May 16, 1997 SECY-97-102

FOR: The Commissioners

FROM: L. Joseph Callan /s/
Executive Director for Operations

SUBJECT: PROPOSED RULE ON FINANCIAL ASSURANCE REQUIREMENTS FOR DECOMMISSIONING NUCLEAR POWER REACTORS

PURPOSE:

To request Commission approval to publish in the Federal Register a proposed rule on financial assurance requirements for decommissioning nuclear power reactors.

SUMMARY:

This proposed rule is being developed to amend the NRC's regulations relating to financial assurance requirements for the decommissioning of nuclear power plants. This is in response to the anticipated rate deregulation of the power generating industry. The staff believes the proposed rule provides for adequate protection in the face of a changing environment not envisioned when the present rule was originally written. The proposed action would revise the definition of "electric utility" contained in 10 CFR 50.2, would add a definition of "Federal licensee" to address the issue of which licensees may use statements of intent, and would require power reactor licensees

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to periodically report on the status of their decommissioning funds and changes in their external trust agreements. Also, the staff is proposing to amend the regulations so as to expressly allow licensees to take credit for the earnings on decommissioning trust funds both during the operating and decommissioning periods.

BACKGROUND:

The staff submitted an advance notice of proposed rulemaking (ANPR) on financial assurance requirements for decommissioning nuclear power reactors (SECY-96-030) to the Commission on February 8, 1996. A staff requirements memorandum (SRM) on the same topic was issued on March 27, 1996, which approved publication of the ANPR with the addition of some items to be addressed through public comment (Enclosure 1). A revised ANPR based on the Commission's comments was published in the Federal Register on April 8, 1996 (61 FR 15427). The attached proposed rule responds to the comments received on the ANPR and submits the proposed amendments (Enclosure 6).

The ANPR requested public comment on a specific proposal to amend §§ 50.2, 50.75, and 50.82 and requested comment on six areas of consideration for decommissioning: (1) the timing and extent of deregulation of the electric utility industry, (2) stranded costs, (3) financial qualifications and decommissioning funding assurance for nuclear power plants, (4) decommissioning funding assurance for a Federal Government licensee, (5) the status of decommissioning trust funds during the safe storage period, and (6) reporting on the status of decommissioning funds.

DISCUSSION:

Approximately 650 comments on the ANPR were received from 42 respondents. The commenters included 9 public utility commissions and organizations, 2 public interest groups, 28 utilities and utility groups, and 3 classified as "other."

Comments were requested on the specific proposal to amend §§ 50.2, 50.75, and 50.82 to require that nuclear power reactor licensees provide assurance that the full estimated cost of decommissioning will be available through an acceptable guarantee mechanism if the licensees are no longer subject to rate regulations by State public utility commissions (PUCs) or the Federal Energy Regulatory Commission (FERC) and do not have a guaranteed source of income. The amendment would also allow licensees to assume a positive real rate of return on decommissioning funds during the safe storage period. Lastly, a periodic reporting requirement would be established.

With respect to the proposed amendments, the staff was concerned by the possibility that the existing definition of "electric utility" in § 50.2 would be ambiguous if left intact during deregulation of the electric utility industry. As a result, a revised definition is being proposed for § 50.2 and the relevant sections of Part 50 that refer to the words "electric utility" or "utility" are also being modified. The staff notes that the key component of the revised definition is licensee rates being established by a rate-regulating authority either through traditional cost-of-service regulation or through another non-bypassable charge mechanism. Further, if a licensee is under the jurisdiction of such an authority for only certain components of the licensee's costs (e.g., transmission access fees or system exit fees), the licensee would be considered to be an "electric utility" only to that extent.

Another deregulation-related item that was included in the Commission's SRM relates to decommissioning funding assurance for a Federal Government licensee. Section 50.75(e)(3)(iv) states that an electric utility that is a Federal Government licensee need only provide assurance in the form of a statement of intent indicating that decommissioning funds will be obtained when necessary. The Office of the Inspector General published an audit report[1] on this topic on April 3, 1996, indicating that they found that the bases for the NRC originally allowing such use of a statement of intent by the Tennessee Valley Authority (TVA) was questionable. Similarly, most of the comments received stated that the statement of intent should be eliminated as an option for any Federal licensee so that all licensees would be playing on a level field, but the comments did not address the fact that elimination would preclude Federal agencies or other

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[1]U.S. Nuclear Regulatory Commission, Office of the Inspector General, "NRC's Decommissioning Financial Assurance Requirements for Federal Licensees May Not Be Sufficient," OIG/95A-20, April 3, 1996.

qualifying Federal entities from using the statement of intent option, if they become licensees in the future. As discussed below, the staff proposes not to eliminate the use of the statement of intent, but proposes a definition of "Federal licensee" in § 50.2 that may result in TVA no longer being a "Federal licensee."

The ANPR also addressed the status of decommissioning funds during the extended safe storage period. Specifically, it requested comments on whether licensees should be allowed to take credit for earnings on the decommissioning trust funds during the safe storage period, what time periods NRC should allow licensees to use in estimating the credit for earnings, and what real rate of return should be allowed by the NRC. In response, the staff is proposing to allow credit on earnings from the time the funds are collected through the decommissioning period at a real rate of 2 percent. However, higher earnings amounts will be allowed during the period of reactor operation if specifically approved by a rate-setting authority.

With respect to the reporting requirement, the staff is proposing that each licensee report on the status of its decommissioning funding and on any changes to its trust agreements for each power reactor at least once every three years, unless the reactor is within 5 years of the projected end of its operation, in which case it must submit a report annually.

Besides seeking comments on the above, the ANPR specifically requested comments on six areas of consideration.

1. The first area of consideration related to the timing and extent of deregulation, scenarios for deregulation, and the industry structure as a result of deregulation. On the issue of timing, commenters' predictions varied from as soon as 1998, to within 5 years, to a considerable length of time. As far as thoughts on a restructuring or deregulation scenario, individual commenters had some specific thoughts, but many commenters said there was significant uncertainty with respect to the breadth, timing, and implementation details of the new competitive electric business. As one

commenter noted, the pace of deregulation will be set by Federal and State legislation. Commenters, in general, stated that the ultimate extent of deregulation will be the deregulation of electricity generation, but not transmission and distribution rates. With regard to resulting industry structure as a consequence of deregulation, there were diverse views, but some commenters recommended that the NRC should abandon any attempt to anticipate market structure and any rule should accommodate nuclear reactors subject to traditional regulation and reactors in the new competitive markets. The last subset question in this area of the ANPR focused on the differences in State policies and implications. Again answers varied, but if one can draw an inference from present conditions, it appears that in the absence of Federal legislation, reform may proceed at different speeds in different States because of local market and political pressures.

2. The second area of consideration in the ANPR was stranded costs at nuclear power plants. Many commenters thought regulators would allow prudently incurred stranded costs to be recovered in some manner, especially decommissioning costs. However, the NRC is aware that stranded costs must be addressed to ensure that they are being adequately handled and that licensees are not so financially affected as to put public health and safety in danger. Subsequent to the publication of the ANPR, the NRC published its "Draft Policy Statement on the Restructuring and Economic Deregulation of the Electric Utility Industry," September 23, 1996 (61 FR 49711). It stated: "Notwithstanding the primary role of economic regulators in rate matters, the NRC has authority under the Atomic Energy Act of 1954, as amended, (AEA) to take actions that may affect a licensee's financial situations when these actions are warranted to protect public health and safety." The policy also goes on to explain that, in the future, the NRC will consult more closely with the National Association of Regulatory Utility Commissioners (NARUC), FERC, and the Securities and Exchange Commission so that the NRC may express its positions on safety and encourage the various regulatory bodies to

continue to allow adequate expenditures for plant safety. Lastly, the proposed reporting requirements addressed below are seen by the staff as vehicles for the Commission to keep abreast of this potential problem. NRC staff will continue to monitor this area throughout the deregulation process and take whatever actions are necessary to ensure that adequate decommissioning funds will be made available for all plants.

3. The third area of consideration in the ANPR was financial qualifications and funding assurance for decommissioning nuclear power plants. There were 9 sub-questions under this heading, covering funding assurance to cover premature shutdowns, a plant operator that ceases to be a utility, a variety of assurance options, financial test qualifications, PUC/FERC certification, the impact of accelerated funding, potential shortfalls because of underestimated costs, a captive insurance pool, and other NRC options in the case of a limited role for the PUCs or FERC. Again, the proposed reporting requirements addressed below are seen by the staff as a vehicle for the NRC to keep informed of licensees' decommissioning funding assurance without adding any of the above requirements at this point. Particularly, the staff believes that continuing a case-by-case approach to evaluate a licensee's decommissioning funding assurance for premature shutdown is preferred to requiring accelerated funding over a specified term which may be too arbitrary. Should the staff become aware of potential shortcomings as a result of the reporting requirements, necessary rulemakings will be proposed.

While "benchmarking" is not addressed in this rulemaking or in the ANPR, it is relevant to several of the comment areas and the staff wishes to raise the issue to the Commission. Benchmarking in this context refers to the amount of funding for decommissioning that the NRC believes a licensee should possess at given points in a nuclear power plant's operational life. For example, the NRC could consider requiring licensees to accumulate 25 percent of their decommissioning funds (less the credit for earnings on decommissioning funds as allowed by this proposed rulemaking) by the end of the tenth year of a plant's projected 40 years of operation.

The present requirements in this area stipulate that the licensees are to provide the funds for decommissioning, but are not required to provide a specified amount each year. Although licensees are required in § 50.75(b) to annually revise the estimate of the total amount of funds they need for decommissioning, they are not required to adjust the amount of funds set aside based on these changes in estimates. The reporting requirements in this proposed rule will result in a detailed understanding of contributions by licensees relative to the life of their plants. A significant variability in these contributions or possible shortfalls in the amounts may result in a need for future rulemaking to address benchmarking as a regulatory requirement. A potential problem with benchmarking at this time is that it would require licensees to base decommissioning estimates on the dated equations in § 50.75(c), which some commenters considered overestimates because of the formulas' over-weighting of low-level waste disposal costs without consideration of waste compaction or other means of cost mitigation. These decommissioning estimates are currently being evaluated as part of a rulemaking effort that is currently on hold pending accumulation of actual decommissioning cost data. The staff intends to address the issue of benchmarking as part of that future rulemaking. Additional information on funding will also be available as a result of this proposed rulemaking's reporting requirement.

4. The fourth area of consideration is decommissioning funding assurance for a Federal Government licensee. Almost all commenters took the position that Federal licensees should be treated in the same way as non-Federal licensees. The general consensus was that different treatment for Federal licensees could create competitive advantages for the Federal licensees and that NRC should ensure that the "playing field" remained level. Only TVA took the position that ample reasons exist for continuing the use of statements of intent as provided under the current regulations. However, TVA also provided an extended

description of the steps it has taken to use an external trust, "all requirements" contracts, and its power to issue indebtedness to assure its decommissioning costs. Another factor that was considered in this decision is the previously referenced Office of the Inspector General's Audit Report.[1] The report found that "...NRC's decision to allow Federal licensees to use a statement of intent...was based primarily on the assumption that the Federal Government would pay the financial obligations of the lone Federal licensee,...should it be unable to do so. However, based on our review of the U.S. Code and discussions with officials from the Department of the Treasury, the Office of Management and Budget and TVA, we believe NRC's assumption is questionable." The staff responded in the report stating: "TVA has a large, exclusive franchise area that has been granted by the Federal Government since TVA's formation in 1933. ...This franchise virtually guarantees that TVA will receive extensive revenues from the sale of electricity (at rates it has the power to set) for the foreseeable future. Even in the remote case where TVA defaulted on its bonds, revenues from electricity sales would not cease." Although TVA currently has an exclusive franchise area, various deregulation scenarios could result in its losing this exclusive franchise area in exchange for being able to compete for customers outside its current franchise area. While recognizing that the option of using a statement of intent could have the incidental effect of providing some competitive advantage, the staff's position is to not eliminate the special status afforded to Federal licensees. This position is based on the belief that the elimination of the option would place a burden on a Federal licensee that cannot be justified on the basis of public health and safety, given the very small risk of a Federal licensee not being able to meet its decommissioning costs.

However, the staff recognizes that the statement of intent option should only be permitted where the Federal licensee can demonstrate that it has the full faith and credit backing of the United States Government. Hence, the staff is proposing to define "Federal licensee" in this rulemaking. The staff believes this revision could eliminate the Tennessee Valley Authority as a "Federal licensee," but would preserve the option for other potential Federal licensees in the future. The staff also recognizes that the Commission has the option of simply eliminating the use of a statement of intent for power reactors, but does not recommend doing so for the reasons stated.

5. The status of decommissioning trust funds during the safe storage period was the next area of consideration. The majority of commenters supported allowing credit for earnings on funds during extended storage periods. Some argued that if credits for earnings were not allowed, more funds than necessary would be collected, thereby generating unwarranted expense to licensees and customers and possible intergenerational inequities. Still others in support of credit for earnings stated that this should cover not only the extended safe storage period, but other periods as well. The staff proposes to allow licensees to take credit for earnings on external sinking funds from the time of the funds' collection through the decommissioning period. The proposed reporting requirement would provide the NRC with the ability to monitor licensees' decommissioning funds.

   A related option was for the NRC to specify a rate of return for licensees to use in calculating their earnings. Commenters suggested the use of variable rates of return dependent upon what the licensees were able to justify given their earnings history, rates tied to bond rates, or rates established by States. The staff proposes use of a 2 percent real rate of return. The staff now recognizes that its implicit use of a zero real rate of return was too conservative. Historically, real (i.e., inflation adjusted, after tax) rates of return using U.S. Treasury issues have been around 2 percent, so the staff proposes to allow licensees to use this rate in their calculations. If rates actually are lower than this, § 50.82 provides that licensees are to adjust decommissioning funds during safe storage to reflect changes in cost estimates.

6. Reporting on the status of the decommissioning funds was the last area of consideration. While most commenters supported a reporting requirement, there was concern with content, frequency, and possible duplication of effort. The staff proposes a reporting requirement that would have licensees submit a report once every 3 years, and annually within 5 years of the planned end of operation. To make the report as simple as possible for the licensees to comply with, the staff is issuing a draft regulatory guide (DG-1060, "Financial Accounting Standards Board (FASB) Standards for Decommissioning Cost Accounting," Enclosure 7) for comment that would endorse the Financial Accounting Standards Board[2] (FASB) standard No. 158-B, "Accounting for Certain Liabilities Related to Closure or Removal of Long-Lived Assets," which is still in draft form. The staff plans to endorse this FASB standard as a means of providing guidance to licensees on complying with those portions of the NRC's regulations regarding licensee reporting on the status of its decommissioning funding. Licensees must comply with the FASB standard once it becomes final in order to remain consistent with generally accepted accounting principles. However, plant-specific information beyond or different from that required under the proposed FASB standard, may need to be provided by a licensee. There is some ambiguity concerning whether the proposed FASB standard requires information to be provided on a per plant basis or only on a corporate basis. The staff has reviewed the proposed contents of the reports on decommissioning funds to ensure that the needs of the NRC are balanced versus the time constraints of the licensees in assembling them.

The Federal Register notice also addresses comments received on topics not specifically addressed in the ANPR.

RESOURCES:

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[2]FASB is a private body that establishes authoritative financial accounting and reporting standards.

Resources to conduct this rulemaking are included in the FY 1997 budget and the FY 1998 budget request. Resources needed for the review of the reports required by this rule are expected to be minimal (2 staff-weeks) and will be subsumed within existing resources.

COORDINATION:

The Office of the General Counsel has no legal objection to this paper. The Office of the Chief Financial Officer has no objection to the resource estimates contained in this paper. The Chief Information Officer concurs that there will be no information technology impacts.

RECOMMENDATION:

That the Commission:

1. Approve the Notice of Proposed Rulemaking (Enclosure 2) for publication.

2. Certify that this rule, if promulgated, will not have a negative economic impact on a substantial number of small entities in order to satisfy requirements of the Regulatory Flexibility Act, 5 U.S.C. 605(b).

3. Note:

   a. The rulemaking would be published in the Federal Register for a 75-day public comment period;

   b. A draft regulatory analysis (Enclosure 3) will be available in the Public Document Room;

   c. The Chief Counsel for Advocacy of the Small Business Administration will be informed of the proposed certification regarding economic impact on small entities and the reasons for it as required by the Regulatory Flexibility Act;

d. This proposed rule amends information collection requirements that are subject to the Paperwork Reduction Act of 1995 (44 U.S.C. 3501 et seq.). This rule is being sent to the Office of Management and Budget for review and approval of the paperwork requirements;

e. A public announcement (Enclosure 4) will be issued;

f. The appropriate Congressional committees will be informed (Enclosure 5);

g. It is estimated that this proposed action would result in an additional annual NRC burden of approximately 2 staff-weeks; and

h. Copies of the Federal Register notice of proposed rulemaking will be distributed to all power reactor licensees. The notice will be sent to other interested parties upon request.

L. Joseph Callan
Executive Director
for Operation

Enclosures: As stated (7)

RECORD NOTE: A draft copy of the proposed rule was sent to OIG for information on **MARCH 10, 1997**.

March 27, 1996 REVISED

MEMORANDUM TO: James M. Taylor
Executive Director for Operations

FROM: John C. Hoyle, Secretary /s/

SUBJECT: STAFF REQUIREMENTS - SECY-96-030 - ADVANCE NOTICE OF PROPOSED RULEMAKING - NUCLEAR POWER REACTOR DECOMMISSIONING FINANCIAL ASSURANCE IMPLEMENTATION REQUIREMENTS

The Commission has approved publication of the Advanced Notice of Proposed Rulemaking with the addition of some items concerning the last two issues in the paper to be addressed through public comment, such as the following two examples:

1) The rate of return or time period to be assumed for the decommissioning funds.

2) The periodicity of reporting and the amount of information to be included on the status of the decommissioning funds.

The Federal Register notice should also be edited to include the following inserted text:

SECY NOTE: THIS SRM, SECY-96-030, AND THE VOTE SHEETS OF ALL COMMISSIONERS WILL BE MADE PUBLICLY AVAILABLE 5 WORKING DAYS FROM THE DATE OF THIS SRM.

p. 5 (new ¶ before last ¶):

In addition, § 50.75(e)(3)(iv) provides that an electric utility which is a Federal government licensee need only provide assurance in the form of a statement of intent indicating that decommissioning funds will be obtained when necessary.

p. 11 (new ¶ D and relabel remaining ¶s as E-F):

Section 50.75(e)(3)(iv) provides that an electric utility which is a Federal government licensee need only provide assurance in the form of a statement of intent indicating that decommissioning funds will be obtained when necessary. Since a Federal utility licensee will likely be confronted with many of the same new competitive pressures as non-federal utilities, the question arises, should the regulations continue to permit the provision of a statement of intent as the method by which these licensees provide financial assurance for decommissioning. There is, for example, no Federal law which clearly provides that the Federal government would pay the Tennessee Valley Authority's financial decommissioning obligations should TVA be unable to do so. Does this fact or any other factors militate for or against allowing federal utility licensees to continue to use statements of intent as the method by which financial assurance for decommissioning is provided?

The attached public announcement should be substituted for the announcement proposed in the paper.

(EDO) (SECY Suspense: 3/30/96)

Attachment:
As stated

cc: Chairman Jackson

Commissioner Rogers
Commissioner Dicus
OGC
OCA
OIG
Office Directors, Regions, ACRS, ACNW, ASLBP (via E-Mail)

NRC CONSIDERING REVISING DECOMMISSIONING FUNDING RULE
TO REFLECT UTILITY DEREGULATION; PUBLIC COMMENTS ASKED

The Nuclear Regulatory Commission is considering revising NRC's regulations on decommissioning funding to better reflect conditions brought about by restructuring and deregulation of the electric power industry.

Before proceeding with publication of a proposed rule, however, the Commission is seeking public comments on several issues involved. The deadline for submission of comments is _________________________.

Present NRC regulations, adopted in 1988, permit a nuclear electric utility to set aside decommissioning funds annually over the estimated life of a plant. But those same regulations give electric utilities more flexibility than non-utility licensees in setting up a financial assurance mechanism. The reason is that utilities have long operated in a highly structured, regulated and non-competitive environment with assured ratepayer revenues to meet prudent costs. However, with the growing trend toward deregulation of the electric power industry, questions have arisen as to whether a nuclear power licensee could lose a regulated rate base as a source of funds to cover the unfunded balance of decommissioning expenses.

Accordingly, the Commission is considering changing its decommissioning funding regulations to:

M Require that electric utility reactor licensees assure NRC that they can finance the full estimated cost of decommissioning if they are no longer subject to rate regulation by state agencies or by the Federal Energy Regulatory Commission and do not have a guaranteed source of income.

M Require utility licensees to report periodically on the status of their decommissioning funds. The present rule has no such requirement because state and Federal rate-regulating bodies actively monitor these funds. A deregulated nuclear utility would have no such monitoring.

M Additionally, the NRC is considering permitting licensees to take credit for a positive, real rate of return on decommissioning trust funds during a period of safe storage (a decommissioning phase when the plant is maintained in a condition that allows the radioactivity on site to decay). Under the present rule, licensees cannot take credit for earnings on such funds during safe storage because it is assumed that inflation and taxes would erode any investment return.

M The NRC is also requesting comment on whether the ~~sole~~ federal government licensees of operating power reactors ~~operating licensee, Tennessee Valley Authority,~~ should be allowed to continue to use statements of intent to meet decommissioning financial assurance requirements for its power reactors.

Full details are available in the NRC's Advanced Notice of Proposed Rulemaking on this matter, published in the _______________ edition of the Federal Register. The notice also may be accessed on the NRC Electronic Bulletin Board on Fedworld, or may be obtained from the NRC Office of Public Affairs.

Comments should be mailed to: The Secretary of the Commission, U.S. Nuclear Regulatory Commission, Washington, DC 20555, Attention: Docketing and Service Branch. They may be delivered to 11555 Rockville Pike, Rockville, Maryland, between 7:45 a.m. and 4:15 p.m. on Federal workdays. Comments also may be submitted electronically through the NRC Electronic Bulletin Board on FedWorld.

NRC's preliminary views expressed in the proposed rulemaking notice may change in light of comments received. Any proposed rule developed also will be published for public comment before adoption in final form.

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[7590-01-P]

NUCLEAR REGULATORY COMMISSION

10 CFR Part 50

RIN 3150-AF41

Financial Assurance Requirements for
Decommissioning Nuclear Power Reactors

AGENCY: Nuclear Regulatory Commission.

ACTION: Proposed rule.

SUMMARY: The Nuclear Regulatory Commission (NRC) is proposing to amend its regulations on financial assurance requirements for the decommissioning of nuclear power plants. The proposed amendments are in response to the potential deregulation of the power generating industry and respond to questions on whether current NRC regulations concerning decommissioning funds and their financial mechanisms will need to be modified. The proposed action would require power reactor licensees to report periodically on the status of their decommissioning funds and on

the changes in their external trust agreements. Also, the proposed amendment would allow licensees to take credit for the earning on decommissioning trust funds.

DATE: Submit comments by [insert a date to allow 75 days public comment] __________________, 1997. Comments received after this date will be considered if it is practical to do so, but the Commission is able to assure consideration only for comments received on or before this date.

ADDRESSES: Mail comments to: The Secretary of the Commission, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, Attention: Docketing and Service Branch.

Deliver comments to: 11555 Rockville Pike, Rockville, Maryland, between 7:30 am and 4:15 pm, Federal workdays.

Examine copies of comments received at: The NRC Public Document Room, 2120 L Street NW. (Lower Level), Washington, DC.

FOR FURTHER INFORMATION CONTACT: Brian J. Richter, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, telephone (301) 415-6221, e-mail bjr@nrc.gov.

SUPPLEMENTARY INFORMATION:

Background

The NRC published an advance notice of proposed rulemaking (ANPR) for "Financial Assurance Requirements for Decommissioning Nuclear Power Reactors" on April 8, 1996 (61 FR 15427). The NRC was seeking comments on its proposal to amend 10 CFR 50.2, 50.75, and 50.82 to require that electric utility reactor licensees provide assurance that the full estimated cost of decommissioning their reactors will be available through an acceptable guarantee mechanism if the licensees are no longer subject to rate regulation by State public utility commissions (PUCs) or the Federal Energy Regulatory Commission (FERC) and do not have a guaranteed source of income. The proposed amendments would also allow licensees to assume a positive real rate of return on decommissioning funds during the safe storage period. Lastly, a periodic reporting requirement would be established.

The ANPR specifically requested comments on the above amendments and on six areas of consideration for decommissioning:

1. The timing and extent of deregulation of the electric utility industry;

2. Stranded costs;
3. Financial qualifications and decommissioning funding assurance for nuclear power plants;
4. Decommissioning funding assurance for a Federal Government licensee;
5. The status of decommissioning trust funds during the safe storage period; and
6. Reporting on the status of decommissioning funds.

In response, the NRC received 650 comments from 42 commenters, and the commenters have been classified into 4 groups. The largest group of respondents was utilities and utility groups (28 commenters), followed by public utility commissions and related organizations (9 commenters). Two public interest groups submitted comments, as did a group of 3 commenters referred to as "other."

The discussion of the comments received is presented by general comment area and specific questions posed within each area. The questions appear in the order as presented in the ANPR, followed by the Commission's responses.

Discussion of Comments

A. TIMING AND EXTENT OF ELECTRIC UTILITY INDUSTRY DEREGULATION

A.1 Likely Timetable

On the issue of the timing and extent of deregulation, most commenters addressed only the timing question. If commenters also discussed the question of extent, they generally only distinguished between deregulation of the wholesale market and deregulation of retail power sales, although timing estimates usually referred to retail deregulation. Almost half of the commenters did not take a position on the timing issue. Seven commenters stated that the timing of deregulation could not be predicted.

Several commenters stated only that they took the same position as the Nuclear Energy Institute (NEI), an organization that represents many nuclear utilities. NEI estimated that about ten years would be necessary to bring about restructuring and deregulation. A few commenters suggested that from five to ten years would be sufficient. Two commenters pointed to events in States that were scheduled to occur as early as 1998 and others predicted significant deregulation within five years or less or "rapidly." Two commenters suggested that deregulation would take place slowly and require a considerable time to complete.

A.2 Restructuring or Deregulation Scenario

Phases of Deregulation. Several commenters stated that an initial phase of deregulation of the generation or wholesale electricity market has already begun and is likely to continue. Utilities are now preparing for deregulation by undertaking cost reductions (e.g., workforce reductions, contract renegotiations, regulatory asset reductions, operating cost reductions), strategic alliances and mergers, and expansion into unregulated venues. Five commenters expressed their belief that a second deregulatory phase would follow and lead to the restructuring of the transmission sector and to retail competition. However, many commenters noted that significant uncertainty exists regarding the breadth, timing, and implementation of the new competitive electricity business.

The pace of deregulation, according to one commenter, will be set by Federal and State regulation. One commenter stated that competition would be phased in slowly with existing generation assets being "kept whole" through standard regulated rates.

Ultimate Extent of Rate Regulation or Deregulation. Four commenters expect that electricity prices from generators will ultimately be largely deregulated or unregulated. One commenter stated that generation of electricity will become partially deregulated, but may not be fully deregulated if reliance on market forces does not adequately ensure safe and reliable generation supplies.

Nine commenters expect that transmission rates will remain subject to Federal Energy Regulatory Commission jurisdiction. Regional power markets (RPM) and independent system operators (ISO) (discussed below) would also fall under FERC jurisdiction, according to one commenter. Ten commenters anticipate that distribution (retail) rates are likely to remain subject to State jurisdiction. One of these commenters stated that distribution rates may be regulated under a price cap or incentive-based regulation.

Retail wheeling and pool-based pricing[3] will provide market pricing at all levels, including the retail level, according to one commenter. Three commenters believe that retail wheeling will become widespread.

One commenter indicated that nuclear power plants and non-utility generators, even if released from rate regulation by States or FERC, may remain under some forms of regulation, including State and Federal siting and environmental regulation.

[3]Retail wheeling refers to the selling of bulk power to a retail customer by way of a third party's transmission system. Pool-based pricing is a pooling of electricity produced by various generators for resale to consumers.

Resulting Business and Industry Structure. Although one commenter stated that NRC should abandon any attempt to anticipate market structure, other commenters suggested that the following features might characterize the industry subsequent to deregulation and restructuring:

! Functional unbundling which is the divestiture of generation, transmission, or distribution systems.

