interest organizations supported by contributions from college students active in these same issues. Palo Verde Truth Force is a non-violent activist organization whose members are from all over the Southwest.

JURISDICTION OF NRC IS APPROPRIATE

The NRC has jurisdiction to promulgate rules mandating specific financial requirements covering decommissioning costs as part of the licensing process. The NRC is authorized to examine the financial condition of license applicants, 42 U.S.C. Sec. 2232(a), and to impose conditions on the grant of licenses to effectuate the purposes of the Atomic Energy Act, 42 U.S.C. Sec. 2133(a), which prominently includes the protection of the health and safety of the public. The utility regulatory bodies likewise have jurisdiction over decommissioning costs in the exercise of their authority to set rates to meet the reasonable costs of producing power and to assure a fair return on investment. The Federal Energy Regulatory Commission (FERC) and the Public Utility Commissions (PUCs) could include decommissioning as a cost of production, require it to be included in the utility's accounting, and include it in the rate base.

The sensible way to handle this area of concurrent jurisdiction is for the

NRC to establish guidelines for decommissioning, estimate the costs of meeting these guidelines, and require specific financial assurances. The agencies with rate authority could incorporate these present costs into the rates under their jurisdiction. Decommissioning is a specifically nuclear power plant problem. The NRC is the appropriate agency to set standards and to estimate what the decommissioning costs of a particular nuclear plant will be. If the problem were left to FERC and the PUCs, those state utility commissions which did anything about it would have to rely on the expertise of the NRC as to the anticipated acceptable methods and projected costs of safe decommissioning.

Between FERC and the PUCs, there is split jurisdiction also. FERC governs the rates of sales at wholesale and the PUCs regulates sales to the consuming customer. Nuclear-fueled utilities engaging in both kinds of sales are already subject to this dual regulation of their rates. It would be unnecessarily cumbersome for state and Federal rate setting agencies to establish separate, possibly inconsistent, standards for creating an escrow fund or other suitable guarantee.

Rulemaking in this area by the NRC has the further advantage of establishing national minimum standards. In the unlikely event that even FERC and all the PUCs took action to assure the availability of decommissioning funds, there would be variations in the type of guarantee and the amount of funds required. Some states, in a shortsighted attempt to keep rates low and to prop up hard-pressed local utilities, might make the guarantees unrealistically weak. Action by FERC could partially, but not completely, remedy this problem, since FERC has jurisdiction only over interstate transmission of electricity and sale at wholesale. It is likely that the Federal government would end up paying to decommission the reactors of a utility which defaults. Avoiding this unjustified risk requires action now by the NRC to apply uniform minimum financial standards for all licensed

nuclear plants.

Planning must be done now to prevent nuclear plants from becoming a public burden at the end of their lives and to insure that any burden is placed on the beneficiaries of the plants. Similarly, premature decommissioning is a present danger whose cost must be built into any funding mechanism. The NRC must work out the guidelines for safe decommissioning and estimate the costs of compliance. It is only after the NRC has translated the estimated future costs into present costs, by means of the required financial guarantees that the rate regulators can build them into the rate base.

CURRENT DECOMMISSIONING IS INADEQUATE

The NRC must establish a rule requiring its licensees to make specific financial plans to meet decommissioning costs of planned and premature shutdown of nuclear facilities. Nuclear power reactors and associated structures become radioactive during the reactors' useful lives -- about 40 years. An industry association, the Atomic Industrial Forum, calculated in November, 1976 that it would take from 200,000 to 500,000 years for radiation doses from obsolete atomic plant components to decay to acceptable levels. Present cost estimates for decommissioning are both varied and uncertain. Lack of experience, uncertain regulatory requirements, and future costs of labor and materials contribute to this uncertainty. Variables, such as the period of time projected to complete decommissioning, local productivity, the amount of utility vs. non-utility labor used, project extent and complexity, levels of decontamination desired, the removal or non-removal of non-radioactive structures and multiple facilities on one site can result in decommissioning costs of equivalent facilities easily varying by 100 percent.^{1/}

^{1/} Comments of the California Energy Commission Staff on the Twelve Questions Posed by the NRC to State Decommissioning Workshop Participants. Staff Draft. September 25-27, 1979.

Moreover, most decommissioning studies fail to adequately focus on the cost of perpetual management of the decommissioned site, either leaving the method and cost unaccounted for, or underestimating the cost of the method to be applied.^{2/} For example, if delayed dismantling options are chosen, it may be 60 to 100 years before a reactor is dismantled. Therefore, cost estimates must be made to cover that entire time period.