! Many, and perhaps all, transmission systems operated on a State-wide or region-wide basis. An ISO will operate the system, coordinating energy production and delivery with demand and provide a pool-based spot market price for energy. RPMs or power market exchanges (PMEs) for competitive generation will accept bids from all generators that want to participate in the market, establish the clearing price, and determine the sequence of generator dispatch. Bilateral contracts for the direct purchase of power will also be allowed.

! Different treatment for nuclear generation than for other types of utility-owned generation. Even if nuclear generation is permitted to compete in an open market, some regulatory mechanisms may remain in place to ensure that nuclear-related costs (safety, security, waste disposal, decommissioning) are recovered by some means other than the market price of power. One of these commenters stated that regulated local distribution companies would end up owning nuclear generating plants.

! Continued economic viability for nuclear generation for many years as a result of marginal costs that are quite low. Another commenter argued, however, that there is no obvious deregulated market for many or most existing nuclear power plants because of the uncertainty of the costs of decommissioning and the disposal of high-level nuclear wastes. This commenter stated that neither NRC rulemakings nor short-term passage of time will resolve these issues. A third commenter asserted that competitive pressures will lead to the early retirement of some nuclear plants.

One commenter argued that, given the changes under consideration and already under way, it is no longer credible to assume that utilities can always raise rates or otherwise recover whatever costs are needed to safely operate and decommission nuclear plants. Another commenter suggested that if the NRC chooses to proceed with a rulemaking, the rule should accommodate both nuclear units subject to traditional regulation and nuclear units in the competitive markets.

A.3 Differences in State Policies and Implications

Commenters expressed viewpoints on the likely differences in State deregulatory efforts and policies. One commenter declared that all States will ultimately undergo restructuring and deregulation in some form. Nine commenters, however, suggested that some States may reject restructuring entirely, regardless of what other States do.

Four commenters feel that States will possibly or probably be compelled by competitive forces to deregulate, particularly if neighboring States do so. One of these commenters added that States within a geographic region (where there are no physical barriers to electric transmission) are likely to migrate to a similar industry structure, either as a result of Federal legislation or market pressures. Two other commenters provided examples of market or political pressures that could affect neighboring States' decisions to deregulate.

One commenter stated that some regulators in States that already enjoy low-cost electric service appear reluctant to endorse competition because of concerns that indigenous utilities will seek to sell power to the external market where profit margins could be greater. Should market factors provide an advantage to States that foster competition (by allowing indigenous utilities to gain strength by acquiring market share), States that resist competition could put their utilities at a disadvantage. While State regulators may elect to defer the decision on competition, economic or social pressures could influence that decision.

Another commenter indicated that States implementing retail competition may face the risk that a utility in a neighboring State could obtain open access without reciprocal access being provided to in-State utilities seeking to enter the State that does not provide competition.

Three commenters remarked that reform may proceed at different speeds in different States because of local market and political pressures. One of these commenters recommended that NRC accommodate the varied pace to avoid hindering or forcing transitions.

In response to the ANPR's query regarding "hybrid" systems, one commenter believes that a hybrid system of regulation is likely to emerge as States deal with economic issues in a variety of ways. Another commenter stated that a hybrid system could exist for some time. A third commenter reported that, while a hybrid system could probably exist, it may not result in the least expensive electricity. Under a hybrid system, industry structure may vary from region to region. Other commenters, however, felt that a hybrid system is unlikely to prevail. They stated that a hybrid may be operationally cumbersome or even unworkable because the markets are not defined by State boundaries and because the grid is highly integrated and interdependent. One of these commenters also stated that a patchwork or hybrid system may reduce the opportunities to market some nuclear generation. Three commenters said they could not predict whether a hybrid system can exist or how one State's policies will affect its neighbors.

One commenter expressed concern that deregulation and reduced oversight at the State level may reduce the certainty that out-of-State partial owners of nuclear-facilities will collect and expend decommissioning funds.

Response. The above questions were posed for comment so the NRC could obtain estimates on the timing of deregulation, phases, and possible different approaches that may be used in how States would address deregulation. These comments are being grouped under one response as they all contribute to whether the Commission should proceed with a proposed rule now. While the responses to this set of questions ran the gamut of opinion on this issue, the comments have not caused the Commission to change its position that it must act now to be in a position to respond to the upcoming changes in the electric utility environment that could affect protection of public health and safety. Increased competition could result in economic pressures that affect how licensees address maintenance and safety in nuclear power plant operations, as well as the availability of adequate funds for decommissioning. The comments received and the NRC staff's independent review of deregulation activities also indicate that NRC power reactor licensees are likely to have sufficient notice of changes in their regulatory regimes so as to be able to secure necessary financial assurance for decommissioning should they no longer qualify, in whole or in part, as electric utilities. (The staff notes that most, if not all, PUCs and FERC are addressing decommissioning funding assurance in their deregulatory initiatives.) Hence, these comments reinforce the Commission's position that a rule is necessary and timely, given electric utility restructuring and the deregulation legislation being proposed or enacted in several States and by Congress.

B. STRANDED COSTS

Many commenters expressed the view that regulators are likely to allow prudently incurred stranded costs to be recovered in some manner. Many of these commenters felt this was particularly true for prudently incurred decommissioning costs. Following are viewpoints typical of these comments.

The probability is high that regulatory mechanisms will be developed to replace cost recovery procedures established through "traditional" regulatory procedures. These mechanisms (e.g., wire charges, non-bypassable customer fees, exit fees) may be different from current mechanisms, but the probability of recoverability under these mechanisms is no less than it would have been under conventional regulation. The mechanism chosen, and its associated equitable allocation of cost responsibility between customers and shareholders, will be determined through the inevitable give and take of the restructuring process, if one is implemented.

FERC, in Order 888, April 24, 1996, effectively established a precedent that, for electric sales under FERC jurisdiction, there will be full recovery of all costs that were prudently incurred, based on an expectation of serving customers in the future, but have or may become stranded as a result of moving to a competitive market. Although the FERC order pertains to wholesale markets, most believe the precedent has been set and the same standard will apply to stranded costs that result from retail competition. It is reasonable to assume that legislators and generators will take distinct precautions in relation to nuclear generation. Even if nuclear plants are permitted to compete on the same basis as other baseload generation, regulatory mechanisms must be in place to ensure that certain costs (safety, security, waste disposal, and plant decommissioning) are recovered by some means other than the market price of power. Plausible mechanisms that regulators could use to recover costs include competition transition charges and non-bypassable charges. One utility fully expects that there would be 100 percent recovery of nuclear stranded costs in a restructured electric industry.

However, other commenters expressed some uncertainty. Some commenters thought cost recovery was appropriate, but did not address its likelihood. In some cases, commenters advocated specific NRC action to address the situation.

One commenter stated it is premature to speculate as to who will ultimately bear the responsibility for stranded costs (estimated between $7 and $17 billion in New Jersey alone). While FERC Order 888 addresses this issue for the wholesale market, that decision remains open to legal challenges that may affect its final outcome. Moreover, because potential retail stranded costs are orders of magnitude larger than wholesale stranded costs, a different solution to this issue for retail competition may ultimately be deemed appropriate. Where stranded costs may be determined to be recoverable, it is conceivable that those costs will be recovered through some form of non-bypassable "wire" charge.

The commenter further stated that it is not clear how construction costs will be treated as State PUCs define policy for restructuring. FERC and some State PUCs already have proceedings under way to determine the amount and means of stranded cost recovery. There is also the possibility of Congressional action. NRC should take a proactive position with FERC and State regulators that potential stranded costs, including those that may be related to specific decommissioning cost obligations, should be recovered by the electric utility as part of their rates. (Several other commenters also suggested that NRC should aggressively lobby FERC and/or PUCs to allow utilities to recover stranded decommissioning costs.)

One PUC does not accept that any source of electrical generation is "non-competitive" per se, and thus does not accept that nuclear plants are non-competitive because of high construction costs. It is premature, an oversimplification of a complex issue, and a potential disincentive to mitigate costs to label any type of generation non-competitive at this early stage in restructuring. Even if nuclear generation is sold at less than current combined fixed and variable costs, the market price will probably exceed the variable component, so there will be some recovery of fixed costs. Costs that are not recoverable could be the subject of Federal or State stranded cost proceedings. Federal and State authorities must inquire whether the unit is necessary to the continued safe and reliable operation of the interconnected grid, and if the answer is yes, a proration of the costs may be necessary among all customer classes that benefit from the continued operation of the unit. If the unit is not necessary, it should be removed from service. The individual State commissions will have to decide who should bear the cost to prematurely shut down, as opposed to decommission, an uneconomic plant.

A commenter stated that the treatment accorded stranded investment or costs may vary from jurisdiction to jurisdiction and few generalizations are possible. The NRC should not become embroiled in individual rate proceedings or debates about particular cost recovery mechanisms, but should instead define a clear policy that, from a public health and safety perspective, licensees must be allowed to maintain an adequate financial posture to support ongoing safe operation and decommissioning. The NRC's policy statement[4] should be a strong statement of its expectations. NRC should participate in the NARUC subcommittee addressing restructuring.

Some commenters stated that decommissioning obligations are qualitatively different from other stranded costs. FERC has not yet adopted a mechanism that provides for recovery of decommissioning costs. Order 888 provides for recovery of wholesale stranded costs through the "revenues lost" approach. However, this approach only accounts for and allows recovery of fixed costs already incurred by utilities and does not address costs that must be collected in the future. A better solution is for the Federal Government to assure the continuing recovery of decommissioning costs in utility rates, through non-bypassable

[4]See Draft Policy Statement on the Restructuring and Economic Deregulation of the Electric Utility Industry, (61 FR 49711; September 23, 1996).

fees to be paid by utility customers leaving the system, or through other surcharges tied to the use of transmission facilities. The NRC should support cost recovery initiatives and help educate State commissions on the importance of ensuring continued full collection of decommissioning costs.

Another commenter noted that the best ultimate assurance of the collection of the cost of decommissioning is the ability of the plant to operate at sufficiently low marginal costs to collect decommissioning costs in gross margins. The NRC could improve the likelihood of this outcome by (1) encouraging the IRS to allow payments for decommissioning costs to be generally deductible rather than deductible only if they are ordered by a regulatory agency and (2) strengthening utilities' efforts to recover stranded costs. As plants are further depreciated and the cost of nonnuclear generation escalates, existing plants will become more competitive.

Some commenters asserted that in the process of identifying well-run plants and seeking the sale or closing of the not-well-run plants, the problem of who should pay for unrecovered costs must be addressed. To the extent that the nonsalability is caused by problems created by poor management, the seller is responsible. If the NRC or another agency would undertake a program to address the problem of poorly performing nuclear plants and encourage continued maintenance of efficiently operated plants, many of the questions asked by the ANPR might find answers. Timeliness in identifying poorly performing plants is critical because while the industry is reforming itself, the ability to affect the inventory of nuclear plants is at its highest level. Once plants have been evaluated, the NRC should be prepared with a task force to recommend an orderly plan for the disposition of those few plants and operators who will not be recommended for further operations.

A few commenters believed that the full burden of covering the costs, including decommissioning costs, of uneconomic nuclear plants should fall on utility shareholders rather than customers unless there is a compelling case otherwise.

Response. The Commission does not see a need to modify its position that its regulations need to be modified at this time to address the changing regulatory situation for power reactor licensees because of the comments received. Specifically, the Commission agrees with the commenters who hold the view that regulators are likely to allow prudently incurred stranded costs to be recovered in some manner and do not see a need to interfere in the financial regulation of nuclear power plants with respect to the question of stranded costs. Some of the comments, in which actions were proposed for the NRC's involvement with respect to stranded costs, were beyond the NRC's sphere of regulation. Examples include having the NRC identify poorly run plants, requiring the plants to be sold and for the Federal Government to be the purchaser of last resort and even run the plants if necessary.

The NRC has addressed the issue of stranded decommissioning costs elsewhere in this notice. However, the NRC is aware that stranded costs, insofar as their recovery affects a licensee's ability to obtain sufficient funds to protect public health and safety, must be addressed to ensure that they are being adequately handled. As stated in the NRC's "Draft Policy Statement on the Restructuring and Economic Deregulation of the Electric Utility Industry" September 23, 1996 (61 FR 49711): "Notwithstanding the primary role of economic regulators in rate matters, the NRC has authority under the Atomic Energy Act of 1954, as amended, (AEA) to take actions that may affect a licensee's financial situation when these actions are warranted to protect public health and safety." The policy also goes on to explain that the NRC will work and consult more closely in the future with the National Association of Regulatory Utility Commissioners (NARUC), FERC, and the Securities and Exchange Commission (SEC) so that the NRC may express its positions on safety and encourage the various regulatory bodies to continue their allowances of adequate expenditures for plant safety. Lastly, the proposed reporting requirements of this rulemaking are seen by the NRC as a vehicle for the Commission to monitor this potential concern.

C. NUCLEAR FINANCIAL QUALIFICATIONS AND DECOMMISSIONING FUNDING ASSURANCE

C.1 Funding Assurance if Plants Shut Down Prematurely

Most commenters accepted the premise of the question, whether costs of a shortfall in decommissioning funding of a prematurely shut down plant could be passed along to ratepayers. This conclusion was based in part on past experience and in part on a belief that State PUCs will develop methods to ensure that decommissioning costs are covered. Several commenters said that recovery from ratepayers or shareholders would depend on the plant management's responsibility for the premature shutdown. If management were deemed responsible, efforts would be made to have the shareholders pay for decommissioning; but if the management were not deemed responsible, State PUCs would find methods to have the ratepayers provide the funds. Commenters noted that, in the past, decommissioning costs had been recovered for prematurely closed reactors (e.g., Dresden 1, Fort St. Vrain, San Onofre Unit 1, Trojan, Yankee Rowe). In a transition from full regulation to full competition, one commenter suggested a window to allow continued or possibly accelerated recovery. Another commenter said that a surcharge might be placed on customers. Under competition, recovery could be made through other revenue streams of the licensee, a non-bypassable fee, or debt or equity of the licensee. Two other commenters suggested that transmission charges would be the most likely source of funding. Retained earnings of the utility were suggested as a source of funds. Two commenters expected shareholders to be responsible for providing decommissioning funds in cases of premature shutdown.

Two commenters, including one PUC, conceded that PUCs might not have jurisdiction to require funding from ratepayers. Under such circumstances, one PUC stated, funding of decommissioning would be greatly dependent on the financial viability of the regulated firm. The risk of recovery would rest squarely on its shareholders. If the shareholders could not pay, the liability would then transfer to taxpayers. For this reason, the commenter suggested, decommissioning might be accorded special treatment.

One commenter argued that the solution to premature shutdown was for NRC to require assurance for decommissioning costs prior to approving reorganizations or license transfers. Potential funding shortfalls should be addressed, another argued, on a case-by-case basis, and might be avoided by sale of the nuclear plant to an entity better able to manage it effectively. Two others suggested that a proper funding mechanism would have to be identified and put into place at shutdown, without further specifying what that mechanism could be. In the opinion of one of these commenters, such funding could be a difficult problem because currently, on an aggregate basis, utilities' decommissioning costs are only about 25 percent funded (about $9 billion out of $35 billion), although plants are at about 43 percent of their aggregate service lives. Early underfunding could force high back-end funding, making the plants uncompetitive.

A commenter stated that, contrary to the planned 40-year operating life of nuclear power plants, material and operating evidence suggests plants' operating lives are closer to 15-25 years. Hence, the plan to recoup decommissioning costs of over a 40-year operating life may be unrealistic.

NEI took the position that the source of funds to shut down a plant prematurely would be different from company to company and would have to come from other ongoing revenue streams of the company or from alternative sources such as transmission or distribution charges, exit fees charged customers leaving the system, or other regulatory charges. NEI also supported NRC requirements for financial assurance, such as those currently found in 10 CFR 50.75. Five commenters stated that they explicitly adopted the NEI position.

Response. The Commission recognizes the importance of decommissioning funding assurance for prematurely shutdown plants and believes that its current case-specific approach, outlined in § 50.82, strikes the best balance between level of assurance and cost. The alternative of requiring accelerated funding for all plants over a defined period, to cover the possibility of premature shutdown at some plants, would be too arbitrary and would lead to wide variations in impacts on licensees. Accelerated funding results in the inequitable inter-generational problem of the present generation paying for the decommissioning costs, while the future generation may receive the benefits of future electricity generation without incurring the costs of decommissioning. Although the Commission is not proposing to expressly require accelerated funding to address premature shutdowns, to the extent that licensees no longer qualify, in whole or in part, as electric utilities, they will, in effect, have to "accelerate" funding by getting "up-front" forms of financial assurance. The staff expects, however, that PUCs and

FERC will address decommissioning funding through cost recovery mechanisms. The Commission is aware that plants have not operated for the full 40 years. However, it is likely that some plants will continue operating for the full 40 years and beyond. Therefore, the Commission does not believe any change is required for the planned 40-year life.

C.2 When Does an Operator Cease To Be a Utility

On the question of when an operator of a nuclear power plant ceases to be a "utility" as defined in 10 CFR 50.2, seven commenters interpreted the definition strictly and concluded that, if an operator ceases to satisfy the terms of the definition, the operator is no longer a "utility." Several commenters used almost the same formula: an operator would cease to be a "utility" when it ceases to provide service to retail or wholesale customers at rates set by a separate regulatory authority. One commenter supported a clarification of NRC's regulations that would establish its continued ability to require the proper accumulation of decommissioning funds, while two argued that the NRC should relax its definition to cover entities that purchase electricity and recover the costs from rates charged customers or from other revenue guarantees. Another commenter argued that NRC should seek additional assurance in advance of deregulation.

NEI stated the contrary argument, noting that it is not apparent that any licensee will fall outside the definition of "utility" in the near future, even after restructuring. NEI argued that as long as a licensee has adequate cost-recovery mechanisms under the authority of State or Federal regulations, it should continue to be considered a utility.

Other commenters argued that even after deregulation the price charged for electricity will be established by the regulatory process or in other ways that will mean a nuclear plant will continue to be an "electric utility." One stated that the term "electric utility" should be construed to include all entities that have been authorized by a State PUC, FERC, or other governing entity to recover decommissioning costs from customers. Two commenters expected plants to remain subject to State PUC jurisdiction, and therefore to satisfy the regulatory definition. Another argued that if a portion of a vertically integrated company is subject to cost recovery pricing, the definition is satisfied. Two said that if a plant sets its own rates for electricity, the definition is satisfied.

One commenter rejected the NRC's emphasis on an operator's satisfying the definition of utility, and argued that the emphasis should be on the financial viability of the entity responsible for decommissioning the unit.

Response. Consistent with the position taken in the ANPR, the NRC is proposing to revise its definition of "electric utility" to introduce additional flexibility to address potential impacts of electric industry deregulation. The Commission notes that the key component of the revised definition is a licensee's rates being established either through cost-of-service mechanisms or through other non-bypassable charge mechanisms, by a rate-regulating authority. Several States are considering deregulation of future operations of nuclear power plants so that revenues will not be determined by cost-of-service but by market-set prices. Should a licensee be under the jurisdiction of a rate-regulating authority for only a portion of the licensee's cost of operation, covering only a corresponding portion of the decommissioning costs that are recoverable by rates set by a rate-regulating authority, the licensee will be considered to be an "electric utility" only for that part of the Commission's regulations to which those portions of costs pertain. For example, if a licensee were able to collect 40 percent of its decommissioning costs through rate-regulated activities, such as traditional cost of service regulation or use of non-bypassable charges, the remaining 60 percent of the costs would need to be accounted for in a manner consistent with methods acceptable for a licensee other than an electric utility. In this proposed rule, the definitions of several relevant terms are also provided for the first time in § 50.2. It is noted that some commenters misinterpreted the intent of the existing definition of "electric utility" with respect to entities that establish rates themselves. As stated in the proposed definition, those entities include only public utility districts, municipalities, rural electric cooperatives, and State and Federal agencies. Therefore, the proposed definition is being proffered as clarification and to show the continued importance the NRC places on the role of regulatory authorities in the setting of electric utilities' rates with respect to the collection of funds for decommissioning and other costs. This is consistent with the NRC's draft policy statement.

C.3 <u>Assurance Options</u>

The following topics were discussed by commenters in response to the ANPR's questions relating to the options to be considered if an electric utility found itself operating a reactor that was no longer regulated by a rate-setting State or Federal body.

<u>Full Up-Front Assurance</u>. Most commenters opposed requiring all nuclear plants to provide full up-front assurance, often arguing that it is unnecessary or that it is overly burdensome to nuclear plant owners. Many commenters reminded NRC that deregulation does not inherently mean a total lack of regulation or a lack of cost recovery. One commenter believed NRC should, at the time of restructuring, require only an assurance level commensurate with the completed percentage of the operating life of the plant. One commenter opposes advance funding on the grounds that doing so would incorrectly view all properly executed reorganizations as resulting in successor operators being unqualified to ensure decommissioning compliance.

One commenter believes that assurance should be provided before licensees are exposed to the full pressures of competition (3-5 years). Two commenters supported the idea of requiring assurance prior to NRC's approval of reorganizations that transfer control of a nuclear plant.

Many commenters favor requiring reasonable financial assurance for entities that cease to be rate-regulated utilities. Many of these commenters, and others, view NRC's current regulations as basically adequate to address these situations, although the regulations might expand upon the allowable methods of assurance.

Additional Financial Assurance Methods. Additional financial assurance methods suggested include continued rate-regulating entity determinations, an appropriate charge for decommissioning in contracts for the plant's output or in the transmission or distribution charges of the licensee or its affiliate if the charges are assigned to the licensee or its decommissioning fund, and exit fees charged against customers leaving the system. A few commenters would include any insurance for premature decommissioning caused by an accident. One commenter would allow utilities to establish any method that may be developed, including methods requiring approval of PUCs or FERC. Two others would allow assurance through a plan for gradually recovering decommissioning funds via rates and prices, even for deregulated entities. Others argued that NRC should offer the utilities flexibility and that each situation should be assessed on a case-by-case basis if and when it occurs.

Timing of Rulemaking. With regard to the timing of the rulemaking, a few commenters support prompt NRC regulatory action to ensure that adequate financial assurance is in place prior to restructuring, before waiting further to learn exactly how the industry will develop. Several other commenters, however, believe that rulemaking is premature until more is known about restructuring. Several commenters suggested that NRC already has the authority to approve or disapprove any transfer of license related to a merger or reorganization. Two commenters stated that NRC should evaluate the regulations only after further studies that (1) identify those nuclear plants that are not likely to survive the imposition of competitive forces (i.e., those plants that are not run efficiently or that cannot be made to run well), or (2) develop quantitative measures for assessing the adequacy of decommissioning funds and rates of accrual. New rules, according to one commenter, should be timed to enable utilities to take advantage of stranded cost recovery.

Added Assurances for Safe Operation and Decommissioning. Many commenters voiced opposition to the ANPR's query regarding

whether the NRC should require additional assurance for adequate funds for safe operation and decommissioning in anticipation of deregulation. One commenter argued that additional assurances in this area may not add to or strengthen the obligation already imposed by the terms and conditions of the license. Others reasoned
it unnecessary, given other existing NRC requirements and FERC's framework for recovery of stranded costs, including decommissioning.

Only one commenter supported additional assurance for safe operation and decommissioning in anticipation of deregulation.

Joint Liability[5]. In response to the ANPR's query regarding newly created organizations or holding companies being held jointly liable for decommissioning costs, four commenters supported the idea because of the added assurance it would provide. Three commenters would consider requiring joint liability on a pro rata basis, possibly taking into account the remaining years of licensed life. One commenter cautioned that

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[5]The concept of joint liability is defined in Black's Law Dictionary (4th Ed.) as:

> One wherein joint obligor has right to insist that co-obligor be joined as a codefendant with him, that is, that they be sued jointly.

jointly liable parties may disagree on decommissioning methods (e.g., prompt vs. deferred) because of the cash flow implications.

Numerous other commenters opposed the idea of joint liability, arguing that it was unnecessary, would inhibit flexibility, would weaken competitive position, or would undermine the separate corporate identity or the responsibility of the individual entities. Some of these commenters suggested that joint liability could be acceptable if it were an optional method of financial assurance.

One commenter stated that new owners and operators should have to assume the responsibilities and liabilities of the previous owners and operators. Another stated that the financial assurance obligation should follow the owners and operators, whether regulated or unregulated, who have incentives to properly manage and operate the units.

<u>Impacts.</u> Many commenters claimed that requiring full up-front assurance would be overly burdensome to nuclear plant owners. Others argued that additional assurances could inhibit competitiveness relative to nonnuclear facilities, impede reorganization, aggravate potential stranded investment, or create additional problems for utilities, ratepayers, or

taxpayers at a time when competitive forces are already causing economic concerns. Examples of such problems would include the difficulty for affiliated businesses to raise capital, or the need for affiliated entities to charge more for its services reducing its competitive position in the industry. Some commenters argued these effects could reduce the likelihood that decommissioning will be fully funded or could increase the likelihood of premature shutdown.

Response. The Commission is addressing most of these comments by revising the definition of "electric utility" and by instituting a reporting requirement. As to the issue of requiring full up-front funding in advance of deregulation, the Commission agrees with the commenters that such a requirement would be overly burdensome if applied to all licensees. However, given the proposed change to the definition of "electric utility" in this action, any licensee no longer overseen by a rate-setting regulatory authority, i.e., a licensee other than an electric utility, would need to comply with the decommissioning funding assurance requirements of § 50.75(e)(2) unless that licensee can otherwise conclusively demonstrate a government-mandated, guaranteed revenue stream for all unfunded decommissioning obligations. The options contained in that section include prepayment; an external sinking fund coupled with a surety method or insurance for any unfunded balance; or a surety method, insurance, or other guarantee method.

The Commission emphasizes that the changes to the definition of "electric utility" introduce additional flexibility to address deregulatory developments. Thus, the NRC would expect licensees to be more likely to continue to qualify, in whole or in part, as electric utilities under the revised definition. Although licensees who no longer qualify, in whole or in part, as electric utilities could encounter difficulties in securing alternative decommissioning funding, experience to date indicates that PUCs and FERC are addressing decommissioning costs through various recovery mechanisms.

The timing of the rulemaking was addressed in the response to comments in section A of this notice. Any additional rulemaking in this area would result from experience gained from industry and regulatory actions. As several of the commenters stated, the NRC has the authority to approve or disapprove any transfer of license related to a merger or reorganization. Section 184 of the Atomic Energy Act of 1954, as amended, and 10 CFR 50.80 provide that control over a license may not be transferred, directly or indirectly, unless the Commission consents to such transfer in writing.

The regulations do not explicitly impose joint liability on co-owners and co-licensees. As stated by some commenters, joint liability may create problems with respect to potential disagreement on decommissioning methods, the inhibition of flexibility, the weakening of competitive position, and the difficulty in implementation. Also, as some noted, joint liability may not be needed. The new owners and operators should assume the obligation to safely operate the facility and assure adequate funding for decommissioning, as they have the incentives to properly manage and operate the units. More importantly, however, is the fact that with the proposed modified definition of "electric utility," restructured entities would either have to have adequate coverage of decommissioning funding obligations through some non-bypassable cost recovery mechanism or would be required to provide the types of up-front assurance described in § 50.75(e)(2). Those licensees who remain utilities would have the funding assurance provided through being rate-regulated under § 50.75(e)(3). The Commission considers this level of assurance to be adequate and therefore sees no need to impose an additional regulatory obligation of joint liability on co-owners or co-licensees.

Lastly, with respect to the question of impacts, the Commission has considered the comments relating to potential impacts in arriving at the positions taken. The Commission understands that financial assurance would place a burden on licensees that may affect their competitiveness in a deregulated environment. The Commission has chosen to take an approach that would create no additional financial impact over present regulations for electric utilities and has also expanded the definition of electric utility to accommodate types of rate regulation not previously anticipated. There are also sufficient existing options to demonstrate financial assurance for non-electric utilities. Entities without adequate financial capital may find it difficult to both finance up-front decommissioning funding and operate a nuclear power plant safely. These newly formed companies may not be good candidates for nuclear power plant ownership.

C.4 Financial Test Qualifications

About half the commenters flatly opposed requiring licensees to demonstrate financial assurance by satisfying minimum standards of net worth, cash flow, or other financial measures.

Many of the commenters, including NEI and four commenters who adopted the NEI position, argued that such a test was not necessary or appropriate. If NRC is concerned about the financial condition of a particular licensee, three commenters said, an individualized case-by-case review would be more appropriate. Some commenters said that financial measures appropriate for investor-owned utilities would not be useful for cooperatives, or for utilities that do not have parent companies. Because generation and transmission companies typically are highly leveraged, with many of their assets in the nuclear generating facility, they cannot meet a test with a tangible net worth requirement of ten times the current decommissioning costs, but this does not mean that they cannot satisfy their financial obligations. A non-bypassable charge was suggested as an alternative.

Some commenters suggested that NRC should adopt more than one alternative test, none of which would be mandatory. Any alternative adopted should be consistent among owners, and should not discriminate against one class of owners, and should not be applied as a static one-time requirement. Other suggestions included a requirement that a firm demonstrate that it had "ample margins, subsequent to restructuring" to cover funding contributions or to cover decommissioning costs in the event of a premature shutdown. Another suggested disclosure standards, developed through the Financial Accounting Standards Board, for use in annual reports and 10-K filings, that would be reviewed by Federal regulators. Still another argued that measures of market value and cash flow, rather than net worth, were appropriate in a competitive environment, and that the ratio of available cash and cash equivalents to unfunded decommissioning requirements would be the best measure of ability to support decommissioning, along with an assessment of the utility's competitive situation. Determining whether a utility had minimum cash flow sufficient to maintain its plants in a non-operating, interim stage prior to decommissioning, and the period of time the utility could sustain such cash flows, was suggested by one commenter.

One commenter suggested using a financial test as an indicator, from which a Federal agency could determine that the utility needed assurance of continued rate recovery of the decommissioning obligation.

Only two commenters endorsed a test of financial stability as a financial test qualification. One pointed to assets sufficient to fund an immediate decommissioning, or a minimum level of financial stability (measured through investment grade securities) or insurance, or a surety to cover decommissioning costs as three potentially acceptable mechanisms. The other approved of parent or self-guarantees, but noted that generators with nuclear facilities might have difficulty meeting the financial test criteria, including the investment grade bond rating requirement.

Response. With the proposed revision of the definition of "electric utility," licensees who no longer meet the new definition will need to comply with the requirements of § 50.75(e)(2), which describes the acceptable methods of financial assurance for decommissioning for a licensee other than an electric utility. These methods are flexible and contain at least four major categories of acceptable methods to ensure funding for decommissioning as identified in the previous response. Few commenters offered insights on other potential test qualifications, although several stated that the financial structure of utilities means that meeting the criteria in 10 CFR Part 30 could be problematic. The NRC would need to conduct additional research and analysis to determine which additional financial measures would be most useful and appropriate if a financial test requirement for parent or self-guarantee were pursued. Criteria could be identified and thresholds developed, but evolution of the industry might mean that the criteria would become outdated and misleading relatively quickly. Hence, the Commission will continue to evaluate this issue, but is not presently offering any changes to its financial test criteria.

C.5 PUC/FERC Certification

Only two commenters gave unequivocal support to the idea of requiring PUC/FERC certification. One encouraged NRC to undertake direct dialogue on certifications with the appropriate PUCs and FERC; the other stated that PUCs and FERC must undertake such certifications and that NRC should impress upon them the importance of doing so. A few PUCs, in the opinion of this commenter, such as California and New York, had already recognized the need to provide this assurance during restructuring. Two other commenters expressed optimism that State regulators would resolve the decommissioning funding problem in the transition to competition, with or without certification, but one went on to say that certification would probably be unnecessary. Of these, six adopted the NEI position, which was that without new Federal legislation it would be difficult to require legally binding certification from PUCs or FERC. Requiring a licensee to obtain such certification would place it in noncompliance, with no way of achieving compliance. If a licensee did obtain certification, however, NEI suggested that it be allowed to satisfy the financial assurance requirements using that mechanism.

Two commenters opposed to certification argued that it would be counter-productive because the utility would have no incentive to maintain adequate decommissioning funds. NARUC and several

PUCs either opposed the idea or expressed strong reservations about it. NARUC noted first that no current commission can bind a future commission at either the Federal or State level. However, NARUC was confident that State PUCs would examine the causes of underfunding, if it occurred, and seek remedies. A PUC stated that it might not have the authority to certify that nuclear plant licensees under its jurisdiction would be allowed to collect decommissioning funds through rates after restructuring, and another PUC similarly stated that it could not give a blanket guarantee that all licensees would be allowed to collect revenues to complete decommissioning funding. A third PUC stated that no current commission could legally bind a future commission, so it could not identify an effective form of certification. Another PUC also expressed doubt about how certification would change current procedures, in which PUCs can adjust rates based on the cause for and the prudence of the underfunding. A different PUC noted that, in the past, ratemaking authorities had allowed recovery and expected them to act in the future in the same way, but could not be certain that they would issue certifications. Another PUC stated that it already has and would maintain authority to ensure that utilities collect sufficient funds for decommissioning. One commenter pointed out that FERC has jurisdiction only over rates for wholesale sales of power. Over 80 percent of decommissioning costs are recovered through rates for retail power sales, over which PUCs have jurisdiction. Relying on State regulators would be particularly problematic for multi-State utilities. Another commenter stated that within five years the issue would become moot and certification would become impractical because of competition and evolving antitrust law. A public interest group had questions about whether PUCs and FERC could certify, but in any case thought NRC should concentrate instead on the licensees.

Another commenter noted that since a significant portion of nuclear licensees' business are not FERC-regulated, FERC certification would have no relevance to them.

One commenter suggested procedures through which NRC could interact with State PUCs and FERC; the NRC could determine that a utility's rate of recovery for decommissioning was insufficient, and that determination could be the basis of an action by a PUC to modify the rates.

The final set of commenters argued that the question of certification was one that the PUCs and FERC should determine.

Response. The Commission does not plan to implement certification by the State PUC's or FERC because of the reasons given in many of the comments outlined above. Although "certification" initially appeared to the NRC to be an option meriting further consideration, since experience to date has indicated that PUCs and FERC are addressing decommissioning funding assurance through more viable mechanisms, the NRC is not pursuing this option further.

C.6 <u>Impact of Accelerated Funding</u>

Only a small number of commenters supported the idea of accelerating funding of decommissioning costs. Two expressed general support. Two provided quantitative analyses that suggested that the impact of accelerated funding would not create a large financial burden on either licensees or ratepayers. The Public Utility Commission of Texas reported analysis for three Texas plants that suggested that, for a ten-year recovery period, electric base rates would need to be increased by about 0.5 percent and the fund earnings would be increased by about 50 percent. For a five-year recovery period, rates would increase by about 1 percent; total life-of-facility contributions by customers would be decreased by about 55 percent. In addition to arguments that the burden would not be great, another argument made in support of accelerated funding was that, after funding was completed, the licensees who had paid up their decommissioning funds would be in a better competitive position. Commenters also argued that earnings from the accelerated funding, because they would have a longer time to earn interest, would grow substantially and provide a gain to the licensees that they would not otherwise obtain.

Licensees both supporting and opposing accelerated funding noted that unless the Internal Revenue Service changed its rule on the deductibility of payments into the decommissioning trust fund, the accelerated payments would not be deductible. The NRC was urged to encourage the IRS to change the rule. Almost three-quarters of the commenters opposed accelerated funding of decommissioning. Their arguments against the idea stressed (1) that it would adversely impact the competitive situation of nuclear licensees and (2) that it would be inequitable because the amount that each plant would have to supply in an accelerated payment would depend on the age of the plant and the amount it had previously paid in the its decommissioning fund. The financial marketplace, rather than regulation, should determine the speed with which funding is provided. Accelerated funding, in the view of some commenters, could not be accomplished through rate increases and would have to be paid by licensees' stockholders. One commenter argued that utility shareholders should bear the burden of decommissioning costs, but would not do so under accelerated funding. Other commenters argued that accelerated funding would shift the costs of decommissioning onto current ratepayers from future ratepayers. Commenters believed accelerated funding would lead to cash flow problems for licensees and could result in increased borrowing to cover cash outlays. Accelerated funding could lead to the shutdown of marginal facilities, which would be contrary to the intent of the policy and lead to additional shortfalls of decommissioning funding. One commenter argued that the amount of decommissioning funding that will ultimately be required is too uncertain to be collected through accelerated funding.

Response. The Commission believes that the additional costs of accelerated funding for decommissioning outweigh the potential benefits and thus does not propose to require it at this time. Also, see response in section C.1 "Funding Assurance if Plants Shut Down Prematurely."

C.7 Potential Shortfalls from Underestimates of Costs

Commenters suggested a range of responses to decommissioning shortfalls occurring as many as 50 years into the future, after a period of safe storage. None, however, clearly identified a source of funding to make up the shortfall.

NEI and eight additional commenters argued that there is a reasonable probability that future cost estimates could decrease rather than increase because of several factors, including accumulated industry experience, application of new technologies, and reductions in the ultimate disposal volumes of decommissioning wastes. They also suggested that periodic re-estimates of decommissioning costs and adjustments to the rate of collection to reflect these re-estimates, both during operation and in the post-operation phase, could resolve the problem.

Several other commenters emphasized solutions that involved cost estimates. One PUC suggested that the NRC should allow utilities to use State-required facility-specific cost estimates if they were higher than NRC estimates. Two others suggested that NRC should review cost estimates every five years, with more frequent reviews as license termination approaches. The Utility Decommissioning Group predicted that shortfalls would be unlikely to arise suddenly or to be drastic. Two utilities also suggested that periodic reviews of cost estimates, coupled with increased collections as necessary, would remedy underfunding. Two other commenters made only the general statement that current procedures would be adequate, and any shortfalls should be handled through appropriate funding mechanisms.

Some commenters recognized that the problem of underfunding arising after the safe storage period could be serious. One public interest group did not suggest any remedy, stating only that NRC could be virtually certain that the funds accumulated for decommissioning would be insufficient. A utility suggested that the only solution would be to delay decommissioning activities to allow the decommissioning fund to accumulate additional earnings and to modify the decommissioning plans to reduce cash flow needs. Another suggestion was that NRC could require every licensee to adopt an investment strategy that would ensure that the decommissioning fund earned at least the rate of inflation measured by the consumer price index (CPI), and that NRC could require the utility to place additional money into the fund if necessary.

Several commenters recommended approaches to the problem that involved PUCs. Two suggested that underfunding would be remedied by application to the PUC. One suggested such PUC involvement would occur after the shortfall was identified, the other suggested that PUCs would take potential shortfalls into account prior to utility restructuring and that the shortfall would not occur until after several years of competition. This commenter suggested that a wires charge could be used to ensure that such shortfalls did not occur. Three commenters said that

NRC should intervene with State PUCs to ensure that shortfalls do not occur, either immediately or when the underfunding was recognized. A few commenters argued that the causes of the shortfall should be identified. If the plant's management was responsible, the additional decommissioning costs should be recovered from stockholders. NRC could require additional contributions if the invested decommissioning funds are insufficient. Alternatively, if the utility management is not responsible, customers should bear the additional cost. However, as one PUC noted, underestimates that are not identified until far into the future could become a social problem. If the underestimate is not identified until after the plant is removed from service, no ratepayers will be required to provide additional funding. If the company still exists and is solvent, shareholders may be held accountable, but only to the point of insolvency. Gross underestimates could very well bankrupt the company and place a significant burden on regulators and legislators to step in to fund completion of the decommissioning.

None of the commenters recommended increasing contingency factors to provide for potential shortfalls far in the future. Several argued that contingency factors are intended to address "unforeseeable cost elements" or that contingencies are inappropriate for some other reason. The size of such contingencies would be too arbitrary. In addition, some State PUCs would not apply larger contingencies, particularly since the current cost estimates already contain a significant contingency factor. Finally, one commenter argued that larger contingencies would lead to over-collection and distortion of prices for electricity. Seven commenters joined NEI in taking a position against the use of contingencies to address the problem of potential shortfalls occurring far in the future.

Response. The Commission sees its proposed reporting requirement as a way to keep informed of licensees' decommissioning funding status and potential underestimates of cost. However, the Commission has undertaken a study to analyze the actual costs incurred by the power reactor licensees that are in the process of decommissioning, and the Commission will act accordingly after studying those results. Further, the Commission has the authority to require power reactor licensees to submit their current financial assurance mechanisms for NRC review, revision as necessary, and approval.

C.8 Captive Insurance Pool

The idea of setting up a captive insurance pool to pay unfunded decommissioning costs did not obtain strong support. A few commenters endorsed it, with qualifications. One said that, in fact, the mechanism would more nearly resemble a mutual insurance pool, and listed a number of factors, including the size of premiums, when deregulation occurred, Federal mandates, the ability to recover costs, and the attitude of participants, that would determine success. Several commenters responded that if such a pool could be developed, it would be a useful or constructive mechanism.

NEI and six commenters taking the same position expressed doubts about the usefulness of such a pool, but suggested that the industry should examine it. They argued that in addition to an insurance pool, NRC should also consider approving self-insurance as an option.

Almost half the commenters expressed strong doubts about the insurance concept. No such product currently exists, and insuring against shortfalls in funding a known and planned event would be a novel concept, open to problems of adverse selection and moral hazard.[6] Some commenters said it would be difficult to underwrite, and wondered whether in a competitive environment one company would be interested in supporting the financial obligations of its competitors. A cross-subsidy of this sort, one said, was what deregulation was being undertaken to eliminate. Participation also might be affected by the policies of individual State PUCs. Premium setting would be difficult because of the possibility that utilities that had been prepared to pay their decommissioning costs would be reluctant to subsidize utilities that had not, and because premiums, to provide sufficient coverage, might need to be large. The pool could face the problem of motivating utilities to close plants when it would otherwise not be economic

[6]"If the risk of the insurable event varies between potential buyers, if the buyers know their risk level better than the insurer, and if the coverage is not mandatory, then the worst risks will tend to buy the most insurance. As a result, the loss experience will tend to be higher than expected, premiums will increase, the best risks will leave the programs, and the process can cycle on itself until only the worst risks are left." This phenomenon is known as adverse selection. Moral hazard is defined as a general laxity in loss prevention, laxity in cost control, once a loss has occurred, and the intentional destruction of property. U.S. Nuclear Regulatory Commission, "Design, Costs, and Acceptability of an Electric Utility Self-Insurance Pool for Assuring the Adequacy of Funds for Nuclear Power Plant Decommissioning Expense," NUREG/CR-2370, December 1981.

to do so, or motivating State PUCs to disallow the recovery of decommissioning costs through rates in reliance on the pool. Some utilities might underestimate their decommissioning costs, to keep their premiums low. A pool would increase costs of electricity because, in addition to decommissioning costs, insurance premiums would need to be recovered. Finally, one serious decommissioning shortfall might deplete the pool.

Other commenters stated flatly that they opposed the concept. Several said that it raised the problem of insuring against an event that a facility could choose to create (the moral hazard problem). An insurance pool would create, at the least, an incentive for less responsible utilities to underfund their decommissioning assurance, burdening responsible utilities with high insurance premiums. Some commenters argued that licensees demonstrating strong financial capability should not be required to participate. Reinsurance and diversification to larger pools would make better policy, in the view of one commenter.

Response. The Commission recognizes the problems associated with the concept of a captive insurance pool as identified by the above commenters, and believes that they are serious enough to eliminate this option from further consideration. The Commission is also of the opinion that those in favor of this option do not offer sufficient evidence that the identified problems can be overcome.

C.9 <u>Other Options for NRC in Case of Limited Role for PUC or FERC</u>

Commenters suggested a wide variety of financial assurance options for NRC to consider if PUC or FERC oversight is limited or eliminated. One utility suggested that financial assurance requirements should be focused on the financial viability of the responsible entity. Other utilities suggested, as nonregulatory showings, self-guarantees or other tests of financial strength such as ownership of other revenue-producing assets (e.g., electricity transmission and/or distribution and/or natural gas operations). Another relevant factor could be whether the licensee has insurance for premature decommissioning caused by an accident. One commenter stated its opposition to the use of surety bonds and insurance because of cost and limited availability.

Two utility commenters suggested that regulatory approaches include mandated or allowed stranded cost recovery through a charge on distribution or transmission or some other charge on all electric power or energy sales, regulatory certification that such costs will be recovered, and other arrangements involving regulatory control such as priority dispatch for nuclear units. Another commenter suggested that NRC could request FERC to clarify Order No. 888 to make certain that competitive access or other transmission charges intended to recover stranded costs also include a load-proportionate contribution to fund decommissioning costs. Another commenter stated that NRC and FERC should urge Congress to adopt stranded cost legislation that will ensure recovery of decommissioning costs as the most prudent solution. The commenter specifically advocates a wires charge that would include decommissioning costs.

One commenter asked NRC to consider its actions in the event that a licensee enters into bankruptcy. In such a case, the NRC could enter the proceeding and argue that full funding for decommissioning must be fulfilled as the first priority. The commenter also asked NRC to consider proposing legislation that would amend the Bankruptcy Code to give first priority to nuclear decommissioning costs, as the Supreme Court has already held for hazardous waste cleanup costs.

NEI and several other commenters raised the possibility that NRC could rely on the Financial Accounting Standards Board's[7]

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[7]The Financial Accounting Standards Board is a private body that establishes authoritative financial accounting and reporting standards in the United States.

(FASB) financial disclosures for information in assessing the nature, timing, and extent of the company's commitment of its future resources.

According to one commenter, NRC should evaluate each utility's particular situation on a case-by-case basis to determine the degree of assurance needed depending on the financial strength of the utility, the size of the remaining unfunded obligation, the age of the plant, and other factors as may be appropriate to the specific situation. Another believes NRC could retain control through licensing constraints and financial evaluations made when NRC approves transfers of assets and licenses.

A number of utilities commented that NRC need not identify all options immediately, but could ultimately authorize a number of alternative approaches, either based on 10 CFR 50.75 or on options that have not yet been recognized. A PUC commenter asked NRC to work collaboratively with States to explore, as necessary, alternative financial assurance mechanisms in the event that privately owned nuclear generators are no longer regulated.

One commenter suggested that NRC's support for existing Federal obligations to provide a national nuclear fuel repository would also contribute to the financial assurance of responsible nuclear decommissioning. Another called for financial assurance to be mandated at the Federal level, and a third said NRC should consider whether DOE responsibility can be developed for providing solutions to decommissioning.

Four commenters said no other options were necessary. They reasoned that current options are sufficient irrespective of PUC or FERC oversight, regulatory oversight is unlikely to be curtailed, and FASB standards and competitive pressures will provide sufficient assurance.

Response. The Commission agrees with those commenters who said no other options were necessary. Hence, no modification to the regulations is required on the Commission's part. It should be pointed out that the Commission does enter bankruptcy proceedings to protect the integrity of the decommissioning funding, as suggested by a commenter. Also, the Commission is proposing use of the FASB standard as a means for the reporting decommissioning obligations. Further, the Commission believes that the proposed change to the definition of "electric utility" will be adequate to address all contingencies with respect to financial assurance for decommissioning under deregulation. Further, the proposed reporting requirement will provide the NRC with the opportunity to be informed on the status of licensees' financial assurance for decommissioning.

D. Federal Government Licensee Use of Statement of Intent

Slightly fewer than half of the commenters (20 commenters) expressed an opinion on this question. Almost all commenters took the position that Federal licensees should be treated in the same way as non-Federal licensees. NEI argued that regardless of who owns the plant, a number of options for financial assurance should be allowed, and the current options should continue to be permitted. One commenter stated clearly that because Federal licensees were expected to face the same problems as other licensees, they should be required to set aside funds rather than rely on statements of intent. Several commenters pointed out that different treatment for Federal licensees could create competitive advantages for the Federal licensees. NRC should ensure that the playing field remained level. One licensee argued that if a financial assurance option, such as a statement of intent, meets NRC's criteria, it should be available for use by all licensees. Others took the position that the statement of intent should not be allowed, because it does not provide any assurance. Its use by Federal licensees means that the taxpayers are providing the assurance. One licensee questioned the long-term financial condition of the Tennessee Valley Authority (TVA). One commenter argued that use of tax exempt bonds provides a similar competitive advantage to those licensees who can issue them.

Only TVA took the position that ample reasons exist for continuing the use of statements of intent as provided under the current regulations. However, TVA also provided an extended description of the steps it has taken to use an external trust, "all requirements" contracts, and its power to issue indebtedness to ensure its decommissioning costs.

Response. The NRC's Office of the Inspector General published an Audit Report, "NRC's Decommissioning Financial Assurance Requirements for Federal Licensees May Not be Sufficient," OIG/95A-20, dated April 3, 1996. The report found that "...NRC's decision to allow Federal licensees to use a statement of intent...was based primarily on the assumption that the Federal Government would pay the financial obligations of the lone Federal licensee,...should it be unable to do so. However, based on our review of the U.S. Code and discussions with officials from the Department of the Treasury, the Office of Management and Budget and TVA, we believe NRC's assumption is questionable." The report also found "...that, although not required, TVA has established a fund dedicated to meet its decommissioning obligations. However, because this is an internal fund it can be used for other purposes. In fact, TVA had at one time temporarily depleted its decommissioning fund."

The majority of those who commented were opposed to allowing the TVA's use of a statement of intent, their reason basically being that all licensees should have the same "level playing field." The Commission, however, does not believe that the elimination of the statement of intent option for a Federal licensee can be justified on a public health and safety basis. The Commission believes that the risk of a Federal licensee not being able to fund its decommissioning expenses is remote, as the Commission is proposing to define a "Federal licensee" as having the full faith and credit backing of the Federal Government. The Commission considers the issue of whether TVA qualifies for the use of a statement of intent to be distinguishable from the question of whether other "Federal licensees" should have this option. Further, the Commission does not believe it to be in the public interest to foreclose the possibility of a future licensee with the full faith and credit backing of the Federal Government using a statement of intent. Hence, the Commission does not propose to eliminate the statement of intent as an option for Federal licensees, but realizes that this proposed definition may result in the TVA no longer being able to meet NRC's definition of "Federal licensee."

E. TRUST FUND EARNINGS CREDIT FOR EXTENDED SAFE STORAGE PERIOD

Two commenters opposed credits for earnings during extended safe storage, arguing that earnings assumptions could be manipulated and that earnings could otherwise act as a hedge against increases in the cost of decommissioning. Seventeen commenters, however, supported allowing credit for earnings on funds during extended storage periods. Some of these commenters argued that if credits for earnings are not allowed, more funds than necessary would be collected, thereby generating unwarranted expense for licensees and customers and possibly intergenerational inequities.

An additional eight commenters supported allowing earnings credits, not only for the extended safe storage period, but also for other periods:

! The period before safe storage, when funds are accumulated;

! The decommissioning period, when funds flow out of the trusts; and

! Both the accumulation and outflow periods.

Three commenters expressed the opinion that States should decide whether or not to allow credit for projected earnings.

One group of commenters understood that NRC's ANPR considered a net positive rate of return when assessing the status of decommissioning funding <u>during a SAFSTOR period</u>, and not that a licensee would be allowed to consider prospectively <u>during the license term</u> the possibility of a net positive rate of return over some extended period following shutdown and prior to actual decommissioning. These commenters felt that it would be largely irrelevant to start considering positive earnings during a SAFSTOR period because, by the time of termination of operations, licensees should have already accumulated sufficient funds to pay for decommissioning.

Another commenter disagreed with the position that excludes the benefit of future tax deductions (i.e., in "non-qualified" trust accounts) in determining the adequacy of a licensee's decommissioning funding program because the deductions will have value for those who assume the responsibility for decommissioning.

Response. The Commission is proposing to allow credit for earnings and believes that its existing implicit assumption of a zero rate of return is too conservative and not borne out by the data. The Commission is proposing licensees may take credit using a 2 percent real rate of return from the time of the funds' collection through the decommissioning period. As stated below, this proposed action provides licensees relief from current requirements with no adverse impact on public health and safety, licensees, or NRC resources, and the proposed reporting requirements would allow the licensees' decommissioning funds to be monitored by the Commission.

E.1 Real Rate of Return

Five commenters took the position that NRC should not specify a single allowable rate of return, but should allow licensees to take credit for any rate they can justify given their specific situation. Some of these commenters supported their positions by stating that licensees employ different investment strategies depending on factors such as the number of plants, when they expect to begin decommissioning, applicable State taxes, and whether the funds are in a qualified or nonqualified trust. Another commenter suggested that plant-specific annualized rates could be justified based on historical data. Considerable judgment will be needed to develop the rate, argued one utility group, but no more judgment than is needed in developing decommissioning cost estimates.

Three commenters suggested that NRC use long-term, historical rates for the asset allocation employed, adjusted by the long-term, historical inflation rate.

Six commenters stated that NRC should not specify a single allowable rate of return, but should define the basis on which licensees may select an appropriate positive real rate.

Four commenters expressed the view that States should decide the rate, and a fifth commenter thought either States or FERC should decide the rate. Another commenter thought the rate should be determined by an (unidentified) "acceptable third party."

One commenter suggested an after-tax rate of 3 percent as reasonable and achievable with acceptable levels of investment risk (e.g., 50 percent equity, 50 percent fixed income). Another commenter proposed a rate of 3 percent because that rate is the historical real return on Treasury bonds. One commenter felt NRC should float the values based on contemporary 30-year Treasuries.

Two commenters opposed the use of a positive rate assumption for earnings during extended safe storage, arguing that earnings assumptions could be manipulated and that earnings could otherwise act as a hedge against increases in the cost of decommissioning.

Response. Based on the NRC review of historical data, real (i.e., inflation adjusted, after tax) rates of return using U.S.

Treasury issues have been on the order of 2 percent. Therefore, the Commission proposes to use a 2 percent real rate of return throughout the decommissioning collection period as a default earnings amount and in the safe storage period as a specified amount. The NRC acknowledges that the historical data is subject to some degree of interpretation, and that a 3 percent real rate may be viewed by some as a "reasonable" measure for this parameter. While some may propose use of higher values based on other types of investments, the Commission believes the proposed value represents as close to a "risk free" return as possible and has increased confidence that the 2 percent value can be consistently achieved. Higher earnings amounts will be allowed during the period of reactor operation if specifically approved by a rate-setting authority. To the extent that earnings in a given year prove to be greater than 2 percent, the balance of the fund will be greater than anticipated. Licensees may take this higher balance into account in calculating subsequent contributions to their sinking funds. This means the size of subsequent contributions will decrease, even though these subsequent contributions will still be based on a 2 percent earnings assumption. If rates turn out to be lower than this, 10 CFR 50.82 already provides that licensees are to adjust decommissioning funds during safe storage to reflect changes in cost estimates. Thus, there is little risk that there will be major shortfalls in decommissioning funds. Further, the proposed reporting requirements will allow the licensees' decommissioning funds to be monitored by the Commission.

E.2 <u>Appropriate Time Period</u>

Twelve commenters expressed the view that credit for projected earnings should be allowed over the full length of the extended safe storage period. An additional eight commenters also thought credit should be allowed for earnings projected over additional periods:

! The period before safe storage, when funds are accumulated.

! The decommissioning period, when funds flow out of the trusts.

! Both the accumulation and outflow periods.

Two more would allow commensurate credit for a period with site-specific schedules for funding and decommissioning. Another commenter noted that considerable judgment would be needed to determine the appropriate time period, but no more than would be needed to develop the decommissioning cost estimate. Four commenters, all PUCs or PUC groups, felt NRC should leave the issue of the length of the period to the States.

Only two commenters suggested that credit be limited to a fixed number of years. One of these suggested 10 years. The other proposed a maximum of 20 years, and a minimum of 5 years.

Two commenters opposed the use of positive earnings assumptions during any period, arguing that earnings assumptions could be manipulated and that earnings could otherwise act as a hedge against increases in the cost of decommissioning.

Response. The Commission proposes to allow licensees to take credit for earnings on external sinking funds from the time of the funds' collection through the decommissioning period. Because the NRC is requiring the funding, it is reasonable for the NRC to provide for a positive rate of return on the collected funds, where justified. Further, the NRC is proposing a longer period in which credit should be allowed for earnings because the justification for allowing a positive rate of return over the safe storage period also holds for allowing credit from the time of fund collection through the decommissioning period. Again, the proposed reporting requirement provides the NRC with the ability to monitor licensees' decommissioning funds. Lastly, this proposed action provides licensees relief from current requirements with no adverse impact on public health and safety, licensees, or NRC resources.