Depending on the size of the reactor and other facilities, cost estimates reach as high as \$100 million per reactor with further estimates of \$300 million to \$1 billion if inflation maintains a rate of between 4-8 percent.^{3/} Certainly, if inflation runs at the current rate of 13 percent, decommissioning costs can become astronomical, demanding that specific financial requirements be formulated now, to meet eventual escalated decommissioning costs in the future. The cost of premature shut-down and clean-up is already enormous. Nuclear power experts estimate that it would cost up to \$430 million and take four years for the Three Mile Island atomic plant to recover from the March 28, 1979 accident in Pennsylvania that put it out of operation.^{4/}

Premature shut-down, as evidenced by the circumstances of Three Mile Island, is a hazardous economic reality not envisioned by current NRC guidelines and regulations. Premature shut-down also poses alarming health and safety consequences compounded by increased risks of financial liability for state and Federal governments.

^{2/} Cost estimates for the management of a waste burial facility for the State of New York at West Valley outtran projected funding. See Testimony of Peter N. Skinner on behalf of the State of New York, Before the GESMO Hearing Board, In the Matter of Generic Environmental Statement on Mixed Oxide No. Rm.-50-5, March 4, 1977, p. 26.

^{3/} Costs and Financing of Reactor Decommissioning: Some Considerations, Vincent Schwent, California Energy Commission, September, 1978.

^{4/} Based on a study by Bechtel Power Corporation for Three Mile Island owner, General Public Utilities Corporation. Washington Post, July 17, 1979, Page A3.

SPECIFIC FINANCIAL PLAN

To establish effective financial requirements for reactor decommissioning, four factors must be included in specific rules:

1. Collection of funds from current consumers of nuclear generated electricity;
2. Maintenance of the funds in cash, negotiable securities, or other liquid assets to protect against future utility insolvency;
3. Funding provisions to ensure that total decommissioning costs will be available at any time in case of premature shutdown;
4. Ability to readjust the rate of fund accumulation to account for uncertainties in the original cost estimates, and inflation factors,

All of these factors must be made a part of any funding scheme to insure that consumers of the electricity generated by the power reactor share equitably in the cost of decommissioning, and that adequate funds will be present to meet final and/or premature shutdown. A number of financing alternatives have been proposed and analyzed by various sources.^{5/} They include prepayment of decommissioning costs (deposit at start-up, funded reserves (sinking funds), unfunded reserves, security bonds, decommissioning insurance, and funding from general revenues. PIRG et al., believe that only a combination of financial arrangements can adequately account for the needs of planned and premature shutdown.

Of the available alternatives, sinking funds or funded reserves provide the most assurance that money will be available and equitably committed by consumers and providers for planned decommissioning costs. Pooled insurance agreements among nuclear reactor operators serving intra- and inter-state clients, and the purchase of surety bonds by individual operators or through a pooling arrangement

5/ Assuring the Availability of Funds for Decommissioning Nuclear Facilities (NUREG - 0584) by Robert S. Wood, Anti-trust and Indemnity Group, Office of Nuclear Reactor Regulation, U.S. Nuclear Regulatory Commission (July, 1979).

are necessary adjunct financing to cover premature decommissioning costs caused by unforeseen accidents or disruptions. Sinking funds or funded reserves are the most equitable alternatives because they can earn the maximum amount of return, spread the investment risk, and provide debt and equity ratios sufficiently adjustable to meet inflation factors. To account for a premature shut-down, the initial deposit in a funded reserve or sinking fund could be adjusted upward with concomitant raising or lowering of annual payments by ratepayers according to prevailing economic conditions. Any shortfall in amounts made available through prepaid funding could be supplemented with the purchase of a security bond by individual operators or funds from pooled insurance agreements among utility-operators. In the latter regard, it is not clear that insurance companies will enthusiastically offer decommissioning insurance in light of recent accidents such as Three Mile Island. Nevertheless, pooling agreements much like those available to doctors for malpractice under the Harvard Health Plan or those offered to lawyers by state bar associations are reasonable models that could be required of the nuclear industry to ensure that consumers and providers of nuclear power pay for both its benefits and inevitable consequences.

SURETY BOND AS SUPPLEMENTARY OPTION

While the NRC rejected our contention in our original petition, that bonding be required as a financial tool for decommissioning costs "in the event the utility is unable to pay for decommissioning (one example would be bankruptcy)." [44 Federal Register, 36525, No. 122.] PIRG agrees that surety bonds alone are not a financial solution to decommissioning problems. Moreover, PIRG notes that premature shut-down is exactly the type of unforeseen event, like bankruptcy (or in this case, a likely result of bankruptcy brought on by premature shut-down) that would make such an adjunct bonding scheme worthwhile. Such requirements have been made by the Connecticut Public Utilities Control Authority to be used

in conjunction with a depreciation mechanism for the eventual mothballing of Millstone I and II by Connecticut Light and Power. In that particular circumstance, the Connecticut PUCA required the annual filing of a corporate surety bond to ensure that monies collected by depreciation would be used for decommissioning.