F. REPORTING ON THE STATUS OF DECOMMISSIONING FUNDS

Many commenters supported a reporting requirement in light of concerns about decommissioning funding. Some of these felt that NRC should require relatively comprehensive reports because NRC's authority extends beyond that of FERC and the States, and because FERC and the States do not always require uniform information to be submitted at regular intervals. One commenter stated that an NRC regulatory amendment is needed even in the absence of deregulation to correct the flawed assumption that PUCs and FERC actively monitor decommissioning funds. The commenter stated that PUC and FERC monitoring efforts are, in most cases, limited in scope and may take place infrequently (i.e., when a rate case is filed). Each PUC is generally concerned only about its jurisdictional portion of the decommissioning funds, and FERC's jurisdiction is limited to only the wholesale portion of a company's sales. Moreover, many States do not have jurisdiction over municipal and cooperative agencies, some of which are owners or partial owners of nuclear plants. Therefore, the NRC may be the only regulating agency that can provide an effective and timely monitoring function for all the funds required for decommissioning.

Three commenters opposed a reporting requirement as unnecessary, while two others believed such a requirement was premature and could conflict with or be duplicative of information that may be required by forthcoming FASB standards. Two commenters stated that NRC requirements should not duplicate requirements of States or FASB. Lastly, a commenter stated that if PUC oversight is limited or eliminated, NRC should assume oversight of decommissioning funds.

Response. The Commission is proposing that a periodic reporting requirement be implemented so that the Commission has appropriate assurance that licensees are collecting their required decommissioning funds. The benefits of obtaining this information through a reporting requirement, in terms of both determining licensee compliance with NRC decommissioning funding regulations and responding to Congressional and other requests, outweigh the minimal impact of the requirement and would be less burdensome to licensees and the NRC than relying on the existing NRC inspection process.

F.1 Contents

Three commenters stated that reporting requirements would be unobjectionable if they were minimal and limited to material of the nature historically provided to State regulators or in other financial reports. Similarly, others stated that NRC should rely on the same information as will be required by the proposed FASB statement regarding accounting for certain liabilities related to closure or removal of long-lived assets. Five commenters agreed with the NEI that reports should be kept as simple as possible. One commenter stated that comprehensive reports should be prepared for each facility, integrating information for all owners. Thus, if a facility has multiple owners, one consolidated report would be prepared with separate data for each owner attached. On the other hand, one commenter argued that reports should be based on the licensee's interest in the nuclear unit and <u>not</u> on a total unit basis.

One group of commenters stated that NRC could make the annual reports from plant operators available to the public, which would be consistent with the availability of information required under proposed FASB standards.

A PUC stated that New Jersey's reporting rules may be adequate for NRC's purposes.

Suggested contents for the reports included 50 items under the following general headings: Decommissioning Costs and Activities, Contributions, Trust Status and Activity, Other Financial Information, and several Miscellaneous Items.

Response. The Commission is in the process of issuing a draft regulatory guide on this proposed requirement which would endorse FASB draft standard No. 158-B, "Accounting for Certain Liabilities Related to Closure or Removal of Long-Lived Assets." The NRC is endorsing this draft FASB standard as a means of providing guidance for licensees to comply with those portions of the NRC's regulations regarding a licensee's reporting on the status of its decommissioning funding. Licensees would comply with the FASB standard once it becomes final in order to remain consistent with generally accepted accounting principles. The NRC believes that the FASB standard would, if adopted, provide the required information. However, because of the ambiguity in the FASB standard with respect to whether the required information will be reported on a per-unit basis, the NRC has defined its reporting requirement to include such per-unit information. The NRC has reviewed the proposed contents of the reports on decommissioning funds to ensure that the needs of the agency are balanced versus the time constraints of the licensees in assembling the reports. The Commission is also proposing to require that any modifications to a licensee's external trust agreement also be reported.

F.2 Frequency

Several commenters stated that licensees should report on the status of decommissioning funds on an annual basis. Others believed reports should be required no more frequently than annually. NEI stated that NRC should not require licensees to report on the status of their decommissioning funds any more frequently than every 3 to 5 years. NEI noted that SEC rules and proposed FASB standards require utilities to disclose the decommissioning costs in financial statements.

Two commenters suggested reporting at 5-year intervals. One of these suggested that interim status reports could be required on an annual basis.

One commenter stated that NRC should require no more frequent reporting beyond FASB requirements. Another commenter stated that reports should be no less frequent than specified by the Securities and Exchange Act of 1934.

One commenter suggested that NRC consider more frequent reporting for plants approaching the end of commercial operation and for plants experiencing operating problems. One commenter stated that the timing of required reports should parallel that of other reports such as FERC Form 1, SEC 10-K, and annual financial reports. Similarly, two commenters felt that annual reports should be caused by NRC by September 30 of the following year. Two commenters stated that interim reports could be required for significant events (e.g., merger, acquisition, financial deterioration). This commenter also suggested that limited or negative growth of the fund in a given year due to overall market conditions should not automatically trigger adjustments to funding levels but rather that a 3- to 5-year time frame should be used.

Response. The Commission is proposing that every licensee submit its report on the status of decommissioning funds to the NRC at least once every 3 years. Annual submission is not being proposed as an option because the NRC believes it can adequately review licensee financial assurance status for decommissioning triennially while reducing licensee reporting burden. However, the licensee(s) of any plant that is within 5 years of its planned end of operation would be required to submit its report annually.

G. COMMENTS ON TOPICS NOT SPECIFICALLY RAISED IN THE ANPR

Commenters suggested several actions that NRC had not asked about specifically in the ANPR. First, a commenter stated that NRC should require sites to be decommissioned to "green field" status, consistent with FERC guidelines.

Response. The Commission's position is that once radioactive contamination of the reactor facility is removed to a level acceptable to the NRC, there is no longer a health and safety concern preventing the NRC license from being terminated.

A commenter suggested the imposition of a mandatory insurance requirement for licensees to cover fund shortfalls at the time of premature decommissioning in States where accelerated collection from ratepayers and intergenerational subsidies are not allowed.

Response. The Commission does not agree with the commenter on the need for mandatory insurance. As stated in the response to comments on Stranded Costs, Section B, the previously referenced "Draft Policy Statement on the Restructuring and Economic Deregulation of the Electric Utility Industry" stated that the NRC has the authority "to take actions that may affect a licensee's financial situation when these actions are warranted to protect public health and safety." The Commission believes that there are enough alternatives available to address the potential problems caused by premature decommissioning so that mandatory insurance would not be required.

One commenter stated that the requirements for subaccounts should be waived. Their position is that licensees that have contributed monies to a single trust fund for multiple decommissioning-related purposes be required simply to demonstrate to the NRC that there are or will be sufficient assets in the trust fund, in the aggregate, to pay for the NRC-defined decommissioning cost of the nuclear unit and for any other decommissioning-related purposes identified in the trust agreement.

Response. The Commission is not concerned with the details of how a licensee keeps accounts for decommissioning as long as a licensee is able to demonstrate, on a per-unit basis, the amount of funds identified and available for the required decommissioning purposes. Thus, the Commission accepts the commenter's position in general, although it notes that there is no current requirement, only guidance, relating to the use of subaccounts.

A commenter stated that NRC should undertake as a priority task the identification of nuclear plants that do not perform well. For plants with performance problems, NRC should take aggressive steps to persuade the operator to sell the plant to another operator at a price that recognizes its market value or to terminate the license. In some cases, particularly when plants were financed with bond indentures or other instruments that limit the owner's ability to sell the plant or impose conditions on such sales, these restrictions would need to be identified in the process of identifying well- run plants. Further, the commenter states that if the plant does not produce a price acceptable to the operator, the Federal Government will offer a price that will provide the operator with some fraction of the purchase price and take over control and ownership, including any decommissioning fees that have been collected. The Federal Government would restart any plant it believes can continue as a source of power and will decommission the others from public funds.

Response. The Commission does not see its position as one to force a licensee to sell its plant. While the NRC does aggressively attempt to identify poorly performing plants through such processes as the "Watch List," the decision as to whether another entity should become the operator of a facility is for the owners of that facility to make. Although the NRC would have to approve any transfer of control over any power plant license under Section 184 of the Atomic Energy Act and 10 CFR 50.80, the

NRC is reluctant to become involved in the business decision-making processes of the licensees on such matters. As to the NRC taking over poorly performing plants, the Atomic Energy Act confers "takeover" authority on the NRC only in extremely limited circumstances. See Section 108 of the Atomic Energy Act (42 U.S.C. 2138) limiting such authority to circumstances where "...the Congress declares that a state of war or national emergency exists...."

A commenter stated that the NRC should develop a reliable, sound estimate (or method of estimating) decommissioning costs, and should update the estimates on a regular basis to incorporate technological and other changes.

Response. The Commission is planning to revise its estimates of decommissioning costs after it obtains actual plant-specific data from ongoing decommissioning projects.

Another commenter stated that NRC should sponsor technical conferences on decommissioning so the pace of technological resolutions for cleaning up and decommissioning plants could be increased.

Response. While the proposed action is not a suggested rulemaking, the Commission is taking the suggestion under consideration. However, the Commission is aware of a number of deregulation and decommissioning conferences that have been held or are being planned.

A commenter stated that the NRC should ask separately about other financial issues because changes to the definition of "electric utility" could have implications in contexts other than decommissioning, such as general financial qualifications reviews for initial licensing and related license amendments, from which utilities are now exempted.

Response. While the Commission is not presently asking questions on other financial issues, it is attempting to address the concerns by proposing revisions to Part 50 to be consistent with the proposed change in the definition of "electric utility."

A commenter stated that NRC should delay action as the Texas PUC has initiated three regulatory investigation projects focusing on the restructuring and partial deregulation of the electric industry in that State. Further, the State has not developed a formal policy on many of the issues set forth in the ANPR.

Response. It is because of the number and variety of State actions being proposed in the areas of deregulation and restructuring that the Commission is proposing this rulemaking now. The Commission wishes to prepare for any new types of nuclear power generating licensees resulting from the States' actions. However, the Commission is well aware that this proposed rulemaking may not be the last action for it to undertake in this area.

One commenter stated that the Commission should support revisions to Internal Revenue Code Section 468A regarding deductibility for contributions to an external fund.

Response. The commenter does not make a suggestion as to what should be done in this rulemaking. Rather, the suggestion goes to questions regarding consideration of whether any changes to the U.S. Code are needed to address decommissioning financial assurance, in particular any changes to the Bank-ruptcy Code. This matter will be addressed separately by the NRC as part of its input to an inter-agency review process for the development of proposed legislation.

Lastly, a commenter stated that the NRC should hold all licensees to the same high standard for assurance of decommissioning funds. Previously, the NRC had one standard for non-utility licensees and a much more lenient standard for rate-regulated utilities. NRC must establish strict and thorough standards for the collection, investment, segregation, and reporting of decommissioning funds and those standards must apply to all licensees, including those that have traditionally been considered regulated utilities.

Response. The Commission position is that it is not necessary to impose any additional decommissioning funding requirements on those entities that meet the proposed definition of "electric utility." However, as explained above, the Commission believes that those entities that no longer meet the proposed definition should be required to meet the more "strict" standards. The Commission also believes that most power reactor licensees would be allowed to fund decommissioning costs through non-bypassable charges.

To summarize, the Commission's underlying philosophy of financial assurance for decommissioning is unchanged. Basically, those licensees that remain "electric utilities" by the Commission's revised definition should follow the same financial assurance regulations as before. However, the Commission believes that this proposed rulemaking provides for adequate protection in the face of a changing environment that was not envisioned when the existing rule was originally written. Further, with deregulation, the Commission does not believe that it would be able to identify all the potential types of licensees to which it will be exposed. Therefore, new and unique restructuring proposals will necessarily involve ad hoc reviews by the NRC. Further, the Commission will exercise direct oversight of such reviews to maintain consistent NRC policy toward new entities. In addition to the proposed definition revisions, the Commission is proposing two other modifications. The first is to require power reactor licensees to periodically report on the status of their decommissioning funds and changes to their external trust agreements. Second, the Commission is proposing to allow licensees to take credit for the earnings on decommissioning trust funds. The Commission does not see the need to take actions proposed by some commenters that would, in its view, strain licensees unnecessarily, because of licensees' competing needs.

SECTION-BY-SECTION DESCRIPTION OF CHANGES

10 CFR Part 50

Section 50.2 is amended to revise the definition of "electric utility" in response to deregulation of the electric generating industry. The section also is amended by the insertion of definitions of previously undefined terms that aid in the understanding of the NRC's rulemaking position. Further, "Federal licensee" is defined, so that the characteristics of a licensee that may make use of a statement of intent as a mechanism to satisfy financial assurance requirements for decommissioning is clarified. Sections 50.43, 50.54, 50.63, 50.73, and 50.75 are amended to replace the term "licensees" or a similar term depending on the context for the term "electric utility" to be consistent with the proposed changes to 10 CFR 50.2.

Section 50.43 is amended so States are added to regulatory agencies as those entities to which the Commission will give notice of application for a class 103 license for a commercial power generation facility.

Section 50.54(w) is amended by requiring that power reactors, as opposed to electric utilities, obtain insurance in the manner prescribed.

Section 50.63 is amended so that licensees, as opposed to the originally used term utilities, are required to provide specific material for NRC review relating to reactor core and associated systems.

Section 50.73 is amended to refer to "licensee" rather than "utility" personnel in stating the information required to be reported regarding personnel errors related to matters requiring a Licensee Event Report.

Section 50.75 is amended in three paragraphs to include the definitional change in the reporting and recordkeeping for decommissioning planning.

Section 50.75 also is amended to allow licensees to take 2 percent credit on earnings for prepaid trust funds and external sinking funds, to institute a reporting requirement for licensees on the status of their decommissioning funding and on changes to licensees' external trust agreements.

Electronic Access

Comments may be submitted electronically, in either ASCII text or WordPerfect format (version 5.1 or later), by calling the NRC Electronic Bulletin Board (BBS) on FedWorld. The bulletin board may be accessed using a personal computer, a modem, and one of the commonly available communications software packages, or directly via Internet. Background documents on the advance notice of proposed rulemaking are also available, as practical, for downloading and viewing on the bulletin board.

If using a personal computer and modem, the NRC rulemaking subsystem on FedWorld can be accessed directly by dialing the toll free number 1-(800) 303-9672. Communication software parameters should be set as follows: parity to none, data bits to 8, and stop bits to 1 (N,8,1). Using ANSI or VT-100 terminal emulation, the NRC rulemaking subsystem can then be accessed by selecting the "Rules Menu" option from the "NRC Main Menu." Users will find the "FedWorld Online User's Guides" particularly helpful. Many NRC subsystems and data bases also have a "Help/Information Center" option that is tailored to the particular subsystem.

The NRC subsystem on FedWorld can also be accessed by a direct dial phone number for the main FedWorld BBS, (703) 321-3339, or by using Telnet via Internet: fedworld.gov. If using (703) 321-3339 to contact FedWorld, the NRC subsystem will be accessed from the main FedWorld menu by selecting the "Regulatory, Government Administration and State Systems," then selecting "Regulatory Information Mall." At that point, a menu will be displayed that has an option "U.S. Nuclear Regulatory Commission" that will take you to the NRC Online main menu. The NRC Online area also can be accessed directly by typing "/go nrc" at a FedWorld command line. If you access NRC from FedWorld's main menu, you may return to FedWorld by selecting the "Return to FedWorld" option from the NRC Online Main Menu. However, if you access NRC at FedWorld by using NRC's toll-free number, you will have full access to all NRC systems, but you will not have access to the main FedWorld system.

If you contact FedWorld using Telnet, you will see the NRC area and menus, including the Rules Menu. Although you will be able to download documents and leave messages, you will not be able to write comments or upload files (comments). If you contact FedWorld using FTP, all files can be accessed and downloaded but uploads are not allowed; all you will see is a list of files without descriptions (normal Gopher look). An index file listing all files within a subdirectory, with descriptions, is available. There is a 15-minute time limit for FTP access.

Although FedWorld also can be accessed through the World Wide Web, like FTP that mode only provides access for downloading files and does not display the NRC Rules Menu.

You may also access the NRC's interactive rulemaking web site through the NRC home page (http://www.nrc.gov). This site provides the same access as the FedWorld bulletin board, including the facility to upload comments as files (any format) if your web browser supports that function.

For more information on NRC bulletin boards call Mr. Arthur Davis, Systems Integration and Development Branch, NRC, Washington, DC 20555, telephone (301) 415-5780; e-mail AXD3@nrc.gov. For information about the interactive rulemaking site, contact Ms. Carol Gallagher, (301) 415-6215; e-mail CAG@nrc.gov.

Finding of No Significant Environmental Impact: Availability

The NRC is proposing to amend its regulations on financial assurance requirements for the decommissioning of nuclear power plants. The proposed amendments are in response to the likelihood of deregulation of the power generating industry and resulting questions on whether current NRC regulations concerning decommissioning funds and their financial mechanisms will need to be modified. The proposed action would revise the definition of "electric utility" contained in 10 CFR 50.2, would add a definition of "Federal licensee" to address the issue of which licensees may use statements of intent, and would require power reactor licensees to report periodically on the status of their decommissioning funds and on the changes in their external trust agreements. Also, the proposed amendments would allow licensees to take credit for the earning on decommissioning trust funds.

These proposed changes could have the following effects on nuclear power reactor licensees: (1) potentially requiring licensees who have been "deregulated" to secure decommissioning financial assurance instruments that provide full <u>current</u> coverage of projected decommissioning costs, (2) limiting the types of licensees that can qualify for the use of Statements of Intent to satisfy decommissioning financial assurance requirements, (3) requiring periodic reporting on the status of their accumulation of decommissioning funds, thus leading to the potential for the NRC to require some remedial action if the licensee's actions are inadequate, and (4) permitting licensees to assume a real rate of return of two percent per annum, or such other rate as is permitted by a Public Utility Commission or the Federal Energy Regulatory Commission, on their accumulated funds. These actions are of the type focused upon financial assurances and mechanisms to assure funding for decommissioning and are not actions that would have any effect upon the human environment. Neither this action nor the alternatives considered in the Regulatory Analysis supporting the proposed rule would lead to any increase in the effect on the environment of the decommissioning activities considered in the final rule published on June 27, 1988 (53 FR 24018), as analyzed in the Final Generic Environmental Impact Statement on Decommissioning of Nuclear Facilities (NUREG-0586, August 1988).[8]

Promulgation of these rule changes would not introduce any impacts on the environment not previously considered by the NRC. Therefore, the Commission has determined, under the National Environmental Policy Act of 1969, as amended, and the Commission's regulations in subpart A of 10 CFR Part 51, that this rule, if adopted, would not be a major Federal action significantly affecting the quality of the human environment and, therefore, an environmental impact statement is not required. No other agencies or persons were contacted in reaching this

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[8]Copies of NUREG-0586 are available for inspection or copying for a fee from the NRC Public Document Room at 2120 L Street NW. (Lower Level) Washington, DC 20555-0001; telephone (202) 634-3273; fax (202) 634-3343. Copies may be purchased at current rates from the U.S. Government Printing Office, P.O. Box 370892, Washington, DC 20402-9328; telephone (202) 512-2249; or from the National Technical Information Service by writing NTIS at 5285 Port Royal Road, Springfield, VA 22161.

determination, and the NRC staff is not aware of any other documents related to consideration of whether there would be any environmental impacts of the proposed action. The foregoing constitutes the environmental assessment and finding of no significant impact for this proposed rule.

Paperwork Reduction Act Statement

This proposed rule amends information collection requirements that are subject to the Paperwork Reduction Act of 1995 (44 U.S.C. 3501 et seq.). This rule has been submitted to the Office of Management and Budget for review and approval of the information collection requirements.

The public reporting burden for this information collection is estimated to average 8 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the information collection. The U.S. Nuclear Regulatory Commission is seeking public comment on the potential impact of the information collections contained in the proposed rule and on the following issues:

1. Is the proposed information collection necessary for the proper performance of the functions of the NRC, including whether the information will have practical utility?

2. Is the estimate of burden accurate?

3. Is there a way to enhance the quality, utility, and clarity of the information to be collected?

4. How can the burden of the information collection be minimized, including the use of automated collection techniques?

Send comments on any aspect of this proposed information collection, including suggestions for reducing the burden, to the Information and Records Management Branch (T-6 F33), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by Internet electronic mail at BJS1@NRC.GOV; and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202, (3150-0011), Office of Management and Budget, Washington, DC 20503.

Comments to OMB on the information collections or on the above issues should be submitted by (insert date 30 days after publication in the Federal Register). Comments received after this date will be considered if it is practical to do so, but assurance of consideration cannot be given to comments received after this date.

Public Protection Notification

The NRC may not conduct or sponsor, and a person is not required to respond to, an information collection unless it displays a currently valid OMB control number.

Regulatory Analysis

The Commission has prepared a draft regulatory analysis on this proposed regulation. The analysis examines the costs and benefits of the alternatives considered by the Commission. The draft analysis is available for inspection in the NRC Public Document Room, 2120 L Street NW. (Lower Level), Washington, DC. Single copies of the analysis may be obtained from Brian J. Richter, Office of Nuclear Regulatory Research, U.S Nuclear

Regulatory Commission, Washington, DC 20555-0001, telephone (301) 415-6221, e-mail bjr@nrc.gov.

The Commission requests public comment on the draft analysis. Comments on the draft analysis may be submitted to the NRC as indicated under the ADDRESSES heading.

Regulatory Flexibility Certification

In accordance with the Regulatory Flexibility Act of 1980 (5 U.S.C. 605(b)) as amended by the Small Business Regulatory Enforcement Fairness Act of 1996, Pub. L. No. 104-121 (March 29, 1996), the Commission certifies that this rule will not, if promulgated, have a significant economic impact on a substantial number of small entities. This proposed rule affects only the licensing, operation, and decommissioning of nuclear power plants. The companies that own these plants do not fall in the scope of the definition of "small entities" set forth in the NRC's size standards (10 CFR 2.810).

Backfit Analysis

The regulatory analysis for the proposed rule also constitutes the documentation for the evaluation of backfit requirements, and no separate backfit analysis has been prepared. As defined in 10 CFR 50.109, the backfit rule applies to

> ...modification of or addition to systems, structures, components, or design of a facility; or the design approval of manufacturing license for a facility; or the procedures or organization required to design, construct, or operate a facility; any of which may result from a new or amended provision in the Commission rules or the imposition of a regulatory staff position interpreting the Commission rules that is either new or different from a previously applicable staff position ....

The proposed amendments to NRC's requirements for the financial assurance of decommissioning of nuclear power plants would revise the definition of "electric utility," define "Federal licensee," and add several associated definitions; add new reporting requirements pertaining to the use of prepayment and external sinking funds; impose new reporting requirements for power reactor licensees on the status of decommissioning funding that specify the timing and contents of such reports; and permit power reactor licensees to take credit for a 2 percent annual real rate of return on funds set aside for decommissioning from the time the funds are set aside through the end of the decommissioning period. These proposed actions are necessary to ensure that nuclear power reactors provide for adequate protection of the health and safety of the public in the face of a changing environment not envisioned when the reactor decommissioning funding regulations were promulgated.

Although some of the changes proposed to the regulations are reporting requirements, which are not covered by the backfit rule, other elements in the proposed changes could be considered backfits because they would modify or clarify procedures with respect to (1) acceptable decommissioning funding options under various scenarios, (2) what licensees may use statements of intent, and (3) permitted credit for real rates of return on funds set aside for decommissioning. The NRC has determined to treat this action as an adequate protection backfit, because the action is necessary for the NRC to maintain assurance of adequate funding for power plant decommissioning, particularly in the face of the uncertainties associated with electric utility restructuring and deregulation. Accordingly, these proposed changes to the regulations are required to satisfy 10 CFR 50.109(a)(5) and a full backfit analysis is not required pursuant to 10 CFR 50.109(a)(4)(ii).

List of Subjects in 10 CFR Part 50

Antitrust, Classified information, Criminal penalties, Fire protection, Intergovernmental relations, Nuclear power plants and reactors, Radiation protection, Reactor siting criteria, Reporting and recordkeeping requirements.

For the reasons set out in the preamble and under the authority of the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and 5 U.S.C. 553, the NRC is proposing to adopt the following amendments to 10 CFR Part 50.

PART 50--DOMESTIC LICENSING OF PRODUCTION AND UTILIZATION FACILITIES

1. The authority citation for Part 50 continues to read as follows:

AUTHORITY: Secs. 102, 103, 104, 105, 161, 182, 183, 186, 189, 68 Stat. 936, 937, 938, 948, 953, 954, 955, 956, as amended, sec. 234, 83 Stat. 1244, as amended (42 U.S.C. 2132, 2133, 2134, 2135, 2201, 2232, 2233, 2236, 2239, 2282); secs. 201, as amended, 202, 206, 88 Stat. 1242, as amended, 1244, 1246 (42 U.S.C. 5841, 5842, 5846).

Section 50.7 also issued under Pub. L. 95-601, sec. 10, 92 Stat. 2951 (42 U.S.C. 5851). Section 50.10 also issued under secs. 101, 185, 68 Stat. 955 as amended (42 U.S.C. 2131, 2235), sec. 102, Pub. L. 91-190, 83 Stat. 853 (42 U.S.C. 4332). Sections 50.13, and 50.54(dd), and 50.103 also issued under sec. 108, 68

Stat. 939, as amended (42 U.S.C. 2138). Sections 50.23, 50.35, 50.55, and 50.56 also issued under sec. 185, 68 Stat. 955 (42 U.S.C. 2235). Sections 50.33a, 50.55a and Appendix Q also issued under sec. 102, Pub. L. 91-190, 83 Stat. 853 (42 U.S.C. 4332). Sections 50.34 and 50.54 also issued under sec. 204, 88 Stat. 1245 (42 U.S.C. 5844). Sections 50.58, 50.91, and 50.92 also issued under Pub. L. 97-415, 96 Stat. 2073 (42 U.S.C. 2239). Section 50.78 also issued under sec. 122, 68 Stat. 939 (42 U.S.C. 2152). Sections 50.80 - 50.81 also issued under sec. 184, 68 Stat. 954, as amended (42 U.S.C. 2234). Appendix F also issued under sec. 187, 68 Stat. 955 (42 U.S.C 2237).

2. In Section 50.2 the definition of Electric Utility, is revised and the definitions of "Cost of service" regulation, Federal licensee, and Non-bypassable charges are added in alphabetical order to read as follows:

§ 50.2 Definitions.

* * * * *

"Cost of service" regulation means the traditional system of rate regulation in which a rate regulatory authority allows an electric utility to charge its customers all reasonable and

prudent costs of providing electricity services, including a return on the investment required to provide such services.

* * * * *

Electric utility means any entity that generates, transmits, or distributes electricity and that recovers the cost of this electricity through rates established by a regulatory authority, such that the rates are sufficient for the licensee to operate, maintain, and decommission its nuclear plant safely. Rates must be established by a regulatory authority either directly through traditional "cost of service" regulation or indirectly through another non-bypassable charge mechanism. An entity whose rates are established by a regulatory authority by mechanisms that cover only a portion of its costs will be considered to be an "electric utility" only for that portion of the costs that are collected in this manner. Public utility districts, municipalities, rural electric cooperatives, and State and Federal agencies, including associations of any of the foregoing, that establish their own rates are included within the meaning of "electric utility."

* * * * *

Federal licensee means any NRC licensee that has the full faith and credit backing of the United States Government.

* * * * *

Non-bypassable charges means those charges imposed by a governmental authority which affected persons or entities are required to pay to cover costs associated with operation, maintenance, and decommissioning of a nuclear power plant. Affected individuals and entities would be required to pay those charges over an established time period.

* * * * *

3. In Section 50.43, paragraph (a) is revised to read as follows:

<u>§ 50.43 Additional standards and provisions affecting class 103 licenses for commercial power</u>.

* * * * *

(a) The Commission will give notice in writing of each application to such regulatory agency or State as may have jurisdiction over the rates and services incident to the proposed activity; will publish notice of the application in such trade or news publications as it deems appropriate to give reasonable notice to municipalities, private utilities, public bodies, and cooperatives which might have a potential interest in such utilization or production facility; and will publish notice of the application once each week for 4 consecutive weeks in the Federal Register. No license will be issued by the Commission prior to the giving of such notices and until 4 weeks after the last publication in the Federal Register.

* * * * *

4. In Section 50.54, the introductory text of paragraph (w) is revised to read as follows:

§ 50.54 Conditions of licenses.

* * * * *

(w) Each power reactor licensee under this part for a production or utilization facility of the type described in

Sections 50.21(b) or 50.22 shall take reasonable steps to obtain insurance available at reasonable costs and on reasonable terms from private sources or to demonstrate to the satisfaction of the Commission that it possesses an equivalent amount of protection covering the licensee's obligation, in the event of an accident at the licensee's reactor, to stabilize and decontaminate the reactor and the reactor station site at which the reactor experiencing the accident is located, provided that:

* * * * *

5. In Section 50.63, paragraph (a)(2) is revised to read as follows:

<u>§ 50.63 Loss of alternating current power</u>.

(a) * * *

(2) The reactor core and associated coolant, control, and protection systems, including station batteries and any other necessary support systems, must provide sufficient capacity and capability to ensure that the core is cooled and appropriate containment integrity is maintained in the event of a station blackout for the specified duration. The capability for coping with a station blackout of specified duration shall be determine

by an appropriate coping analysis. Licensees are expected to have the baseline assumptions, analyses, and related information used in their coping evaluations available for NRC review.

* * * * *

6. In Section 50.73, paragraph (b)(2)(ii)(J)(2)(iv) is revised to read as follows:

§ 50.73 Licensee event report system.

* * * * *

(b) * * *

(2) * * *

(ii) * * *

(J) * * *

(2) * * *

(iv) The type of personnel involved (i.e., contractor personnel, licensed operator, nonlicensed operator, other licensee personnel.)

* * * * *

7. In Section 50.75, paragraphs (a), (b), (d), (e)(1)(i), (e)(1)(ii), (e)(3) are revised and paragraphs (f)(1), (2), and (3) are redesignated as paragraph (f)(2), (3), and (4) and a new paragraph (f)(1) is added to read as follows:

§ 50.75 Reporting and recordkeeping for decommissioning planning.

(a) This section establishes requirements for indicating to NRC how reasonable assurance will be provided that funds will be available for decommissioning. For power reactor licensees it consists of a step-wise procedure as provided in paragraphs (b), (c), (e), and (f) of this section. Funding for decommissioning of electric utilities is also subject to the regulation of agencies (e.g., Federal Energy Regulatory Commission (FERC) and State Public Utility Commissions) having jurisdiction over rate regulation. The requirements of this section, in particular paragraph (c), are in addition to, and not substitution for, other requirements, and are not intended to be used, by themselves, by other agencies to establish rates.

(b) Each power reactor applicant for or holder of an operating license for a production or utilization facility of the type and power level specified in paragraph (c) of this section shall submit a decommissioning report, as required by 10 CFR

50.33(k) of this part containing a certification that financial assurance for decommissioning will be provided in an amount which may be more but not less than the amount stated in the table in paragraph (c)(1) of this section, adjusted annually using a rate at least equal to that stated in paragraph (c)(2) of this section, by one or more of the methods described in paragraph (e) of this section as acceptable to the Commission. The amount stated in the applicant's or licensee's certification may be based on a cost estimate for decommissioning the facility. As part of the certification, a copy of the financial instrument obtained to satisfy the requirements of paragraph (e) of this section is to be submitted to NRC.

* * * * *

(d) Each non-power reactor applicant for or holder of an operating license for a production or utilization facility shall submit a decommissioning report as required by 10 CFR 50.33(k) of this part containing a cost estimate for decommissioning the facility, an indication of which method or methods described in paragraph (e) of this section as acceptable to the Commission will be used to provide funds for decommissioning, and a description of the means of adjusting the cost estimate and associated funding level periodically over the life of the facility.

(e)(1) * * *

(i) Prepayment. Prepayment is the deposit prior to the start of operation into an account segregated from licensee assets and outside the licensee's administrative control of cash or liquid assets such that the amount of funds would be sufficient to pay decommissioning costs. Prepayment may be in the form of a trust, escrow account, government fund, certificate of deposit, or deposit of government securities. A licensee may take credit on earnings on the prepaid decommissioning trust funds using a 2 percent annual real rate of return from the time of the funds' collection through the decommissioning period, if the licensee's rate-setting authority does not authorize the use of another rate.

(ii) External sinking fund. An external sinking fund is a fund established and maintained by setting funds aside periodically in an account segregated from licensee assets and outside the licensee's administrative control in which the total amount of funds would be sufficient to pay decommissioning costs at the time termination of operation is expected. An external sinking fund may be in the form of a trust, escrow account, government fund, certificate of deposit, or deposit of government securities. A licensee may take credit for earnings on the external sinking funds using a 2 percent annual real rate of return from the time of the funds' collection through the decommissioning period, if the licensee's rate-setting authority does not authorize the use of another rate.

* * * * *

(e)(3) For an electric utility, its rates must be sufficient to recover the cost of the electricity it generates, transmits, or distributes. These rates must be established by a regulatory authority such that they are sufficient for the licensee to operate, maintain, and decommission its plant safely.

Acceptable methods of providing financial assurance for decommissioning for an electric utility are-

* * * * *

(f)(1) Each power reactor licensee shall report to the NRC at least once every 3 years on the status of its decommissioning funding for each reactor or part of a reactor that it owns. The information in this report must include, at a minimum: the amount of decommissioning funds estimated to be required pursuant to 10

CFR 50.75(b) and (c); the amount accumulated to the date of the report; a schedule of the annual amounts remaining to be collected; the assumptions used regarding rates of escalation in decommissioning costs, rates of earnings in decommissioning trust funds, and rates of other factors (e.g., discount rates) used in funding projections; and any modifications occurring to a licensee's current trust agreement since the last submitted report. Any licensee for a plant that is within 5 years of the projected end of its operation shall submit such a report annually.

* * * * *

Dated at Rockville, Maryland, this day of , 1997.

For the Nuclear Regulatory Commission.

John C. Hoyle,

Secretary of the Commission.

REGULATORY ANALYSIS ON DECOMMISSIONING FINANCIAL ASSURANCE IMPLEMENTATION REQUIREMENTS FOR NUCLEAR POWER REACTORS

Draft Report for Comment

U.S. Nuclear Regulatory Commission

Office of Nuclear Regulatory Research

REGULATORY ANALYSIS ON DECOMMISSIONING FINANCIAL ASSURANCE IMPLEMENTATION REQUIREMENTS FOR NUCLEAR POWER REACTORS

Draft Report for Comment

Regulation Development Branch
Division of Regulatory Applications
Office of Nuclear Regulatory Research
U.S. Nuclear Regulatory Commission
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The Commissioners 134

ABSTRACT

[reserved]

The Commissioners vi

CONTENTS

CONTENTS (continued)

Page

1. INTRODUCTION

NRC has initiated a rulemaking to address concerns related to its financial assurance requirements for nuclear power reactors. As discussed in detail below, most of these concerns are the result of ongoing deregulatory activities in the electric utility industry. In April 1996, NRC published an Advance Notice of Proposed Rulemaking (ANPR) requesting comments on several issues related to deregulation and NRC's financial assurance requirements (61 *FR* 15427, April 8, 1996). NRC has reviewed these comments and is studying a number of regulatory options. This document presents NRC's Regulatory Analysis of these options.

The remainder of this introduction is divided into two sections. Section 1.1 states the problem and the objective of the rulemaking. Section 1.2 provides background information on the current regulation of financial assurance for decommissioning costs of power reactors.

1.1 Statement of the Problem and Objective of the Rulemaking

NRC's decommissioning financial assurance requirements for nuclear power reactors are based on the premise that the reactors are owned by regulated or self-regulating entities that recover their costs through a rate-setting process overseen by the applicable regulating body. Consequently, NRC defined the term "electric utility," in 10 CFR 50.2, in a manner that includes investor-owned utilities, public utility districts, municipalities, rural electric cooperatives, and State and Federal agencies. Typically such entities are regulated by State public utility commissions (PUCs) and/or the Federal Energy Regulatory Commission (FERC). Some publicly-owned utilities regulate their own rates through a process that is open to public participation and scrutiny. These regulatory processes effectively ensure that utilities can recover all costs that are prudently incurred, including reactor decommissioning costs.

In recent years, however, various parties have called for the electric utility industry to be deregulated just as the natural gas and telecommunication industries were recently deregulated. FERC and numerous States have begun to study deregulation issues and, in some cases, have initiated deregulatory rulemakings. Many significant issues related to deregulation have yet to be resolved, however, including issues that will have considerable impact on NRC power reactor licensees, such as recovery or non-recovery of decommissioning costs. Consequently, it is possible that regulatory bodies may, in the future, be unable to ensure that utilities can recover decommissioning costs. In this more competitive environment, some utilities may not even remain financially viable, which could also jeopardize funding for decommissioning.

During the forthcoming period of economic deregulation and industry restructuring, increasing competition may force integrated power systems to separate (or "disaggregate") their systems into functional areas. Thus, some licensees may divest electrical generation assets, such as power reactors, from transmission and distribution assets by forming separate subsidiaries or even separate companies for generation. Disaggregation may involve utility restructuring, mergers, and corporate spin-offs that lead to changes in owners or operators of licensed power reactors and may cause some licensees, including owners, to cease being an "electric utility" as defined in 10 CFR 50.2. Such changes may also affect the licensing basis under which NRC originally found a licensee to be financially qualified to construct, operate or own its power reactor, as well as to accumulate adequate funds to ensure decommissioning at the end of reactor life.[9]

As the electric utility industry moves from an environment of substantial economic regulation to one of increased competition, NRC is concerned about the impacts of restructuring and rate deregulation. Approval of organizational and rate deregulation changes by other regulators may occur rapidly and without NRC's knowledge. The degree and pace of such changes could affect the factual underpinnings of NRC's previous conclusions that power reactor licensees can reliably accumulate adequate funds for operations and decommissioning over the operating lives of their facilities.

The main objective of the current rulemaking is to modify NRC's regulatory framework to help ensure that deregulatory activities in the electric utility industry do not jeopardize NRC licensees' financial assurance for decommissioning. The rulemaking would accomplish this by clarifying that additional financial assurances for decommissioning are required from any power reactor licensee that loses the ability to recover decommissioning costs through regulated rates and fees or other mandatory charges established by a regulatory body. The rulemaking would also establish a reporting requirement to allow NRC to monitor the decommissioning funding status of each licensee. Finally, the current rulemaking also would update the financial assurance requirements to modify funding requirements to allow licensees to account for anticipated trust fund earnings from the time funds are deposited until withdrawn to pay decommissioning costs.

1.2 Current Regulation of Decommissioning Financial Assurance

NRC requirements pertaining to financial assurance for the decommissioning of nuclear power reactors are contained in 10 CFR 50.75. As noted in NRC's regulations, funding for decommissioning of electric utilities is also subject to the regulation of FERC and State PUCs. Section 50.75(a) states that the NRC requirements "are in addition to, and not substitution for, [these] other requirements." Additional guidelines for NRC licensees are provided in NRC's *Regulatory Guide 1.159*,[10] and in a related Standard Review Plan (SRP).[11] Under §50.75(b), licensees must demonstrate decommissioning financial assurance in an amount at least equal to either a minimum "certification" amount (based on a formula specified at §50.75(c)) or a facility-specific decommissioning estimate (provided that the estimate is at least as great as the applicable certification amount). Licensees are required to update annually the minimum amount of decommissioning assurance required under the certification formula in §50.75(c) by applying an inflation-factor that is also described in §50.75(c). Licensees are not required to file this adjustment with NRC, however. Pursuant to §50.75(a), licensees are required to adjust collections from ratepayers in coordination with the appropriate PUCs or FERC.

In 1984, NRC eliminated financial qualifications reviews at the operating license stage for those licensees that met the definition of "electric utility." This decision was based on NRC's assumption that "the rate process assures that funds needed for safe operation will be made available to regulated electric utilities" (49 *FR* 35750, September 12, 1984).

Regulatory Guide 1.159, "Assuring the Availability of Funds for Decommissioning Nuclear Reactors," U.S. Nuclear Regulatory Commission, Office of Nuclear Regulatory Research, August 1990.

Draft Standard Review Plan on Power Reactor Licensee Financial Qualifications and Decommissioning Financial Assurance, U.S. Nuclear Regulatory Commission, Office of Nuclear Regulatory Research, September 1996.

Financial assurance must be demonstrated using one of the financial mechanisms described in §50.75(e). These mechanisms include "prepayment" mechanisms (trust funds, escrow accounts, government funds, certificates of deposit, deposits of government securities), external sinking funds, surety bonds, letters of credit, lines of credit, insurance, and statements of intent.[12] Prepayment mechanisms, in the case of non-electric utility licensees, must be either fully funded or, if being funded gradually in an external sinking fund, must be coupled with another mechanism (e.g., a surety bond) so that the total assurance provided by the licensee is at least equal to the required level of coverage.

In the case of electric utility licensees, however, external sinking funds are not required to be coupled with another financial assurance mechanism. Thus, electric utility licensees are not required to demonstrate the full minimum amount of decommissioning coverage (i.e., the full certification amount) until contributions to the external sinking fund cease at the end of the operating license. NRC justified this difference in treatment between electric utility licensees and non-electric utility licensees on the ability of the electric utilities to collect funds through the rate-making process and on the added oversight provided by FERC and PUCs.

Payments to an external sinking fund (regardless of whether or not the licensee is an electric utility) must be made annually in amounts that will result in full funding by the time the facility ceases operation. Although NRC allows licensees to account for future earnings (i.e., until the reactor shuts down) on decommissioning trusts when calculating annual contributions to external sinking funds and prepayment amounts, this position is not reflected in regulations, but rather in guidance (i.e., in *Regulatory Guide 1.159* and the *SRP*). The guidance states that assumed rates of return should "reasonably approximate" the historical real rate of earnings obtained by a given type of investment, but it does not establish an upper limit for assumed rates of return. However, NRC does not allow licensees to take credit for earnings on the funds while reactors are in extended safe storage (i.e., after the permanent shutdown of the reactor).

In practice, virtually all non-Federal government electric utility licensees are believed to use external sinking funds based on trusts.[13] NRC requirements provide that trusts (or any mechanism used as an external sinking fund) must be segregated from licensee assets and outside the licensee's administrative control.[14] Investment guidelines and other restrictions affecting trustees and/or licensees are not specified in NRC regulations. However, NRC guidance does (1) provide suggested investment

Under 10 CFR 50. 75(e)(2)-(3), statements of intent are allowable mechanisms for Federal government electric utility licensees, and for Federal, State, and local government non-electric utility licensees.

In 1990, NRC reviewed the financial mechanisms originally submitted by licensees to comply with the then-new decommissioning financial assurance requirements. Most of these mechanisms were trusts, but the submittals also included three sinking funds based on escrows, one prepaid escrow, one "restricted deposit agreement," and one "city sinking fund." More recent information on mechanisms being used by licensees is not available.

10 CFR 50.75(e)(1)(ii).

guidelines,[15] (2) specify trustee qualifications,[16] and (3) state that licensees may make withdrawals from the fund only to pay for decommissioning activities.[17]

Regulatory Guide 1.159 offers detailed model wording for trust agreements (including numerous conditions that provide additional protections on behalf of NRC's interests) but states that this wording may be modified "as a licensee's specific situation warrants [provided that the agreement] complies with applicable state law . . . ." Licensees submitted financial mechanisms for NRC's review one time (in 1990). *Regulatory Guide 1.159* states that if licensees "either change or significantly modify the funding method," they must submit the changes or modifications to NRC within a "reasonable time."[18] Licensees must also maintain an existing method of financial assurance "until the licensee has instituted a new method."[19]

NRC does not require licensees to report periodically on the status of their decommissioning funds. Rather, NRC views licensee compliance with the funding assurance requirements as a matter to be determined through the inspection process when necessary, as well as through monitoring by State PUCs and FERC of decommissioning funds of licensees under their jurisdiction as part of their rate regulatory responsibility. Reporting requirements of FERC and PUCs, along with other FERC and PUC requirements related to NRC's current rulemaking, were researched as part of this Regulatory Analysis and are discussed in Section 3.2.3.

Regulatory Guide 1.159, p. 14, states that "Any trust investments complying with IRS Code Section 468A or with approval of or guidance from a utility's State PUC, other State agency, or from FERC would be acceptable to NRC staff. Licensees not eligible or willing to use decommissioning trusts established under IRS Code Section 468A or not subject to PUC or FERC jurisdiction should limit trust investments to "investment-grade" securities. Investment-grade bonds and preferred stocks are those rated at least "BBB" or equivalent by a national rating service. Speculative issues of common stocks should be avoided."

Regulatory Guide 1.159, p. 14, states that "The trustee of a fund should be an appropriate State or Federal government agency or an entity that has the authority to act as a trustee and whose trust operations are regulated or examined by a State or Federal agency."

SRP, p. 27. Many licensees that have established decommissioning trust funds for their power reactors are making deposits into their trust accounts both for decommissioning costs as defined under §50.2 and for other decommissioning-associated costs such as interim spent fuel management and storage and "greenfield" costs.

Regulatory Guide 1.159, Section 2.1.6.1, p. 13. The *SRP* (in Section III.2.d) notes that licensees are also required to submit these changes and modifications to NRC in accordance with 10 CFR 50.9. (10 CFR 50.9 requires licensees to notify NRC within 2 working days if the licensee identifies information having a significant implication for public health and safety or common defense and security, unless this information is covered by other reporting or updating requirements.) It is unclear whether licensees have been submitting modifications of financial mechanisms to NRC for review.

Regulatory Guide 1.159, Section 2.1.6.1, p. 13.

2. IDENTIFICATION AND PRELIMINARY ANALYSIS OF ALTERNATIVE APPROACHES

The Rulemaking Plan for this rulemaking identified three specific options, and three corresponding no-action alternatives, to address the issues discussed in Section 1.1:

Issue A. Is fully-funded assurance needed due to deregulation?

Option A-1: No action option.

Option A-2: Revise the regulatory definition of "electric utility" to clarify that it excludes entities that are no longer able to recover costs through regulated rates, fees, or mandatory charges.

Issue B. Should NRC allow credit for earnings during safe storage periods?

Option B-1: No action option.

Option B-2: Allow licensees to assume a positive real rate of return on decommissioning funds from the time contributed until the time withdrawn to pay for decommissioning.

Issue C. Should NRC monitor fund balances through regular periodic reporting?

Option C-1: No action option.

Option C-2: Implement a periodic reporting requirement.

NRC's April 1996 ANPR also drew attention to other issues that had not been emphasized in the Rulemaking Plan. These issues involve (1) the use of statements of intent by power reactor licensees, and (2) further review of decommissioning financial assurance mechanisms. The following options (and their corresponding no-action alternatives) have been added to this Regulatory Analysis to address these issues:

Issue D. Should NRC allow use of statements of intent by power reactor licensees?

Option D-1: No action option.

Option D-2: Clarify which licensees may use statements of intent by defining the term "Federal licensee."

Issue E. Should NRC conduct additional review of decommissioning financial assurance mechanisms?

Option E-1: No action option.

Option E-2: Require periodic submission of any modifications to external trust agreements (and other financial assurance mechanisms) for detailed NRC review.

The remainder of this section presents a preliminary analysis of each of these options. The purposes of this discussion are to highlight the purpose of each regulatory revision, and to clarify what each option is and how it might work. Additional analysis of these options is presented in Section 3 of this Regulatory Analysis.

2.1 Need for Fully-Funded Assurance Due to Deregulation

Options A-1 and A-2 address NRC's concern that, as a result of ongoing deregulation, NRC's financial assurance requirements for electric utility licensees (relative to non-electric utility licensees), as currently defined, may no longer be appropriate, at least in some instances.

2.1.1 Option A-1: No action

Under NRC's current requirements, power reactor licensees that do not meet the definition of an electric utility may use an external sinking fund only if the amount remaining unfunded in the external sinking fund is assured using an additional financial assurance mechanism (e.g., a surety bond or letter of credit). In contrast, licensees that meet the definition of electric utility may use an external sinking fund without providing any additional financial assurance for amounts not yet funded. As discussed in Section 1, NRC found this distinction reasonable because electric utilities historically have been able to collect needed funds through a regulated rate-making process and because of the additional oversight role provided by FERC and PUCs.

NRC continues to believe this approach is reasonable for licensees that continue to recover prudently-incurred costs through a regulated ratemaking process. Due to the ongoing deregulation in the electric utility industry, however, licensees in the future may recover costs not through rates but through other mandatory mechanisms (e.g., access fees, exit fees, line charges) established by their rate regulators. Although NRC believes these licensees can recover costs and should be considered electric utilities, NRC's current definition of "electric utility" could be interpreted otherwise. In addition, NRC is concerned that other licensees may be able to qualify as electric utilities under NRC's current definition despite being deregulated with respect to the recovery of prudently-incurred costs. 10 CFR 50.2 defines "electric utility" as follows:

> Electric utility means any entity that generates or distributes electricity and which recovers the cost of this electricity, *either directly or indirectly, through rates established by the entity itself* or by a separate regulatory authority. Investor-owned utilities, including generation or distribution subsidiaries, public utility districts, municipalities, rural electric cooperatives, and State and Federal agencies, including associations of any of the foregoing, are included within the meaning of "electric utility." (italics added)

Public comments received in response to NRC's April 8, 1996, ANPR suggest that some licensees interpret NRC's current definition, because of the phrase "either directly or indirectly, through rates established by the entity itself," to encompass even non-regulated or fully deregulated entities that are free to set their own prices in the marketplace. This interpretation would, in effect, allow all licensees to qualify as electric utilities and, in turn, allow all licensees to use external sinking funds without combining them with other financial mechanisms. NRC, however, had included in its definition the phrase "either directly or indirectly, through rates established by the entity itself" merely to allow the definition to encompass those entities, such as some publicly-owned utilities, that regulate their own rates through a process that is open to public participation and scrutiny. Because all NRC power reactor licensees are, currently, regulated to allow recovery of costs, this potential misinterpretation of the definition is of concern only to the extent that deregulation affects licensees in the future.

Under Option A-1, the definition of "electric utility" would remain as stated above. Depending on the outcome of deregulation, some licensees inappropriately believe they no longer meet the definition and, consequently, obtain more costly financial assurance mechanisms. Other licensees may continue to meet the definition of electric utility despite being deregulated with respect to the recovery of prudently-incurred costs (i.e., despite having reduced recourse to decommissioning cost recovery through rates approved by PUCs or FERC). Such licensees might use external sinking funds to demonstrate financial assurance for decommissioning without also providing an additional financial mechanism to cover unfunded costs. This would be contrary to the assumptions underlying NRC's rationale for treating regulated electric utilities differently from other NRC licensees, and could result in shortfalls in funding for decommissioning if these licensees go bankrupt or their reactors close prematurely.

2.1.2 Option A-2: Revise the regulatory definition of "electric utility" to clarify that it excludes entities that are no longer able to recover costs through regulated rates, fees, or mandatory charges

Under this option, NRC would revise the definition of "electric utility" found in 10 CFR 50.2 to read as follows:

> Electric utility means any entity that generates, transmits, or distributes electricity and that recovers the cost of this electricity through rates established by a regulatory authority, such that the rates are sufficient for the licensee to operate, maintain, and decommission its nuclear plant safely. Rates may be established by a regulatory authority either directly through traditional "cost of service" regulation or indirectly through another non-bypassable charge mechanism. An entity whose rates are established by a regulatory authority by mechanisms that cover only a portion of its costs will be considered to be an "electric utility" only for that portion of the costs that are collected in this manner. Public utility districts, municipalities, rural electric cooperatives, and State and Federal agencies, including associations of any of the foregoing, that establish their own rates are included within the meaning of "electric utility."

NRC believes this definition clarifies its intention that only licensees capable of recovering costs through regulated non-bypassable rates, fees, and mandatory charges be considered electric utilities eligible for differential treatment under the financial assurance requirements. Use of the revised definition would reduce the risk that decommissioning costs may go unfunded due to bankruptcies or premature closures of licensees that are no longer electric utilities.

2.2 Credit for Earnings on Decommissioning Funds

Options B-1 and B-2 affect potentially any Part 50 licensee that uses an external sinking fund or prepayment mechanism, regardless of whether or not the licensee is an electric utility. The options impact how much money licensees must contribute into their funds by restricting their assumptions regarding future earnings.

2.2.1 Option B-1: No action

NRC guidance allows licensees to account for future earnings (i.e., earnings to be accrued until the reactor shuts down) on external decommissioning sinking funds when calculating annual contributions.[20] (Users of prepayment mechanisms, such as funded trust funds, may also take credit for future earnings.) NRC regulations (10 CFR 50.75(e)(1)(ii)) state that contributions to external sinking funds must be made periodically such that "the total amount of funds would be sufficient to pay decommissioning costs at the time termination of operation is expected." Given that external sinking funds are required to be fully-funded by the time facilities are expected to be permanently shut down, licensees are currently precluded from considering any investment returns they might expect to earn while their reactors are in extended safe storage (i.e., after the permanent shutdown of the reactor but before the commencement of decommissioning).

This is a conservative funding approach for two reasons. First, by requiring the last financial assurance contribution to occur prior to facility shutdown, there are no subsequent financial assurance contributions that would depend on licensees' abilities to continue as viable entities after their nuclear plants have been shut down. Second, by not allowing any credit for projected earnings during a safe storage period, there is less likelihood that poor investment returns (i.e., returns lower than those projected by the licensee in calculating financial assurance payments) would significantly impact decommissioning funding.[21]

Some licensees, however, have argued that they are able to earn a positive real rate of return on their decommissioning funds during safe storage, and that NRC, by requiring all decommissioning funds to have been collected or earned by shutdown, may force licensees to collect more funds from ratepayers than is absolutely necessary, given the potential for accrual of interest in the safe storage period. This, they argue, would result in an unwarranted expense to licensees, their ratepayers, or their stockholders, and it could create inequities between generations of ratepayers.

With respect to the return that licensees should assume when accounting for future investment income earned on decommissioning funds set aside during the operating life of the facility, *Regulatory Guide 1.159* states that assumed rates of returns should "reasonably approximate" the historical real rate of earnings obtained by a given type of investment, but does not establish an upper limit for assumed rates of return. In practice, licensees assume a wide range of projected earnings rates, and many licensees assume rates that are fairly high (e.g., real rates of 6 to 8.7 percent).[22] (For example, a real rate

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Regulatory Guide 1.159, p. 14.

In contrast, insufficient returns earned on decommissioning funds <u>prior to</u> the safe storage period are of less concern. The reason for this is that licensees' nuclear power reactors would still be generating revenue in this situation. Therefore, licensees would be better able (all else equal) to make up the difference with added contributions to the fund.

Annual Survey of Nuclear Decommissioning Cost Estimates and Funding Policies, Public Utility Survey, Table 32. Goldman Sachs, August 1995.

of 8.7 percent exceeds the historical average real rate of return of 6.9 percent for a portfolio invested 100 percent in large company common stocks.[23])

Under Option B-1, licensees using external sinking funds, when calculating annual contributions, would continue to account for future earnings projected through the end of the expected termination of operations. Licensees using the safe storage method of decommissioning still would not be allowed to take the safe-storage period into account in their annual funding calculations. This option would also take no action to further restrict licensees' earnings rate assumptions for purposes of calculating annual contributions to sinking funds. Prepayment mechanisms also would be unaffected by this option.

2.2.2 Option B-2: Allow credits for earnings during safe storage and an assumed 2 percent real rate of return

Under Option B-2, licensees using external sinking funds, when calculating annual contributions, would account for both (1) future decommissioning fund earnings projected through the end of the expected termination of operations, *and* (2) future returns expected to be earned during the safe storage period, if the particular nuclear power reactor will use this method of decommissioning. The final annual contribution would still have to be made prior to termination of operations at the facility, but the balance in the decommissioning fund would then continue to grow during safe storage until it is fully funded by the time of decommissioning. Option B-2 would also restrict the assumed earnings rate on external sinking funds to a real rate of return of 2 percent, regardless of whether or not a licensee will use safe storage, in those cases where a regulator (e.g., FERC) does not approve the assumed earnings rate.

Also under this option, licensees using *prepayment mechanisms* could reduce the amount that they must prepay to account for future earnings. As in the case of licensees using external sinking funds, licensees using prepayment mechanisms would be allowed to take credit for earnings expected to accrue from the time of prepayment, through safe storage, until funds are withdrawn to pay for decommissioning. Thus, like an external sinking fund, a prepayment mechanism would not be adequate in amount to pay for decommissioning until sufficient earnings accumulated over the life of the facility and over its safe storage period. The assumed earnings rate would also be restricted to a real rate of return of 2 percent in cases where a regulator does not approve the assumed earnings rate.

The 2 percent real rate of return is a conservative assumption that provides reasonable protection to NRC.[24] In many cases, however, 2 percent is less than the rate currently assumed by licensees.[25] To the extent that earnings in a given year prove to be higher than 2 percent, the balance of the fund will be greater than anticipated. Licensees may take this higher balance into account in calculating subsequent contributions to their sinking funds. This means the size of subsequent contributions will decrease, even though these subsequent contributions will still be based on a 2 percent earnings assumption. (Similarly, if the actual real rate of return proves to be *less* than the assumed 2 percent rate, the size of subsequent contributions will *increase,* even though they will still be based on a 2 percent earnings assumption.)