Similarly, seven states require bonding of operators of state-licensed, non-reactor facilities handling radioactive material. Moreover, imposition of such a bonding requirement for premature shut-down will be consistent with present NRC requirements that mandate bonding of newly financed operating uranium mills.^{6/} Furthermore, the pooling insurance concept could be extended to the affected utilities much like the present coverage that exists providing liability and indemnification for reactor operators.

UNFUNDED ALTERNATIVES - DISADVANTAGES

While it may appear that prepayment and funded deposit alternatives may be more expensive than other proposed alternatives, constituting an inequitable stream of payments for consumers, at least one study has shown that prepayment of funds is less expensive than unfunded alternatives, notably, the net-negative salvage depreciation method.^{7/} Other major problems exist for those who prefer to rely on payment of funds at the time of decommissioning or the use of other unfunded alternatives such as depreciation mechanisms. To devise a way of paying decommissioning costs at the time of decommissioning is inequitable because it violates the basic premise that consumers should pay for the costs of the rendered service on an equitable basis. Secondly, there can be no assurance that a utility will have the money on hand at the time of decommissioning. The net-negative

6/ Costs and Financing of Reactor Decommissioning: Some Considerations, Vincent Schwart, California Energy Commission (September, 1978).

7/ Decost Computer Routine for Decommissioning Cost and Funding Analysis (NUREG - 0514 by Barry C. Mungat, Office of Nuclear Material Safety and Safeguards, U.S. NRC.

salvage depreciation approach is merely an accounting procedure that provides for the carriage of a depreciation reserve on the company's books while funds collected from consumer contributions through the rate base are invested in the utility's assets. If there is a premature shutdown of a power plant or if a utility were to go bankrupt, the funds would not be available for decommissioning costs. Further, as Schwent points out:

While an adjusted depreciation mechanism should, at least on paper, accumulate the proper amount of money by the time of expected reactor retirement, if the present cost is used as the basis for calculating depreciation at the start, the rate of accumulation will be slow until the last few years of reactor life. In this case the difference between accumulated money and decommissioning costs in the event of premature shut-down will be greater than if some estimate of inflated future costs were originally used as the basis for depreciation at the outset.^{8/}

The Internal Revenue Service (IRS) opposes the deduction of future decommissioning costs as an annual depreciation expense. The IRS views decommissioning as a definite expense deductible only in the actual year that a reactor would be deactivated.

The IRS will, however, issue revenue rulings on specific requests for depreciation decommissioning schemes, for investor-owned utilities. The IRS will issue favorable rulings for schemes containing four factors: segregation of funds from the utility's assets, no short term use of the funds by the utility, no reinvestment of the funds in the utility's assets, independent administration of the funds and excess funds cannot be returned to the utility.^{9/} Assuming that individual revenue rulings favorable to a depreciation decommissioning mechanism would be issued by the IRS, premature shut-down decommissioning costs could still not be met unless the depreciation mechanism is complemented by pooled insurance and/or security bond arrangements.

^{9/} See (NUREG-1584), note 4.

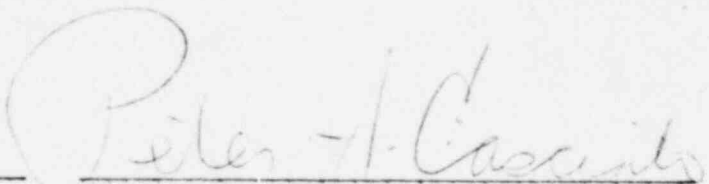
Thus, PIRG believes that prepayment and funded deposit financial mechanisms coupled with pooled insurance agreements or security bonds offer the best alternatives to meet decommissioning costs. Nonetheless, PIRG will support a flexible rule allowing the use of other financial mechanisms as long as such mechanisms provide for equitable payment of costs and a certainty of available funds to meet planned and premature reactor shutdown.


CONCLUSION

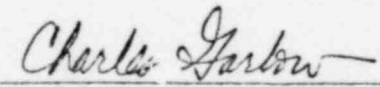
Decommissioning of nuclear power facilities is inevitable. Cost estimates and specific financial mechanisms to meet planned and premature decommissioning should be incorporated into 10 C.F.R. 50. As Monte Canfield, Director, Energy and Minerals Division, U.S. General Accounting Office, before the House Committee on Science and Technology noted:

We believe the cost of decommissioning should be paid by the current beneficiaries, not by future generations...NRC should make advance planning for decommissioning mandatory at the time of licensing, including provision for funding."

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