Stocks, Bonds, Bills and Inflation 1995 Yearbook: Market Results for 1926-1994, Table 6-7, Ibbotson Associates, 1995.

[24] Although actual returns may exceed 2 percent on average, rates in the short term (e.g., the 5 or 10 years prior to decommissioning) may be below average (or even negative).

The average rate currently assumed by licensees is 3.7 percent.

Thus, regardless of whether actual returns are greater or less than 2 percent, the amount ultimately collected from ratepayers and placed in the sinking fund should be appropriate.

This option would allow licensees to collect no more funds from ratepayers than is absolutely necessary given the potential for accrual of interest. For two reasons, however, this option seems unlikely to significantly impact most licensees.

- First, licensees can take best advantage of this option only if they pre-select the safe storage method of decommissioning relatively early during the funding period. Currently, however, licensees are required to make a preliminary determination of decommissioning methods only 5 years prior to termination of operations.[26] If safe storage is elected at that time, the benefit of this option would be fairly small because the decommissioning fund would already be largely funded.

- Second, the application of this option to prepayment mechanisms (the costliest method of financial assurance) is unlikely to have *any* impact on nuclear power reactor licensees because licensees will not use this prepayment method until deregulation results in their no longer meeting the definition of electric utility (in which case they would become ineligible to use external sinking funds).[27]

A potentially greater concern, however, is that the option provides adequate financial assurance only under three conditions. First, the reactor must not close prematurely and the safe storage period must last as long as anticipated. Otherwise, the invested decommissioning funds will not have adequate time to generate the needed funds. Second, realized rates of return must equal or exceed the assumed rate. This risk is reduced substantially for affected licensees by limiting the assumed rate to 2 percent. Third, funding contributions calculated by licensees must account for the added costs (e.g., security) of a safe storage decommissioning relative to the lower cost of a prompt decommissioning. In particular, contributions based on NRC's certification amounts would be inadequate because the certification amounts assume prompt decommissioning. If safe storage costs are not reflected in the fund contributions, then actual spending on safe storage costs could result in inadequate funds remaining for the actual decommissioning.

2.3 Monitoring Fund Balances through Reporting

Options C-1 and C-2 address NRC's ability to monitor the status of power reactor licensees' decommissioning funding including, in particular, their progress in funding external sinking funds.

This study could identify only three operating nuclear plants that have already elected safe storage as the method of decommissioning.

Licensees could continue using external sinking funds in this case only by coupling them with another financial mechanism (e.g., a surety bond, letter of credit, or parent company guarantee) to cover costs that are not yet funded by the sinking fund. This option may have greater impact on non-power reactor licensees, who already are ineligible to use external sinking funds except in combination with another financial mechanism.

2.3.1 Option C-1: No action

NRC has not deemed it necessary to monitor licensee compliance with the current decommissioning funding assurance requirements. Currently, NRC views licensee compliance with the funding assurance requirements as a matter to be determined through the inspection process when necessary. NRC has also relied on FERC's and PUCs' monitoring of the decommissioning funds of licensees that fall under their jurisdiction (i.e., as part of their rate regulatory responsibility). This option would continue NRC's current practice of not requiring licensees to report on the status of their decommissioning funds.

2.3.2 Option C-2: Implement a periodic reporting requirement

NRC is concerned that rapid changes (e.g., divestitures and restructuring) in the electric utility industry due to deregulation will make it difficult to monitor decommissioning funding effectively under its current approach. In particular, NRC's current practices may not provide sufficiently consistent, regular, and comprehensive information for all licensees. NRC also is concerned that its licensees may at some point no longer fall under the jurisdiction and oversight of FERC or PUCs.

Option C-2 would require all power reactor licensees to report to NRC at least once every 3 years on the status of their decommissioning funding. Licensees for plants within 5 years of the projected end of operations would have to report annually. Reports would need to state whether the given licensee meets the definition of "electric utility" in 10 CFR 50.2 and, if so, provide supporting evidence of this assertion. Reports would also need to include the following:

- The amount of decommissioning funds estimated to be required pursuant to 10 CFR 50.75(c);
- The amount accumulated to the date of the report;
- A schedule of the annual amounts remaining to be contributed; and
- The assumptions used regarding rates of escalation in decommissioning costs, rates of earnings in decommissioning trust funds, and rates of other factors (e.g., discount rates) used in funding projections.

This option would enable NRC to establish a stronger oversight role as necessary in the event that the oversight currently provided by FERC and State PUCs diminishes or ceases. Licensee reports also would provide NRC with a consistent, regularly-updated set of information from all licensees. Information in the reports could be used on a case-by-case basis as appropriate. For example, these reports would allow NRC to identify licensees that are not funding their sinking funds at an adequate pace and to take appropriate follow-up action. This information could also prove useful for other purposes, such as evaluating licensee notifications of restructuring and responding to related information requests from Congress and media organizations (over the past few years, NRC has been unable to fulfill such requests).

2.4 Use of Statements of Intent by Power Reactor Licensees

Options D-1 and D-2 address the issue of whether statements of intent should continue to be allowed as an acceptable financial mechanism for power reactor licensees.

2.4.1 Option D-1: No action

NRC regulations currently allow "Federal government licensees" that are electric utilities to use statements of intent to satisfy the financial assurance requirements of 10 CFR 50.75. In addition, all "Federal, State, and local government licensees" under Part 50 that are *not* electric utilities may also use statements of intent for financial assurance purposes. Statements of intent document a licensee's intention to request sufficient funding from the appropriate governing body far enough in advance of decommissioning to avoid delays in conducting decommissioning activities. Thus, statements of intent do not set aside any monies for decommissioning in the manner of prepayment mechanisms or sinking funds, nor do they provide a legally enforceable "guarantee" in the manner of surety bonds, letters of credit, or parent company guarantees. Nevertheless, NRC regulations allow the use of statements of intent by government licensees in recognition of the unique characteristics of governmental bodies.

Although numerous Part 50 licensees (non-power reactors) currently use statements of intent to assure their decommissioning costs, the only power reactors eligible to use statements of intent are those owned by the Tennessee Valley Authority (TVA), a quasi-Federal entity that qualifies as an electric utility. TVA is, in fact, the only power reactor licensee with decommissioning costs currently covered by statements of intent. Other governmental power reactor licensees, such as public utility districts, are ineligible to use statements of intent because they are not Federal licensees.

Under Option D-1, TVA could continue to use statements of intent to demonstrate financial assurance for decommissioning of its power reactors. The assurance provided by this option would continue to rely largely on the presumed financial backing of TVA by the Federal government.

2.4.2 Option D-2: Clarify which licensees may use statements of intent by defining the term "Federal licensee"

Recently, a report by NRC's Inspector General raised the question of whether TVA should be allowed to use a statement of intent, as allowed by 10 CFR 50.75(e)(3)(iv).[28] In particular, the report (1) raised concerns regarding TVA's financial condition, (2) noted that TVA's debts are neither obligations of the Federal government nor are they backed by the Federal government, and (3) questioned whether the Federal government would actually pay for TVA's decommissioning costs should the need arise. The report also indicated that although TVA had established a $261 million internal decommissioning fund as of January 1996 (funded by ratepayers and earnings on invested funds), TVA later had depleted the fund completely (although it eventually re-funded into the fund all amounts collected from ratepayers). In addition, some commenters on NRC's April 8, 1996, Advanced Notice of Proposed Rulemaking (ANPR) stated that TVA's use of costless statements of intent will give TVA a competitive advantage over other competitors in the increasingly competitive energy marketplace.

Option D-2 would define the term "Federal licensee" to mean "any NRC licensee that has the full faith and credit backing of the United States government," thereby addressing the concerns raised by the

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Audit Report: NRC's Decommissioning Financial Assurance Requirements for Federal Licensees May Not Be Sufficient, OIG/95A-20, U.S. Nuclear Regulatory Commission, Office of the Inspector General, April 3, 1996.

NRC Inspector General and the commenters on the ANPR. Licensees that did not meet this test would be allowed to use any of the other financial mechanisms acceptable under the regulations. We have assumed for the purposes of this analysis that TVA would not meet the definition of a Federal licensee. However, assuming it continues to meet the definition of electric utility, TVA could establish an external sinking fund using funds now held internally.

2.5 Additional Review of Decommissioning Financial Assurance Mechanisms

Options E-1 and E-2 discuss concerns that ongoing deregulation of the electric utility industry may expose weaknesses present in licensees' decommissioning financial assurance mechanisms. These concerns could be addressed through additional review of the financial mechanisms used by licensees.

2.5.1 Option E-1: No action

Power reactor licensees were required to submit financial assurance mechanisms (e.g., trust agreements, escrow agreements, statements of intent) for NRC's review and approval only once, when the financial assurance requirements first took effect in 1990. The submitted trust and escrow mechanisms were required to comply with several general conditions established principally in NRC guidance. Although NRC guidance provided licensees with detailed model wording for mechanisms (including trust agreements and escrow agreements) that included numerous additional conditions protective of NRC's interests, licensees were neither required nor expected to use the model wording.[29]

Since 1990, power reactor licensees (according to NRC guidance) have had to submit to NRC within a "reasonable time" any changes or "significant modifications" to "the funding method." Licensees have also been directed that they must maintain an existing method of financial assurance "until the licensee has instituted a new method."

NRC believes that the present requirements, as implemented, currently are sufficient to ensure that funds deposited in the decommissioning trusts or escrows of electric utilities will be available when needed to pay for decommissioning. This position is based largely on the belief that FERC and State PUCs currently provide significant regulatory oversight over decommissioning funds. NRC's belief is also based on the considerable market power that, to date, has ensured the financial viability of electric utilities and limited the likelihood that they might ultimately be unable to pay their obligations.

Option E-1 would not change the requirements, guidance, or review procedures applicable to decommissioning financial assurance mechanisms.

2.5.2 Option E-2: Require periodic submission of any modifications to external trust agreements (and other financial assurance mechanisms) for detailed NRC review

NRC is concerned that ongoing deregulation and restructuring in the electric utility industry may render the current financial assurance requirements, as implemented, inadequate to ensure the continued availability of funds that have already been deposited in decommissioning trusts or escrows. This concern is driven by several factors related to the deregulation of the electric utility industry. First, deregulation may lead to a diminished or non-existent oversight role for FERC and State PUCs over

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Licensees were expected to modify the wording "as a licensee's specific situation warrants [provided that the mechanism] complies with applicable state law . . . ." (*Regulatory Guide 1.159*, p. 14) these decommissioning funds. Second, deregulation is intended to increase competition, and therefore seems certain to reduce the considerable market power that has until now ensured the financial viability of electric utilities. Third, deregulation may lead to significant corporate restructurings. As a result, financial mechanisms currently in place are likely in many cases to be amended, either to reflect new ownership or for a number of other potentially significant purposes (e.g., to clarify and limit the potential liability of various parties for decommissioning). In other cases, trusts or escrows might be terminated in response to changes in corporate structures or financial demands.[30]

These factors reduce the level of confidence that, in the future, existing trusts and escrows will work as intended. Put another way, the financial mechanisms of power reactor licensees might pose a higher risk of failing than they would if no changes had occurred to the licensees' competitive situation and its FERC/PUC oversight status.[31] It is also uncertain whether licensees, even in the current regulatory environment, have been complying with the guidance that they should submit changes or modifications of funding methods to NRC. If they have not, then NRC will not have conducted any review of some mechanisms now in use.

Since NRC's 1990 review of the financial mechanisms submitted by power reactor licensees, NRC has gained considerable experience reviewing decommissioning financial assurance mechanisms submitted by materials licensees. Materials licensees are not generally subject to non-NRC regulations affecting decommissioning, and they generally do not have market power like that of today's electric utilities. For this reason, NRC's experience with materials licensees may be pertinent to a deregulated and restructured electric industry.

Decommissioning costs of materials licensees are typically several orders of magnitude less than decommissioning costs of power reactors. Nevertheless, materials licensees' financial assurance mechanisms, like those of power reactor licensees, are governed by several general conditions established primarily in NRC guidance. This guidance also provides detailed model wording for financial mechanisms. Although use of the model wording is not required, NRC has found it valuable to conduct a highly detailed review of licensees' financial mechanisms relative to the model wording. Relatively few mechanisms submitted by materials licensees are accepted by NRC without significant revisions, and all mechanisms must include a number of important protections to NRC's interests.[32]

In the event that a corporate restructuring results in a change of licensee, the former licensee may neglect to follow (or may elect not to follow) NRC guidance, which states that "an existing method of financial assurance is to be maintained until the licensee has instituted a new method." (*Regulatory Guide 1.159*, p. 13)

A financial assurance mechanism is said to "fail" when it is not capable of providing funds when needed for the purposes intended. Failure of a decommissioning trust, for example, might occur for a wide variety of reasons, including (1) funds have been inappropriately removed from the trust for unintended uses (e.g., non-decommissioning expenses of the licensee or trustee), (2) funds are tied up a result of legal disputes involving the trustee and/or the licensee and/or NRC and/or other creditors, (3) NRC cannot access the funds in the event of the default of the licensee, (4) funds have been lost through mismanagement or fraud on the part of the trustee or licensee, and (5) the trust is inadequately funded.

For example, materials licensees' decommissioning trust and escrow agreements must, like the model wording, ensure that they cannot be amended to add provisions that are unacceptable to NRC. The relevant provisions in acceptable mechanisms submitted by licensees may differ from the model wording in how they are worded and even in how they work, but the protection of NRC's interest must be present and effective.

Under Option E-2, NRC would require power reactor licensees to submit any modifications to their current financial assurance mechanisms for NRC's review and revision at least once every 3 years and annually within 5 years of the projected end of operations, in light of potential changes in the electric utility industry's regulatory environment. Modifications to financial assurance mechanisms would ideally be submitted with the reports required under Option C-2.

3. ANALYSIS OF VALUES AND IMPACTS

This section examines the values and impacts expected to result from NRC's rulemaking, and is presented in four subsections. Section 3.1 identifies attributes that are expected to be affected by the rulemaking. Section 3.2 discusses research and analysis on several topics that can affect the assessment of regulatory options. Section 3.3 describes the analytical model used to quantify values and impacts. Finally, the proposal's effects on values and impacts are presented in Section 3.4.

3.1 Identification of Affected Attributes

This section identifies and describes the factors within the public and private sectors that the regulatory alternatives (discussed in Section 2) are expected to affect. These factors were classified as "attributes," using the list of potential attributes provided by NRC in Chapter 5 of its *Regulatory Analysis Technical Evaluation Handbook*.[33] Each attribute listed in Chapter 5 was evaluated, and the basis for selecting those attributes expected to be affected by the proposed action is presented in the balance of this section.

The proposed requirements would revise the financial assurance requirements that support facility decommissioning requirements. The financial assurance requirements are designed to ensure that funds are available when needed to pay for necessary decommissioning activities. They do not create or define the decommissioning activities themselves. Therefore, some of the following attributes either are not consequences of the proposed action or are potential secondary consequences properly attributable not to the financial assurance requirements but to the decommissioning requirements that the assurance requirements support. The attributes in this group include:

- Public Health (Accident) -- No changes to radiation exposures to the public within 50 miles of a facility are expected due to changes in accident frequencies or accident consequences associated with the proposed action because the action is not designed or expected to address accident frequency or consequences.

- Public Health (Routine) -- No changes to radiation exposures to the public during normal facility operations are expected to be associated with the proposed action because the action does not affect routine facility operations in any manner that could result in radiation exposures to the public.

- Occupational Health (Accident) -- No changes to health effects, both immediate and long-term, associated with site workers as a result of changes in accident frequency or accident mitigation are expected to be associated with the proposed action because the action is not designed or expected to affect accident frequency or consequences.

- Occupational Health (Routine) -- No changes to radiological exposures to workers during normal facility operations are expected to be associated with the proposed action because the action is not designed or expected to affect routine

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Regulatory Analysis Technical Evaluation Handbook, Draft Report, NUREG/BR-0184, Office of Nuclear Regulatory Research, August 1993.

facility operations in any manner that could result in radiation exposures to workers.

- Offsite Property -- No changes to monetary effects on offsite property, either through changes in accident frequency and consequences or in other direct or indirect forms, are expected to be associated with the proposed action. The action is not designed or expected to affect accident frequency or consequences. Effects on offsite property resulting from decommissioning are considered an attribute of the decommissioning requirements and not of the decommissioning financial assurance requirements.

- Onsite Property -- No changes to monetary effects on onsite property, either through changes in accident frequency and consequences or in other direct or indirect forms, are expected to be associated with the proposed action. The action is not designed or expected to affect the need for replacement power, decontamination, or refurbishment costs. Although decommissioning affects onsite property, the proposed action does not revise technical standards or requirements for decommissioning. The proposed action is intended to affect the adequacy of funds provided by power reactor licensees to pay for decommissioning, but funds not provided by licensees for decommissioning are expected to be provided from other sources (e.g., taxpayers). Therefore the proposed action is not expected to have monetary effects on onsite property.

- Antitrust Considerations -- The proposed action is not expected to have any antitrust effects.

- Safeguards and Security Considerations -- The proposed action is not expected to have any effect on the existing level of safeguards and security.

- Environmental Considerations -- The proposed action is not expected to have any effect on the existing level of protection of environmental considerations.

The proposed regulatory actions are expected to involve the following attributes:

- Industry Implementation -- No added industry implementation costs would be created by the no-action options (Options A-1, B-1, C-1, D-1, and E-1). The proposed rule changes would result in both costs and savings for licensees. Specifically, industry implementation costs and savings would result in the following situations:

    - Under Option A-2: Given certain assumptions regarding the nature of deregulation, licensees no longer meeting NRC's current definition of electric utility would avoid the costs of obtaining a prepayment mechanism or a surety, insurance, or guarantee mechanism, as well as the implementation costs associated with the need to search for and identify a willing provider of such a mechanism, and to demonstrate to NRC that such a mechanism had been obtained.

-- Under Option C-2: Licensees required to prepare and submit periodic reports on decommissioning fund status to NRC could incur implementation costs to set up systems to ensure that they have adequate internal reporting procedures to collect and submit the required information.

-- Under Option D-2: Licensees that cannot make use of the statement of intent as an allowable financial assurance mechanism would incur implementation costs, such as costs to find a provider of a replacement financial assurance mechanism and costs to set up a replacement mechanism. A possible category of implementation costs not addressed in this analysis is the cost, potentially high, to secure compliance with the commitment represented by the statement of intent (e.g., meetings with Treasury and OMB staff, Congressional testimony) that licensees would not incur if they make use of other mechanisms.

-- Under Option E-2: Licensees required to submit modifications to external trust agreements and other financial assurance mechanisms on a periodic basis would incur additional implementation costs. A possible offsetting cost not addressed in this analysis is the cost of securing performance of the commitments represented by the financial mechanisms that would be avoided by early correction of errors and omissions.

- Industry Operation -- No added industry operation costs or savings would be created by the no-action options (Options A-1, B-1, C-1, D-1, and E-1). The proposed rule changes would result in both costs and savings for licensees. Specifically, industry operation costs and savings would result in the following situations:

-- Under Option A-2: Given certain assumptions regarding the nature of deregulation, licensees no longer meeting NRC's current definition of electric utility would avoid the costs of maintaining a prepayment mechanism or a surety, insurance, or guarantee mechanism, such as payments, fees, and other expenses. The size of these cost savings could vary, depending on the type of mechanisms that would have been used in the absence of a rule change and the number of years that the licensee would have been required to maintain such mechanisms.

-- Under Option B-2: Licensees would incur savings if the size of their annual contributions decreases due to the credit for earnings during safe storage. Licensees might also incur costs (savings) if, as a consequence of deregulation, they reduce (increase) their assumed earnings rate to 2 percent.

-- Under Option C-2: Licensees required to report every 3 years on decommissioning fund status to NRC would incur periodic costs to prepare and submit such reports.

- -- Under Option D-2: Licensees that cannot make use of the statement of intent as an allowable financial assurance mechanism would incur costs to maintain replacement financial assurance mechanisms (e.g., surety bond or letter of credit fees, opportunity costs of prepayments). Under the regulatory proposal, only the Tennessee Valley Authority would face these expenses.

- -- Under Option E-2: Licensees required to submit modifications to external trust agreements and other financial assurance mechanisms to NRC every 3 years would incur periodic costs to submit such modifications.

• NRC Implementation -- No added NRC implementation costs or savings would be created by the no-action options (Options A-1, B-1, C-1, D-1, and E-1). NRC would be expected to incur costs to put the proposed actions into operation. Specifically, NRC would incur implementation costs in the following situations:

- -- To implement Options A-2, B-2, C-2, and E-2, NRC would be required to develop or revise a Regulatory Guide or Branch Technical Position similar to *Regulatory Guide 1.159*.

• NRC Operation -- No added NRC operation costs or savings would be created by the no-action options (Options A-1, B-1, C-1, D-1, and E-1). The proposed rule changes would result in both costs and savings for NRC. Specifically, NRC operational costs and savings would result in the following situations:

- -- Under Option A-2: Given certain assumptions regarding the nature of deregulation, NRC would avoid the costs of reviewing submitted mechanisms from licensees that cease to qualify as utilities under NRC's current definition of electric utility.

- -- Under Option C-2: NRC would need to review periodic reports in order to assess the status of licensees and ensure that they either continue to be regulated electric utilities or, if unregulated, that they have submitted acceptable alternative financial mechanisms.

- -- Under Option D-2: NRC would incur costs to review replacement financial assurance mechanisms submitted by licensees formerly using statements of intent.

- -- Under Option E-2: NRC would conduct a detailed review and analysis of submitted modifications to financial assurance external trust agreements and other financial assurance mechanisms to identify errors, omissions, or other problems and follow up to ensure their correction.

• Regulatory Efficiency -- The proposed requirements would result, in part, in enhanced regulatory efficiency, particularly in the avoidance of delays in decommissioning due to the lack of available funds that could cause potential health and safety problems. No change would be expected under the no-action alternatives. Under other options, regulatory efficiency may be affected as follows:

-- Under Option A-2: NRC will enhance regulatory efficiency through the proposed action by ensuring that decommissioning can be carried out in a safe and timely manner and that lack of funds does not result in delays that may cause potential health and safety problems.

-- Under Option C-2: NRC will be able to track licensees' financial assurance for decommissioning and monitor funds; obtain actions from licensees to correct financial assurance shortfalls in a more timely way; and respond to public inquiries about the status of decommissioning funding with detailed and complete information.

-- Under Option D-2: Clarifying which licensees may use statements of intent by defining the term "Federal licensee" would eliminate a potential future source of delay arising from disputes over whether the Federal government has assumed responsibility for decommissioning costs that may cause potential health and safety problems.

-- Under Option E-2: Detailed review of modifications to financial assurance mechanisms could eliminate a source of delay or failure of financial assurance arising from errors and omissions in the documents that may cause potential health and safety problems.

3.2 Research and Evaluation of Information on Selected Attributes

This section presents the results of background research into several topics that can affect the assessment of the regulatory options, either through qualitative judgments about the feasibility of implementing certain options or by the guidance this research and evaluation provides for the design of the quantitative modeling of the options.

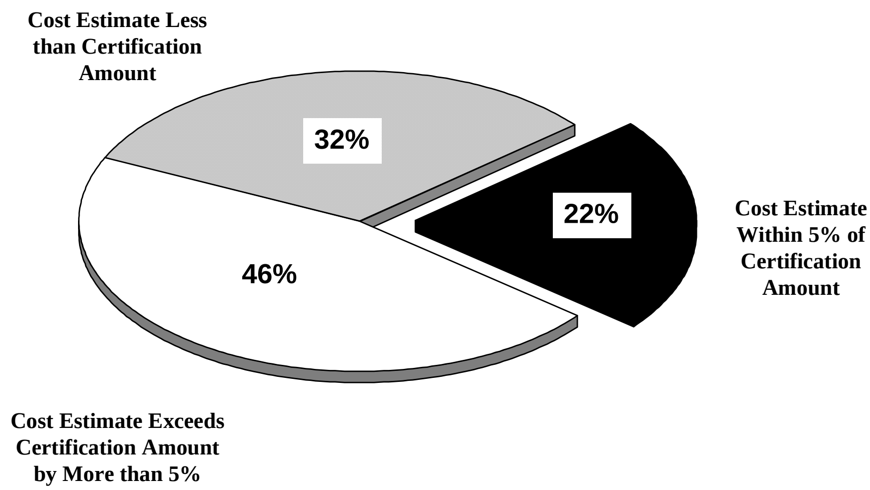
3.2.1 Decommissioning Cost Estimates Used as Basis for External Sinking Funds

NRC regulations at 10 CFR 50.75(b) establish minimum acceptable levels of financial assurance for nuclear power reactors based on the type of reactor (i.e., PWR, BWR) and its power level (in MWt). Although these "certification amounts" are stated in 1986 dollars, the regulations require licensees to update the amounts annually using a specific formula provided in the regulations. The regulations also allow nuclear power reactor licensees to base their financial assurance levels on facility-specific decommissioning cost estimates, *provided that* the estimates are at least as great as the current certification amounts. Thus, licensees must base financial assurance levels on an amount that may be higher, but not lower, than the applicable inflation-adjusted certification amount.

This study calculated the applicable certification amounts (updated to 1994) for substantially all nuclear power reactors currently operating. The analysis then compared these certification amounts to the cost estimates reportedly in use in 1994 by operating and non-operating licensees.[34] The reported estimates were then classified as less than, consistent with, or greater than the applicable certification amount. (Because the regulatory formula for updating certification amounts is fairly complex, licensee estimates were classified as "consistent with" the certification amounts if they were within 5 percent of the applicable certification amount.)

The results of this analysis, displayed graphically in Exhibit 3-1, suggest that current NRC certification amounts do not usually serve as the basis for funding levels:

Exhibit 3-1
Distribution of Utilities by Difference Between Certification Amounts and Cost Estimates



As Exhibit 3-1 illustrates:

- Only about 22 percent of licensees report cost estimates within 5 percent of the inflation-adjusted certification amounts. Any licensees using accurate certification amounts should be among these 22 percent, along with licensees that prepared site-specific cost estimates that happen to be close to the applicable certification amount.

- Almost half of licensees, 46 percent, report cost estimates *greater than* the certification amount. These cost estimates suggest the use of a facility-specific estimate that exceeds the certification amount. It is also possible, however, that

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This analysis is based primarily on 1994 data reported in *Annual Survey of Nuclear Decommissioning Cost Estimates and Funding Policies, Public Utility Survey,* Goldman Sachs, August 1995. In the case of a few licensees that were considered in this Regulatory Analysis, however, the *Annual Survey* did not provide any data. For these licensees, the necessary data for the same point in time were obtained from licensee SEC Form 10K filings or from the financial statements included in licensees' annual reports. Additional review of 10K forms for many of the other licensees indicated that the 10K data were consistent with (and probably the source for) the data included in the Goldman Sachs report.

cost estimates in this group may include costs of non-radiological work (which is not required by NRC) in addition to the certification amount or, alternatively, in addition to a decommissioning cost estimate that may be higher *or lower* than the certification amount. (In fact, of 22 States where PUCs are known to require utilities to prepare cost estimates, 18 allow non-radiological "greenfield costs" to be included.)[35]

- A full 32 percent of licensees report amounts that are more than 5 percent *less than* the applicable minimum certification amount. These cost estimates, if accurate, would seem to indicate licensees' non-compliance with 10 CFR 50.75(b). These amounts could be due to low site-specific cost estimates or to certification amounts that are not fully adjusted for inflation.

In general, these findings suggest that a significant majority of licensees (probably more than 78 percent) prepare facility-specific cost estimates and use these estimates to determine the required level of financial assurance.

3.2.2 Projected Funding Status of External Sinking Funds

This section reports on the adequacy of the amounts currently being collected in external decommissioning funds under NRC's current regulations. To comply with NRC requirements external sinking funds must be fully funded by the time the associated nuclear power reactor shuts down. This study examined licensees' current decommissioning fund balances for their reactor(s) and their annual contributions to those funds. It then projected fund levels at the time of each reactor's license expiration, and evaluated the projected level relative to the required amount of financial assurance.[36] This analysis assumes that decommissioning costs remain constant (in inflation-adjusted dollars), that licensees continue making annual contributions that are equal to their current annual contributions (in inflation-adjusted dollars), and that the real earnings rate on invested funds each year equals the real rate that is currently being assumed by each licensee.[37]

The results of this analysis, displayed graphically in Exhibit 3-2, indicate that approximately 7 percent - or more than $2.7 billion - of decommissioning costs will be unfunded at license expiration, out of the more than $37 billion in total decommissioning costs for all nuclear power reactors. Underfunding could be higher if licensees are unable to earn their assumed real rates on invested decommissioning funds.

3.2.3 Reporting on Status of Decommissioning Funds

Nuclear Decommissioning Accounting Briefing Paper Presented to the Committee on Finance and Technology By the Staff Subcommittee on Accounts, National Association of Regulatory Utility Commissioners, July 1994.

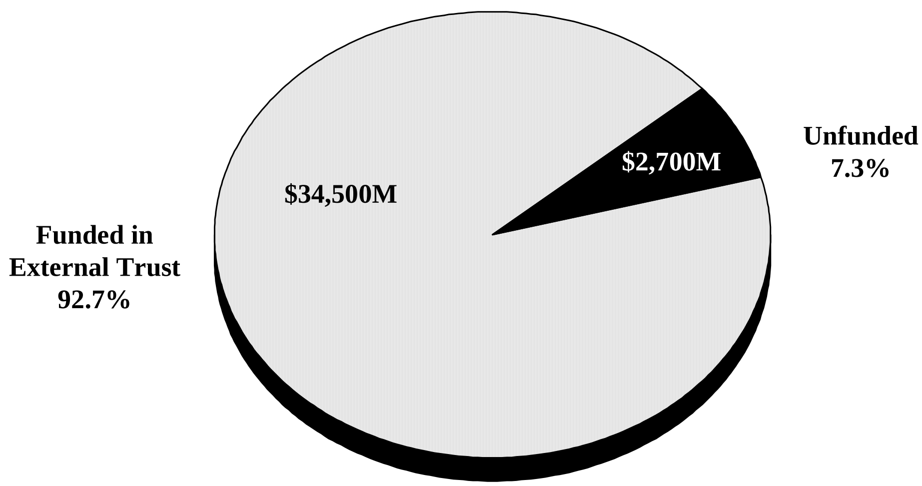
The required amount of financial assurance is assumed to be the higher of the licensee's reported decommissioning cost estimate or the appropriate certification amount for the reactor as called for under 10 CFR 50.75(c).

Real rates assumed by licensees range from 0-8.7 percent, with an average rate of 3.7 percent. Source: *Annual Survey*, Goldman Sachs, 1995.

Licensees currently are not required by 10 CFR Part 50 to prepare and submit reports on decommissioning fund status to NRC following the submission of the initial decommissioning report specified in 10 CFR 50.33(k) indicating how reasonable assurance will be provided that funds will be available to decommission the facility. Section 50.75 ("Reporting and recordkeeping for decommissioning planning") requires licensees to keep records of information important to the safe and effective decommissioning of the facility in an identifiable location until the license is terminated. Such records include records of the cost estimate performed for the decommissioning funding plan or of the amount certified for decommissioning and records of the funding method used for assuring funds. Section 50.75(f) provides that at or about 5 years prior to the projected end of operation the licensee must submit a preliminary decommissioning plan containing a cost estimate for decommissioning and an up-to-date assessment of the major technical factors that could affect planning for decommissioning. The section also provides that "If necessary, this submittal shall also include plans for adjusting levels of funds assured for

Exhibit 3-2

Projected Funding at Time of License Expiration
(aggregate for all utilities in baseline, current regulations)



decommissioning to demonstrate that a reasonable level of assurance will be provided that funds will be available when needed to cover the costs of decommissioning."

Section 50.75 also notes explicitly that funding for decommissioning of electric utilities is also subject to the regulation of agencies such as the Federal Energy Regulatory Commission (FERC) and State public utility commissions (PUCs). In addition, NRC has noted elsewhere that accounting standards, such as the standards of the Financial Accounting Standards Board (FASB) and rules pertaining to Federal taxation lead to the collection and reporting of information by licensees on the status of their financial assurances for decommissioning. This section examines the extent to which the information prepared by licensees for any or all of the purposes described above are likely to provide information that can be used by licensees to satisfy NRC reporting requirements or can be used to substitute for such reporting requirements.

FERC Reporting

FERC's jurisdiction extends to the interstate transmission and delivery of electric power. Under rules promulgated by FERC on June 30, 1995, utilities that are subject to FERC jurisdiction ("Commission-jurisdictional") are required to set up trust funds to provide for the decommissioning of their nuclear power plants. FERC uses both the phrase "nuclear power plant" and the phrase "nuclear unit," without stipulating if funds must be plant-specific or reactor-specific. (Plant-specific reporting could combine information about more than one reactor.) FERC's rules provide that if a public utility has elected to provide for the decommissioning of a nuclear power plant through a nuclear plant decommissioning fund, that fund must meet certain criteria specified by FERC. (Such funds may be, but are not required to be, "qualified" Nuclear Decommissioning Reserve Funds under 26 USC 468A (the Internal Revenue Code). A utility may establish both qualified and non-qualified funds with respect to its interest in the same nuclear plant.) Utilities are required to deposit at least quarterly all amounts included in Commission-jurisdictional rates to fund nuclear power plant decommissioning.

The utility is required to provide the fund's investment manager with essential information about the nuclear unit, including the following:

- the nuclear unit's description and location;
- the expected remaining useful life of the unit;
- the expected decommissioning plan;
- the utility's liquidity needs once decommissioning begins; and
- any other information that the fund's investment manager would need to construct and maintain a sound investment plan.

The utility is mandated by FERC rules to submit annual reports to FERC, suggesting that FERC expects the utility to receive annual reports from its trustee(s). The rule requires submission "by April 1, 1996 and by March 31 of each year thereafter, a copy of the financial report furnished to the utility by the Fund's Trustee. . . ." The information reported to FERC must include the following:

- Fund assets and liabilities at the beginning of the period;
- Activity of the fund during the period, including amounts received from the utility, purchases and sales of investments, gains and losses from investment activity, disbursements from the fund for decommissioning activity and payment of fund expenses, including taxes; and
- Fund assets and liabilities at the end of the period.

The rules explicitly state, however, that the report "should not include the liability for decommissioning" in its description of fund liabilities, because FERC considers the decommissioning expense to be a liability of the utility and not of the fund.

The usefulness of the FERC reporting requirements as a model for potential NRC reporting requirements pertaining to the amount and adequacy of decommissioning financial assurance or as a substitute for them is affected by the following factors:

- The FERC standards provide support for the conclusion that even a requirement that *annual* reports be submitted by licensees would not create a large additional reporting burden on those licensees that are already required to report to FERC. Moreover, all of the key items of information that would be needed for satisfying an NRC reporting requirement should already be collected for purposes of preparing the FERC report. FERC annual report information could provide inputs for even the triennial reports being proposed.

- For some licensees, however, the FERC reporting requirement may not continue to exist after deregulation. A company engaged exclusively in generation, separate from companies engaged in wholesale transmission or end-user distribution, would probably no longer fall under FERC jurisdiction and therefore would not be required to prepare FERC reports.

- FERC reporting will address only that component of decommissioning that is "Commission-jurisdictional." If only a portion of a plant's power is sold at wholesale, FERC will have jurisdiction only over that proportion of the plant's decommissioning costs. Therefore, the reports will not be likely to include information that is fully adequate for NRC's purposes, because they will not cover the full amount of the plant's decommissioning obligation.

- For utilities owned by more than one company, a separate report may be prepared by each company's trustee. The full picture of the FERC "Commission-jurisdictional" decommissioning funding for a plant might need to be put together from several reports.

- The extent of compliance with FERC reporting requirements over an extended period cannot yet be estimated, since the initial reports were required to be submitted by April 1, 1996. FERC has found that the initial group of reports presented some problems. Some utilities presented information only on their "Commission jurisdictional" decommissioning funds; others apparently provided information on all of their decommissioning financial assurance, whether required by FERC or by NRC. Some utilities provided information about every transaction entered into with respect to their decommissioning funds over the preceding year, while others provided more summary information.

- The level of review and scrutiny given these reports by FERC cannot yet be determined because FERC's requirements have only recently been implemented. FERC has concluded that requiring annual reports will provide "greater flexibility" for monitoring funds, suggesting that every report might not be reviewed every year. In addition, FERC has not made the reports part of the structured format for its electronic filing requirements.

In summary, FERC reports provide a good model for the types of information that could be secured from NRC licensees on a periodic basis. FERC's reporting system cannot be expected, however,

- 25 -

to provide a fully adequate source of information that could substitute for reports to NRC because FERC's jurisdiction is limited and deregulation might end FERC's jurisdiction over NRC licensees, and because FERC reports cover only a portion of the complete decommissioning obligation.

Reporting to State PUCs

All State PUCs require some type of reporting on the status of decommissioning financial assurance. The scope, level of detail, the frequency of reporting, and the degree of scrutiny of the reports by the various PUCs, however, can differ substantially from State to State. In July 1994, the staff subcommittee on accounts of the committee on finance and technology of the National Association of Regulatory Utility Commissioners (NARUC) presented the results of a survey of State PUCs examining how nuclear decommissioning cost estimates were currently being treated and the review given those estimates by State PUCs.

According to the NARUC survey,[38] the level and frequency of scrutiny given by PUCs to cost estimates is not particularly high. Although site-specific cost estimates are more frequently used than NRC certification amounts in the reporting States, most of the PUCs in those States conduct somewhat infrequent reviews of the cost estimates. Three State PUCs reported in 1994 that they had not yet reviewed cost estimates; six PUCs reviewed every 3 years; three every 4 years; and two every 5 years. At least thirteen State PUCs reviewed cost estimates only as part of a rate case.

Some State PUCs clearly require a detailed study of expected decommissioning costs to be performed frequently. Texas law, for example, specifies that electric utilities are required to perform or update a study of the decommissioning costs of each nuclear generating unit that it owns or in which it leases an interest at least every 5 years (Substantive Rule 23.21(b)(1)(F)). Public notice and an opportunity for public comment are frequently provided for such decommissioning cost updates. New Jersey, for example, requires updates every 5 years, offers a 60-day public comment period on the updates, and may, if necessary, convene a formal proceeding to review the present funding level (N.J.A.C. 14:5A-3.1 and 3.2). Illinois, in contrast, considers the status of decommissioning funds not to be public information. Connecticut (which did not respond to the NARUC survey) first required submission of a decommissioning funding plan as of January 1, 1993, with updates every 5 years, or more frequently if it finds that more frequent review is desirable. The State PUC is required to hold a public hearing on the plan. The Connecticut PUC is empowered to review the estimated date of closing of the nuclear power generating facility, the estimated cost of decommissioning, the reasonableness of the method selected for cost estimate purposes, and the adequacy of plans for financing the decommissioning and any shortfall resulting from premature closing. After conducting a review, the PUC may, after a hearing, order any changes to the decommissioning financing plan that it deems necessary to ensure that the estimated time of closing and estimated cost of decommissioning the facility are reasonable; that the licensee and owners can adequately fund the decommissioning; that plans for financing any shortfall resulting from a premature closing are adequate and reasonable; and that the

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Nuclear Decommissioning Accounting Briefing Paper Presented to the Committee on Finance and Technology By the Staff Subcommittee on Accounts, National Association of Regulatory Utility Commissioners, July 1994. The survey consisted of a written questionnaire containing sixteen questions, submitted to each of the fifty States and the District of Columbia. Thirty-three responses were received. Within this group, only five State PUCs reported that none of their regulated utilities had ownership or responsibility over any portion of a nuclear power plant. Of the 18 non-responding PUCs, nine could be expected to have regulated utilities with nuclear power plants in the State. The survey's results thus represent about 75 percent of the pertinent PUCs.

owners are legally bound. Michigan's procedures call for review of cost estimates every 3 years, and the PUC reviews the adequacy of funding for decommissioning in the course of ratemaking actions.

The information collected by NARUC in its survey indicated that all or almost all of the utilities with nuclear power plants were relying on external sinking funds to demonstrate financial assurance for decommissioning (with some noting the incentive that the Internal Revenue Service's §468A requirements gave for the use of external funds). (NARUC did not examine whether each owner of a utility had set up its own sinking fund, and, if so, State PUCs reviewed each fund separately.) However, the survey also suggested that there was not a high degree of PUC oversight of those external sinking funds. At least twelve States reported that they did not review the performance of the trust fund investments on a routine or periodic basis. Maryland, for example, did not claim to do annual reviews, stating that "no performance review is done of the trust fund except for the cursory review based on annual reporting." Only four States reported annual reviews, with two more reviewing even more frequently (monthly and quarterly). Texas reported that companies were required to report fund balance, deposits, and breakdown of trust assets semi-annually, but because the trust funds were relatively small and because of limited staff resources, they were not being closely monitored. Three more States reviewed every 3 years, and two more every 5 years. Two States reported that they reviewed fund performance during rate actions. Even for those States that reported reviewing the performance of the external sinking funds, the NARUC survey provided no information about whether the State PUC checked to ensure that annual contributions were being made in the correct amounts. There was no suggestion that the PUCs carefully reviewed the text of the external trust fund agreements, to ensure that they did not contain provisions threatening the security of the assurance being provided. At least sixteen State PUCs reported that they did not impose investment restrictions on the decommissioning funds (although at least one State that did not impose restrictions did place a cap on the market value of investments that could be included with a particular investment manager). New York, which did not itself place any restrictions on investments, noted that the IRS imposed investment restrictions for qualification as a nuclear decommissioning fund under §468A. Twenty-one State PUCs reported that they did not "approve or oversee the selection" of the decommissioning fund's trustee and investment manager, while Illinois reported that the PUC approved trustee selection only.

In summary, because of the variations in scope, frequency, and level of review given reports by utilities to State PUCs, such reports cannot be expected to provide a fully adequate source of information that could substitute for reports to NRC. Furthermore, following deregulation, any nuclear power generators that no longer fall under the jurisdiction of State PUCs might not be required to continue reporting to the PUCs.

FASB Reporting Standards

The Financial Accounting Standards Board (FASB) is currently finalizing financial accounting standards for obligations that are incurred for the closure or removal of long-lived assets, such as nuclear reactors. On February 7, 1996, FASB issued an exposure draft (No. 158-B) for comment. Although the final statement of financial accounting standards on this topic has not yet been released, it appears that the final standard will substantially resemble the exposure draft. The draft includes standards for recognizing and measuring closure or removal obligations (decommissioning of nuclear facilities is explicitly included in the scope of the standard), methods of accounting, and standards on reporting and disclosures.

Under the proposed FASB standard, an entity that reports a liability for its decommissioning obligations should disclose the following information (in this description, the word "decommissioning" has been substituted for the term "closure or removal obligations" used in the proposed standard):

- A description of the obligation and of the related long-lived assets;

- The liability for decommissioning (stated as the present value of the estimated future cash outflows required to satisfy the obligation) must be recognized in the entity's financial statements, either on the face of the statement of financial position or in the notes to the financial statements;

- All assumptions that are critical to estimating the future cash outflows and the liability must be recognized in the financial statements. These include:

  -- The current cost estimate for decommissioning;

  -- The estimated long-term rate of inflation used in computing the liability;

  -- The estimated total future cost of decommissioning;

  -- The discount rate(s);

  -- The general estimated timing of decommissioning activities;

- The funding policy for decommissioning;

- The fair value of assets, if any, dedicated to satisfy the decommissioning obligations;

- The effects on the reported liability and capitalized costs of decommissioning activities resulting from changes in the current reporting period in the estimated future costs of decommissioning;

- The individual components of the costs of decommissioning recognized in the statement of operations (depreciation, changes in the present value of the liability due to the passage of time, and investment earnings on any dedicated assets) and the total of those costs; and

- The caption or captions in the statement of operations in which the costs listed immediately above are aggregated if those costs have not been presented as a separate caption or reported parenthetically on the face of the statement.

The FASB's goal, in seeking these disclosures, is to ensure that companies "provide information that will be useful in understanding the effects of closure or removal obligations on a particular entity. . .

“ The disclosures can be prepared, in the Board’s opinion, “without encountering undue complexities or significant incremental costs.”[39]

Several important additional points should be noted concerning the FASB standards:

- FASB states that the costs to store spent nuclear fuel that are incurred after closure of a nuclear power plant until the spent fuel is ready for final storage should be included in the liability recognized pursuant to the standard. However, the costs of temporary storage of spent fuel that result from the absence of a facility for final storage of the spent fuel should not be included. Unless fuel storage costs are reported separately, which the FASB standards would not require, distinguishing them from decommissioning costs for NRC’s analysis would be difficult.

- The draft standard does not change the existing general principle that trust funds established for nuclear decommissioning are not eligible for offsetting against the liability for decommissioning on the financial statement. FASB explained that offsetting trust funds set up for decommissioning against the decommissioning obligation for nuclear plants had been held in a 1966 FASB opinion to be inappropriate because the right of offset is not enforceable at law and the payees for costs of decommissioning activities generally have not been identified at the reporting date. However, FASB asked for comments on this point in the 1996 Exposure Draft.[40]

- FASB intends the standard to apply to rate-regulated entities, such as utilities subject to State PUCs or FERC, as well as to non-regulated companies.

- The FASB standard would apply to financial statements. Firms that are not publicly held or traded on public exchanges will not be obligated to adopt FASB accounting principles, although they could do so.

- Although the draft standard refers to “an entity,” the standard apparently would allow an affiliated group of firms that prepares a consolidated financial report to disclose consolidated information about the group’s decommissioning obligations, as long as the report addressed differences in timing and discount rates applicable to separate facilities.

In summary, although the FASB standards, if approved, will help to establish uniform standards for financial reports by publicly traded businesses, they may not directly provide that information in a format that is uniformly well-suited to NRC’s use because information on more than one reactor or even more than one affiliated subsidiary may be consolidated. Nevertheless, licensees may readily be able to comply with NRC’s reporting requirements if licensees must collect non-consolidated information as a prerequisite to meeting the FASB standards.

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[39] Financial Accounting Standards Board, *Exposure Draft: Proposed Statement of Financial Accounting Standards, Accounting for Certain Liabilities Related to Closure or Removal of Long-Lived Assets*, No. 158-B, February 7, 1996, ¶99, p. 32.

[40] *Id.*, ¶84, p. 28.

Tax Reports

For a number of reasons, detailed below, tax reports for a qualified Nuclear Decommissioning Reserve Fund or for a non-qualified grantor trust do not appear likely to provide information that a licensee could submit to NRC without extensive revisions to satisfy the proposed reporting requirement, or that NRC could use without extensive analysis to supplement information reported by a licensee. Such tax reports could involve (a) reports on payments into a fund, (b) reports on the current size of the fund, and (c) reports on income to and/or expenditures from a fund.

Section 468A Nuclear Decommissioning Reserve Fund Reports

If a licensee elects to set up a Nuclear Decommissioning Reserve Fund under §468A of the Internal Revenue Code, payments into the fund are deductible in that tax year (in contrast to the general rule that payments to such a trust are not deductible). Therefore, the tax code includes explicit rules respecting such payments. The amount that the licensee may pay into the fund is limited to the lesser of either (1) the amount of nuclear decommissioning costs which is included in the taxpayer's cost of service for ratemaking purposes for that taxable year, or (2) an amount (the "ruling amount") specified on a schedule developed by the IRS that essentially provides for level funding of the amount remaining to be paid when the fund is established and the schedule is prepared.

Gross income of a Nuclear Decommissioning Reserve Fund is taxed (at a rate of 20 percent) so reports of income must be made. In general, amounts distributed from the fund to pay for decommissioning are to be included in the gross income of the taxpayer, but expenditures from the fund to accomplish decommissioning are also treated as deductible costs to the taxpayer. Thus, the IRS requires reports of earnings and distributions from the fund.

The following points address the usefulness of these tax filings as a source of potential information on the size and adequacy of the decommissioning financial assurance:

(1) Section 468A apparently allows a taxpayer with a power plant containing more than one nuclear reactor to use the same Nuclear Decommissioning Reserve Fund for the entire plant. The Code states in §468A(e)(1) that "Each taxpayer who elects the application of this section shall establish a Nuclear Decommissioning Reserve Fund with respect to each nuclear powerplant to which such election applies." Section 468A(f) also specifies that "the term 'nuclear powerplant' includes any unit thereof." Section 468A(e)(4)(A) says that the fund may be used for "satisfying, in whole or part, any liability of any person contributing to the Fund for the decommissioning of a nuclear powerplant (or unit thereof)." Thus, tax-related information provided by a taxpayer owning a plant with more than one reactor might not provide usefully disaggregated data about decommissioning funds with respect to particular reactors.

(2) Section 468A apparently requires a taxpayer with several powerplants to set up a separate Decommissioning Fund for each plant. Although the phrase in §468A(e)(1) cited above is ambiguous, it would probably say "with respect to all nuclear powerplants to which such election applies" if a single consolidated fund were permissible.

(3) If several taxpayers are jointly responsible, through co-ownership, for a nuclear plant, Section 468A apparently requires each of them to set up a separate Decommissioning Fund for their shares of the decommissioning costs. Information collected from several taxpayers might be necessary to develop a complete report on the status of all funds pertaining to a particular plant.

(4) Contributions to decommissioning funds must be made within the tax year, including a period extending 2½ months after the end of the tax year. Thus, taxpayers with different taxable years could make payments into their decommissioning funds at different times, even with respect to the same co-owned plant, over a 14½ month period, making comprehensive summary data more difficult to put together.

(5) The Internal Revenue Service has the authority to review and revise the schedule of ruling amounts “at least once during the useful life of the nuclear powerplant (or, more frequently, at the request of the taxpayer)” (26 USC 468A(d)(3)). A taxpayer who could derive no additional tax benefits from larger deductions might not request the Service to amend the schedule of ruling amounts, even if its decommissioning cost estimate increased.

Grantor Trust Reports

If a licensee elects to set up an external sinking fund segregated from its assets and outside its administrative control (but not qualified as a Nuclear Decommissioning Reserve fund under §468A), NRC’s *Regulatory Guide 1.159* does “not require that an external trust fund be established as a separate tax-paying entity. Thus, a grantor trust may be used” (p. 1.159-4). Payments into such a fund would not be deductible in that tax year, so reports to or by the IRS involving payments would not need to be prepared.

Regulatory Guide 1.159 specifies that annual reports of the current status of a trust (or escrow) are desirable. The language provided for the trust (as well as the escrow agreement) in *Regulatory Guide 1.159* is entitled “Annual Valuation.” The suggested language, which specifies that “the Trustee [or escrow agent] shall . . . furnish to the Grantor a statement confirming the value of the Trust,” also offers the alternatives of monthly, quarterly, or annually for the frequency of such reports. However, NRC also states that “Licensees may add, delete, or modify sample provisions as their circumstances warrant” (p. B-1). Thus, licensees apparently could specify longer than annual periods between reports.

Trustees of grantor trusts are required by IRS rules to submit to the grantor annual statements showing all items of income, deduction, and credit of the trust for the taxable year so that the grantor can take the items into account in computing its own taxable income and credits. The rules specifically provide that the trustee of a grantor trust is not required to file any type of return with the IRS (26 CFR §1.671-4). Thus, licensees who have set up grantor trusts will receive annual reports of certain information from the trustee, even if no full accounting is prepared by the trustee on an annual basis.

3.2.4 Availability and Security of Financial Assurance Mechanisms to Supplement or Replace External Sinking Funds

NRC’s financial assurance regulations in 10 CFR 50.75 currently distinguish between two categories of licensees, “an electric utility” and “a licensee other than an electric utility.” The financial assurance mechanisms authorized for use by each differ. Under §50.75(e)(3), an electric utility may provide financial assurance for decommissioning by means of (1) prepayment, (2) an external sinking fund in which deposits are made at least annually until it has built up to the appropriate amount, (3) a surety method or insurance, and (4) for Federal government licensees, a statement of intent. Under §50.75(e)(2), a licensee other than an electric utility may provide financial assurance for decommissioning by means of (1) prepayment, (2) an external sinking fund, (3) a surety, insurance, or other guarantee method, including a parent company guarantee or (4) for Federal, State, or local government licensees, a statement of intent. A key distinction in the current rule is made between electric utility licensees and licensees that are not electric utilities with respect to the external sinking fund option. Electric utilities are allowed to use an external sinking fund that builds up over time; licensees that are not electric utilities must couple their external sinking fund with a surety method or insurance, the value of which may decrease by the amount being accumulated in the sinking fund.

Although the regulatory proposal would amend the definition of "electric utility," the definition would continue to require that such an entity must recover its costs through rates or other mandatory charges established by a regulatory authority. One effect of deregulation of the electric power industry, therefore, could be the shift of some nuclear power generator licensees out of the category of "electric utility" if their access to funds through regulated ratemaking is limited or ended. Such licensees would then be required to couple existing external sinking funds with another financial assurance mechanism. Option A-2 suggests that such mechanisms could include prepayment, a surety bond, a letter of credit, or any other method currently allowed in §50.75(e)(1)(iii). NRC's Rulemaking Plan also suggested that NRC might consider a certification to NRC from the ratemaking authority that all unfunded decommissioning obligations will be collected in rates, or a parent company guarantee or self-guarantee.

This section addresses qualitative issues associated with the use of these financial mechanisms by licensees that are no longer defined as "electric utilities" in the context of Option A-2. In particular, it discusses issues relating to the availability of certain categories of financial mechanisms (e.g., surety, insurance, and guarantee mechanisms); problems of implementation and security associated with certain categories of mechanisms (e.g., certifications from state PUCs and statements of intent); and issues relating to the development and implementation of certain categories of mechanisms not now in existence (e.g., parent company and self-guarantees for electric utilities and/or nuclear power generators).

Availability of Surety and Third-Party Guarantee Mechanisms

There are likely to be limits on the availability of surety bonds and other third-party guarantee financial mechanisms, such as letters of credit and lines of credit, to nuclear reactor licensees that are required to obtain such mechanisms to demonstrate financial assurance for the difference between their external sinking funds and the full amount of required assurance if the licensee no longer qualifies as an "electric utility." These limits may be created by the possibility, on the one hand, that the nuclear reactor licensees will no longer have recourse to the asset base of the utility, and that, on the other hand, providers of such financial mechanisms will require high levels of collateral and security before they will make such mechanisms available.

NRC has noted that electric utilities may create generating subsidiaries to operate nuclear power plants. These subsidiaries may be separated from affiliates providing bulk transmission services and distribution to end-use customers, with the corporate group owned by a common parent.[41] NRC has received commitments that licensees will notify NRC when significant assets are transferred from a licensee to its non-licensed parent company. However, trends in deregulation and utility reorganization may cause power reactor licensees to have smaller asset bases, potentially consisting primarily of the nuclear generating plant and contractual commitments for sales of power, while other significant assets are owned by the generating subsidiary's parent company or other affiliates.

At the same time, the providers of financial mechanisms such as surety bonds and letters of credit have frequently required collateral for a portion or the full amount of the mechanism, and there is no reason to expect that they will relax this requirement for mechanisms assuring the very large decommissioning costs of nuclear generating facilities. Generating subsidiaries without access to substantial assets may find it difficult to provide the necessary collateral.

Availability and Security of Insurance

Decommissioning insurance is not likely to be available from a traditional insurer. However, licensees may seek to demonstrate financial assurance using decommissioning insurance purchased from a "captive" insurer. (A captive insurance company is defined as a separately incorporated insurance company that is owned by the party(ies) that it insures.) For example, as electric utilities divest nuclear power generation facilities into separately incorporated subsidiaries, the parents of the corporate groups may set up captive insurance companies to provide financial assurance to the nuclear generation subsidiaries or a subsidiary may even set up its own captive. Currently, 10 CFR Part 50 does not specify any requirements that must be satisfied by companies insuring decommissioning costs for NRC licensees, but *Regulatory Guide 1.159* states that the insurance company "must be licensed by State regulatory authorities to transact business as an insurer in one or more States" (§2.3.3). *Regulatory Guide 1.159* also states that insurance used to provide financial assurance for decommissioning "would be similar to surety bonding . . . in that it would guarantee that decommissioning costs will be paid to a trustee should the licensee default."

The degree of regulatory scrutiny afforded a captive insurer before licensing is usually not as high as the scrutiny afforded other types of insurers. Although captive insurers may be subject to certain state regulations and licensing requirements, several States have special licensing laws applying to captives that are somewhat less stringent than those applied to commercial insurers, particularly with respect to minimum capitalization requirements. In addition to the levels of capitalization required, captive insurers are frequently allowed to capitalize their operations using a letter of credit rather than with cash and/or securities. In addition, the captive's parent supplies the collateral to support such a letter of credit. The captive's financial strength thus is linked closely to the financial strength of its parent.

Captive insurers also can be domiciled outside the United States. In fact, the majority of captive domiciles are located "off-shore," primarily in the Caribbean. For domestic captives, Vermont is home

Consolidated Edison, for example, has notified the New York PUC that it is proposing to unbundle its generation company from its transmission and distribution assets. NRRI, "Status of Electric Industry Restructuring," December 3, 1996.

to nearly 70 percent of all captives licensed in the U.S., Hawaii has about 12 percent, and Colorado, 5 percent.[42]

Even a captive registered outside the United States may be admitted for the limited purpose of transacting business with its corporate affiliate as a so-called “alien insurer” in the State where the affiliated company is located. Under some State alien insurer statutes, review of the company’s financial situation by the National Association of Insurance Commissioners (NAIC) would be sufficient for it to obtain approval to provide excess or surplus lines coverage as an alien insurer, if the captive does not sell coverage to any entities other than its affiliate(s).

Because captive insurance companies rely upon the assets of their parents or affiliates in the same corporate group, a captive insurer will not afford the same degree of assurance as an independent third party source of insurance. The assurance provided by a captive insurer, rather than resembling the assurance provided by a surety, more closely resembles the assurance provided by a parent company guarantee or even the assurance that would be provided by a so-called cross-stream guarantee (a guarantee of one subsidiary in a corporate group by another subsidiary in that corporate group).

Availability and Security of Certifications from FERC or State PUCs

In its Advance Notice of Proposed Rulemaking on Financial Assurance Requirements for Decommissioning Nuclear Power Reactors (61 *FR* 15427, April 8, 1996), NRC raised the possibility of relying on certifications from State PUCs and/or FERC pertaining to licensees that had formerly been fully subject to ratemaking but that, due to deregulation, now had limited access to funds from ratepayers. This PUC/FERC certification would provide assurance to NRC that all unfunded decommissioning obligations of the licensee would be collected (possibly through transmission access fees, system exit fees, distribution line charges, or other similar mechanisms).

NARUC and a number of State PUCs have raised several arguments against the feasibility or desirability of such certifications:

- Neither FERC’s current commissioners nor the current members of State PUCs can completely bind their successors. The actions of current commissioners create precedents and expectations that are frequently difficult to overturn, but changed political or economic conditions could lead in the future to abrogations of certifications, and NRC would be unlikely to have any effective method of enforcing them.

- The jurisdiction (and even the continued existence) of FERC or State PUCs in their current form might change in the future, and certifications would not outlast the entities giving the certification.

- The certification commitment that FERC or State PUCs would establish mechanisms sufficient to fund all unfunded decommissioning obligations might not be implemented. State PUCs, in particular, could face tensions between accomplishing retail electric rate reductions through deregulation and the need to set access fees, system exit fees, or other similar charges high enough to fund decommissioning, as well as other costs that might be addressed through such

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Captive Insurance Company Directory 1996, Tillinghast-Towers Perrin.

mandatory fees. Without new Federal legislation, NRC would not have the power to force FERC or State PUCs to implement certification commitments.

- Finally, unlike other financial assurance alternatives, such certifications are not an option that most utilities or power reactor owners or operators can obtain in the marketplace. Federal or State legislation would probably be needed to allow FERC or State PUCs to provide such commitments. There is little or no evidence that States are planning to seek such certification authority as part of their deregulation activities.[43]

Availability and Security of Statements of Intent

The proposed amendments to 10 CFR 50.75 would limit the use of statements of intent by Federal Part 50 licensees by defining the term "Federal licensee." Some of the same issues raised by certifications by State PUCs also arise with statements of intent.

As it was proposed in 1985, the statement of intent was "a <u>certification</u> that the appropriate government entity will be a <u>guarantor</u> of decommissioning funds" (50 *FR* 5619, February 11, 1985, emphasis supplied). Although the supplementary information to the final rule discussed the statement of intent in terms of a "guarantee that a government agency will assume financial responsibility for decommissioning the facility" (53 FR 24036, June 27, 1988), the rule language provides only that the statement of intent must be a statement "containing a cost estimate for decommissioning, and indicating that funds for decommissioning will be obtained when necessary." (53 FR 24050, June 27, 1988, currently codified in 10 CFR 50.75)

Regulatory Guide 1.159 further specifies that the statement of intent must contain "an indication that funds for decommissioning will be requested and obtained sufficiently in advance of decommissioning to prevent delay of required activities." *Regulatory Guide 1.159* also provides slightly more detail about who may sign a statement of intent, specifying that it must contain "Evidence of the authority of the official of the government entity to sign the statement of intent."

The statement of intent could present the following issues:

- Persons signing the statement of intent may be unable to bind their governmental entities over time. While their commitments may create a precedent and expectation that funds will be sought, the commitments cannot be binding on their successors or governmental superiors under different political or economic conditions. Federal statutes, such as the Anti-Deficiency Act, prohibit certain types of financial commitments. For States, the legal and financial relationship between the entity on whose behalf the statement of intent is being issued and the State may not create any binding obligation on the part of the State. State laws generally create precise standards defining when obligations of related or subsidiary entities are obligations of the State, and prohibiting the creation

See, for example, Pennsylvania Public Utility Commission, *Report and Recommendation to the Governor and General Assembly on Electric Competition*, July 1996; State of New York Public Service Commission, *Opinion and Order Regarding Competitive Opportunities for Electric Service, Opinion No. 96-12, Cases 94-E-0952 et al.*, May 20, 1996; and NARUC, *Summary of Each State's Restructuring Activities*, March 1, 1996, none of which identifies any ongoing attempts to secure approval from State legislatures for State PUC certifications.

otherwise of any debts, liabilities, loans, or pledges of credit of the State. This mechanism may, therefore, indicate only that the State is on notice that a claim may be asserted sometime in the future against it.

- Persons signing the statement of intent may in fact lack the authority to make a commitment. States in some cases have enacted statutes similar to the Federal Anti-Deficiency Act, prohibiting officials from entering into financial commitments outside the legislative appropriation and allocation process.

- The commitment provided may, in fact, resemble a weak self-guarantee. Statements of intent signed by officials (e.g., trustees, executive officers, financial officials, or administrators) of the entity required to provide financial assurance that they will provide funds, reallocate funds, or seek and secure funds when necessary, do not appear to represent the same degree of assurance as financial mechanisms issued by third-party providers such as banks and surety companies or the assurance provided by a licensee that has obtained a written guarantee from a parent or passed a test for self-guarantee. No such test must be passed to use the statement of intent.

- TVA points to a number of reasons why its commitment to fund decommissioning when necessary is supported by its legal or financial situation.[44] TVA is a corporate agency that is wholly owned by the United States, and whose real property is held in title by the United States. Congressional appropriations are the primary source of funding for TVA's nonpower programs, although TVA has indicated that it may decline Congressional funding for certain programs in the future. Income from the TVA power program comes from the generation, transmission, and sale of electricity. (In 1994, gross generation was approximately 70 percent coal, 16 percent hydro, and 14 percent nuclear.) Although the service area of TVA is defined by law, competition in the electric power market can occur from other electric utilities and from the natural gas industry. TVA considers itself to be required by Federal law to set its electric power rates high enough to produce revenues sufficient to meet operating expenses, including expenses of decommissioning TVA's nuclear units. TVA's electric power rates are subject only to the authority of the TVA Board of Directors, and are not subject to review by State PUCs, FERC, Congress, or the judiciary, although TVA's power system budget is sent to the President and Congress for informational purposes. TVA has sought to protect its revenue stream from power generation through the execution of requirements contracts with its distributor wholesale customers that contain rolling 10-year minimum termination provisions, and in FY 1995 about 87 percent of its total power revenues were received from such contracts. Currently, one municipal customer accounts for approximately 9 percent of total power sales and four other municipal customers account for an additional 20 percent of total power sales. All five of these customers have contracts that in no event would terminate in less than 10 years. TVA has the authority to issue

[44] "Decommissioning Funding Assurance Requirements Affecting TVA as a Federal Government Licensee," Enclosure, TVA Comments on NRC Advance Notice of Proposed Rulemaking, June 24, 1996. See also, Tennessee Valley Authority 1994 Annual Report, "Charting A Course for the 21st Century."

debt instruments, and in FY 1994 had outstanding long-term debt of about $22 billion; however, TVA is currently taking steps to reduce its debt. TVA's bonds currently have a very high (AAA) rating.[45] Finally, TVA's decommissioning obligations, although large, represent a comparatively small proportion of its annual operating revenues of over $5 billion, and TVA has established a decommissioning investment fund of over $350 million.

Availability of Parent Guarantees and Self-Guarantees

Reliance on a parent company guarantee or a self-guarantee through passing a financial test similar in scope to the test contained in 10 CFR Part 30, Appendices A and C, to ensure power reactor licensee decommissioning would pose a number of potential issues, such as the following:

- A utility that has spun off its nuclear power reactors into separately incorporated companies might be reluctant to issue a guarantee obligation for decommissioning those plants. One of the effects of creating a generating subsidiary is to shield the transmission and distribution components and/or the owner of the corporate group from direct liability for the generating subsidiary.

- Even if a corporate parent or affiliate is willing to undertake a guarantee for its nuclear generating subsidiary, the financial test included in 10 CFR Part 30 Appendix A may not be an appropriate measure of its financial ability to do so. That financial test was initially developed more than two decades ago to measure the financial ability of waste management firms to assure costs that are substantially smaller than nuclear decommissioning costs are likely to be. Some of the elements of the test (e.g., the net worth requirement) would need to be escalated to reflect current dollars. The financial ratios when the test was developed were not considered appropriate for evaluating the financial structure of utilities.

- A self-guarantee by a nuclear generating firm responsible for substantial unfunded decommissioning costs would pose particular problems. The firm's large liabilities might make it unable to satisfy the current financial test for self-guarantees in 10 CFR Part 30 Appendix C. In addition, such licensees are poor candidates for self-guarantees if they do not have significant unencumbered assets in addition to the nuclear plant that itself is creating the decommissioning obligation.

3.2.5 Potential Industry Restructuring

Economic deregulation and restructuring in the electric utility industry, which is expected to lead to increased competition in the industry, may have, as one of its consequences, the disaggregation of integrated power systems into their functional components. In particular, electrical generation may be separated from transmission and distribution, either by being spun off into separate subsidiaries, sold, or merged into new entities. In some cases, particular generation plants may prove to be noncompetitive

[45] Moody's Investor Services and Standard & Poor's ratings for TVA are highly dependent on TVA's status as an agency of the U.S. government.

and be retired early. This industry restructuring, and possible plant closures associated with it, will be closely linked to the pace of deregulation.

This analysis did not attempt to develop a precise forward-looking estimate of how, when, and where industry deregulation will occur or of the number of utility restructurings or premature closures of generating plants that might be associated with deregulation. A review of typical State plans for deregulation, summaries of the status of deregulation across the country, and commentary by industry representatives, however, was used to develop the modeling scenarios described in Section 3.3.2.

Phase-In Periods for Deregulation

State PUCs, legislators, consumer and business groups, and utilities have all proposed a broad range of time periods within which electrical industry deregulation could be carried out, and there is some possibility that Federal legislation could preempt State timetables. The pace of future deregulation will in part be determined by political as well as technical factors, varying from State to State. In New York, for example, large consumers of electricity favor rapid deregulation, with phase-in periods as short as 3 to 5 years; residential and small commercial consumers support a variety of timetables; and some utilities urge delaying action until several outstanding issues have been resolved.[46] In 1996 the New York State PUC adopted early 1997 as its goal for wholesale competition and early 1998 as its goal for getting retail access underway.[47] A law restructuring California's electric industry was passed and signed in late 1996, with implementation goals of January 1998. Several other States are seeking to deregulate, at least in the wholesale market, in the 1998 to 2001 period.[48] The Pennsylvania PUC in July 1996 recommended a phase-in plan leading to full retail access to competitive generation by 2004,[49] and Commonwealth Edison and several other major utilities and industry groups have proposed draft legislation to the Illinois PUC that would provide direct access for residential customers by 2005.[50]

In contrast, a survey undertaken by the National Regulatory Research Institute (NRRI) indicates that at least 27 States have no current plans to undertake deregulation at the retail level. Many of these States are in the initial stages of investigating the issue. Fewer than six have concluded that deregulation would not be desirable in the State, according to surveys undertaken by NARUC and NRRI, but a number of other States are proceeding slowly and haltingly.[51] The States that are hesitant about deregulation tend to be less populated and urbanized, located in the South, Northwest, Southwest, and Midwest.

State of New York Public Service Commission, Opinion No. 96-12, Cases 94-E-0952 et al., *In the Matter of Competitive Opportunities Regarding Electric Service; Opinion and Order Regarding Competitive Opportunities for Electric Service,* May 20, 1996, pp. 15-18.

Id. p. 72.

The New York Times, "The Nuclear Power Puzzle: Deregulation Raises Questions Over Construction Debt," D1, D3, January 3, 1997.

Pennsylvania Public Utility Commission, *Report and Recommendation to the Governor and General Assembly on Electric Competition (From the Investigation into Retail Competition at Docket No. I-940032)*, July 1996, p. 27.

NRRI, "Status of Electric Industry Restructuring," December 3, 1996, p. 16; *The New York Times*, January 3, 1997.

NARUC, "Summary of Each State's Restructuring Activities (3/1/96)"; NRRI, "Status of Electric Industry Restructuring," December 3, 1996.

Although a number of utilities and State PUCs that commented on NRC's Advance Notice of Proposed Rulemaking stated that the likely timetable for deregulation could not be estimated, several others, including the Nuclear Energy Institute, projected that approximately a decade would be needed for industry restructuring and deregulation.

State PUC Plans to Address Decommissioning Costs During Deregulation

No attempt was made to obtain detailed information about the precise plans for dealing with decommissioning costs of each State PUC or State legislature that is investigating deregulation or developing detailed deregulation proposals. In a number of States where deregulation is likely to occur, or is underway, it is still too early to specify exactly how decommissioning costs will be addressed. In New York, for example, mandatory access fees or distribution charges are under consideration, but the State PUC expects to reassess its initial rate structure after the competitive market has been in effect for a few years.[52] The California PUC's decision on electric utility restructuring provides utilities 100 percent recovery of their transition costs, including the difference between the book value and the market value of their generation assets and costs of regulatory obligations,[53] and legislation enacted in September 1996 also provides for recovery of stranded investments.[54] Both California and the Pennsylvania PUC, which apparently modeled its deregulation plan closely on California's, have proposed using Competition Transition Charges to recover stranded costs (including about $14 billion of nuclear stranded costs in California).[55] A majority of the commenters on NRC's Advance Notice of Proposed Rulemaking also predicted that regulatory mechanisms, such as mandatory wire charges/transmission charges, exit fees, or other non-bypassable fees, will be developed and used to enable prudently-incurred stranded costs to be recovered, although the mechanisms used will differ from jurisdiction to jurisdiction.

Utility Restructuring and Premature Closure

The National Regulatory Research Institute has collected information about restructuring of the electric industry that, among other topics, notes instances when utilities have submitted plans to their State PUCs that include divestitures or spinoffs of generating assets; utility mergers; and other similar actions. This information, which is incomplete, suggests that a moderate degree of such activity is currently underway, although all of it does not involve nuclear generating facilities. The following summary provides examples of the types of activities that are occurring. In California, Pacific Gas & Electric has filed plans to divest 3000 MW of gas-fueled plants over a 2 year period. Because of the transmission pricing provisions in California's restructuring bill, signed in September 1996, purchases of out-of-State power are expected that would lead to the closing of California plants, and California's deregulation plans include substantial closures of fossil-fueled plants. In the Washington, D.C. area, PEPCO and Baltimore Gas and Electric have filed an application for merger. In Georgia, SPA has proposed to sell some of its generating facilities. In Kansas, Kansas City Power and Light sought unsuccessfully to merge with Utilicorp in 1995-96. In Massachusetts, the New England Electric System

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State of New York Public Service Commission, Opinion No. 96-12, Cases 94-E-0952 et al. *In the Matter of Competitive Opportunities Regarding Electric Service, Order and Opinion Regarding Competitive Opportunities for Electric Service*, May 20, 1996, pp. 52-53.

NARUC, "Summary of Each State's Restructuring Activities (3/1/96)."

NRRI, "Status of Electric Industry Restructuring," December 3, 1996, p. 7.

NRRI, "Status of Electric Industry Restructuring," December 3, 1996.

has proposed full divestiture of its generating assets in Massachusetts, New Hampshire, and Rhode Island. In Michigan, the legislative study group on deregulation studied the possibility of a merger between Northern States Power and Wisconsin Energy. In Missouri, Union Electric and Central Illinois Power have merged. In New York, Consolidated Edison proposed a corporate restructuring in October 1996 that would create an unregulated generation company and a regulated transmission and delivery company out of the existing utility. In addition, Long Island Lighting Company (Lilco) is seeking to merge with Brooklyn Union Gas, in an arrangement in which the Long Island Power Authority would assume Lilco's debt for the Shoreham nuclear plant.[56]

The information summarized above, although incomplete and qualitative in nature, provides support for the assumption in the scenarios described below, particularly the "managed deregulation" scenario, that full retail deregulation is unlikely in the immediate future in all States but will occur within about a decade; that recovery of decommissioning costs will occur through measures implemented by State PUCs or similar regulatory agencies; and that generation facilities will not uniformly or completely be spun off into separately-incorporated entities susceptible to premature closure.

3.3 Model Design

The results presented in this analysis (see Section 3.4) are based on quantitative analysis of cost and financial data for nuclear power reactors and their owners. This section describes the general methods used to structure the analysis and calculate results. The discussion is divided into three parts. Section 3.3.1 summarizes the development of the database used in the analysis. Section 3.3.2 describes the three basic scenarios that are modeled. Section 3.3.3 addresses how each regulatory option was examined within the model. Finally, Section 3.3.4 discusses a few key assumptions.

3.3.1 Development of the Database

To help quantify the effects of the proposed rule, a database was developed containing decommissioning cost data for nuclear power reactors and decommissioning funding data for the licensees that own these reactors. The database includes a variety of data from the following sources:

- ***Nuclear Regulatory Commission Information Digest***.[57] The *Information Digest* provided reactor-specific information including unit name and type, location, operating status, operating license expiration date, and licensed MWt.

- ***Annual Survey of Nuclear Decommissioning Cost Estimates and Funding Policies, Public Utility Survey***.[58] The *Annual Survey* reports the following information for most companies with full or partial ownership of one or more nuclear power reactor units: unit name, percentage share ownership of each unit, share of estimated decommissioning costs for the unit, total estimated decommissioning costs for the unit, license expiration date, expected year

The New York Times, "Bonus for Lilco Stockholders if State Takes Over Debt," January 1, 1997, p. 45.

Nuclear Regulatory Commission Information Digest, NUREG-1350, Volume 7, U.S. Nuclear Regulatory Commission, Office of the Comptroller, March 1995.

Annual Survey of Nuclear Decommissioning Cost Estimates and Funding Policies, Public Utility Survey, Goldman Sachs, August 1995, Table 32. (A more recent version of this survey is not currently available.)

decommissioning will commence, the amount of funds set aside in external decommissioning funds (qualified and non-qualified) as of year-end 1994, the 1994 contribution to external decommissioning funds, and the assumed rate of earnings on collected decommissioning funds.[59]

- ***Licensee Annual Financial Statements from SEC Form 10K Filings and Annual Reports.*** For a few licensees, the *Annual Survey* data were incomplete. For these licensees, the necessary data were obtained from licensee SEC Form 10K filings or from the financial statements included in licensee annual reports. (A broader review of the annual financial statements of many licensees suggests that the financial statement data are consistent with, and possibly the source for, the data included in the *Annual Survey* report.) Form 10K filings and annual reports also provided data on licensees' operating revenues and total assets.

- ***Nuclear Plant Owners and Operators***.[60] This document was used to confirm licensee ownership for individual power reactors.

The database also includes information on each reactor's certification amount. These amounts were calculated using information on unit type (i.e., PWR or BWR) in accordance with 10 CFR 50.75(c)(1). To account for inflation since 1986, these amounts were then adjusted using the adjustment formula specified in 10 CFR 50.75(c)(2), along with data from NRC's *Report on Waste Burial Charges*[61] and regional data on labor rates and energy prices from the U.S. Department of Labor.

Although the database accounts for all operating nuclear power reactors,[62] it does not account for 100 percent ownership of all reactors (due to data limitations) but rather accounts for approximately 88 percent ownership. As a result, the analysis will proportionately understate all aggregated results (i.e., total results for all licensees) that are stated in dollars (as opposed to percent). Also, if the licensees in the missing 12 percent are financially smaller than other licensees, then the results of the analysis may be biased toward larger licensees.

Note: Because the most recent decommissioning funding data available were stated in 1994 dollars, other amounts used in the analysis were converted to 1994 dollars as necessary. Conversions of financial data were based on inflation factors derived from GDP deflators. Decommissioning

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In some cases where data are reported on an aggregated basis (e.g., total decommissioning funds collected for *all* the reactors owned by the company), the data were apportioned to individual units in proportion to the amount of each facility's certification level and the percentage of operating life remaining.

Nuclear Plant Owners and Operators (Attachment 2 to SECY-94-280), U.S. Nuclear Regulatory Commission, November 18, 1994.

Report on Waste Burial Charges: Escalation of Decommissioning Waste Disposal Costs at Low-Level Waste Burial Facilities, Rev. 5, NUREG-1307, U.S. Nuclear Regulatory Commission, Office of Nuclear Regulatory Research, August 1995.

[62] Reactors of the Tennessee Valley Authority, however, are analyzed only with respect to Options D-1 and D-2.

certification amounts and cost estimates were adjusted using the formula specified in 10 CFR 50.75(c)(2).[63] Therefore, all dollar values reported in this study are 1994 dollars.

3.3.2 Modeled Scenarios

The analysis builds on the database described above to model each option under three alternative scenarios that differ regarding their assumptions about the deregulation of the electric utility industry. Despite significant study of deregulation issues by FERC, PUCs, industry groups, and others, it remains uncertain how deregulation will eventually unfold, which set of companies and facilities will be affected, and, in particular, what the implications will be for nuclear power plant decommissioning costs. Consequently, the scenarios described below have been selected and designed to show the possible *range* of effects of each option. Like any models, they are useful simplifications of reality. They consider aspects of deregulation that are most relevant to decommissioning financial assurance. They are *not* intended, however, to model or reflect other aspects of deregulation.

In particular (and as discussed in Section 3.2.5), this analysis does not attempt to address the significant issue of premature closures of nuclear power plants as a result of deregulation (rather than as a result of NRC's rulemaking), or any corporate restructuring that may result. Other studies have analyzed issues related to deregulation-induced premature closures by combining significant assumptions about deregulation with complex models that examine the competitiveness of the costs of power generation at different facilities. Such an analysis was beyond the scope of this study. By excluding from the model the uncertain impact of deregulation on premature closures, this analysis may overestimate (but should not underestimate) the values and impacts of NRC's rulemaking.[64] Similarly, the analysis does not attempt to model the restructuring that may occur as a result of deregulation, and which might consolidate or disperse ownership of power reactors among current licensees or entities that are not currently licensees.

No Retail Deregulation This scenario assumes deregulation at the wholesale level consistent with FERC rulemakings, but at the retail level assumes regulatory conditions as they exist today (i.e., prior to deregulation).

Managed Deregulation This is perhaps the deregulatory scenario that is most likely to come to pass (see Section 3.2.5). The specific details would likely vary by region or State (or both), and might even include traditional regulation of utilities in some areas. Where deregulation is implemented, however, the managed deregulation scenario assumes that regulators will allow all current electric utility licensees (or, in the event of restructuring, their power reactor licensee successors)

In a few cases, decommissioning cost estimates were stated in future dollars. These estimates were brought back to 1994 dollars using an annual rate of 3.26 percent, which is the average annual increase in the U.S. Gross Domestic Product (GDP) deflators over the period 1986-1995 (as reported in the U.S. Department of Commerce publication *Economic Indicators*).

For example, premature closures that occur prior to the effective date of NRC's rule would reduce the number of licensees affected by the rule, thereby reducing the values and impacts of the rule.

to recover all costs prudently incurred, including future decommissioning costs associated with power reactors built prior to deregulation. Costs may be recovered either directly through traditional "cost of service" regulation or indirectly through non-bypassable mechanisms such as mandatory transmission access fees, system exit fees, and distribution line charges. Reactor decommissioning costs would not be "stranded" under this scenario. For modeling purposes, deregulation is assumed to occur (simultaneously for all licensees) in 2006, 10 years after NRC's Advanced Notice of Proposed Rulemaking for the current rule.

Stranding Deregulation Under stranding deregulation, licensees are assumed to be completely deregulated with respect to cost recovery through rates, charges, and exit fees. Upon the arrival of deregulation, regulators would no longer be in position to assure that licensees can recover any unfunded decommissioning costs. (Thus, such costs would be "stranded" due to deregulation.) For modeling purposes, deregulation is assumed to occur (simultaneously for all licensees) in 2006.

It bears repeating that these or any other scenarios are necessarily simplifications of the innumerable possible outcomes of the deregulatory process. However, these scenarios should adequately illustrate the effects of the various regulatory options as well as bound the analysis in terms of the range of values and impacts of the rule.

3.3.3 Modeling of Regulatory Options

This section describes how each pair of options has been modeled to quantify values and impacts associated with the options' financial assurance implications. Before beginning the sequential discussion of each option pair, however, several aspects of the modeling are noted here because they are generally applicable. First, the model assumes that deregulation affects every licensee in the same way and at the same time, in 2006 (see the previous discussion of the scenarios). Second, although the issue of premature closures of nuclear power reactors in general has not been analyzed in this study, this analysis does consider whether the rulemaking itself is likely to lead to any premature closures. To accomplish this, the model calculates incremental licensee financial assurance costs assuming that each licensee continues to operate as a viable entity and can continue to comply with applicable financial assurance requirements; these cost results will be used later to assess the likelihood of premature closures due to the current rulemaking (see Section 3.4).

Options A-1 and A-2

Under NRC's current regulations and current definition of electric utility, non-electric utility licensees may not use external sinking funds unless the external sinking funds are coupled with other financial mechanisms to assure the unfunded portions of their sinking funds.[65] NRC believes that, at this

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The unfunded portion of a sinking fund is assumed to equal the amount projected to remain unfunded (i.e., after accounting for projected earnings on funds invested as of the time the licensee ceases to be an electric utility) at

(continued...)

time, all power reactor licensees meet the current definition of electric utility. As a result of deregulation, however, licensees may evolve into entities that will not qualify as electric utilities under the current definition but would be able, with the approval of FERC and/or PUCs, to recover the costs of decommissioning from ratepayers under the managed deregulation scenario. Under Option A-1, the no-action alternative, the model assumes that such partially deregulated licensees would cease to be electric utilities and would have to immediately obtain additional financial assurance for all amounts not yet funded. (It is worth noting that NRC's current definition (and hence Option A-1) could be interpreted to consider such entities to be electric utilities, in which case no additional assurance would be required. The model applies the interpretation that they would not meet the definition, however, because this interpretation is more consistent with NRC's inclination to revise the definition prior to deregulation.) Option A-2, however, redefines the term "electric utility" to include partially deregulated licensees, if appropriate (i.e., if they recover costs directly through traditional "cost of service" regulation or indirectly through non-bypassable mechanisms such as mandatory transmission access fees, system exit fees, and distribution line charges).

In the no retail deregulation scenario (i.e., the absence of deregulation) neither Option A-1 nor Option A-2 would have any cost or impact. Licensees would continue exactly as they are, meeting either the current definition of electric utility (under Option A-1) or the proposed definition of electric utility (under Option A-2), throughout the operating life, shutdown, and decommissioning of their facilities.

Under the managed deregulation scenario, the model assumes that all licensees meet NRC's *proposed* definition of electric utility (as discussed above), but do not meet the *current* definition.

- Under Option A-1, therefore, licensees will not be allowed to use external sinking funds (except in combination with other financial mechanisms). Licensees are assumed to cease annual decommissioning trust contributions when they are deregulated in 2006 and to choose at that time between (1) prepaying the unfunded portion of their sinking fund,[66] and (2) obtaining a letter of credit or surety bond on the same unfunded portion.[67] The cost of financial assurance using prepayment is calculated as the licensee's opportunity cost incurred by putting aside money for decommissioning in advance of when the funds otherwise would have been required. The model calculates this opportunity cost by, first, calculating the present value[68] to the licensee of its unfunded decommissioning costs and, second, subtracting this value from the prepayment amount. The cost of financial assurance using letters of credit and

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the time of license expiration, as opposed to the total unfunded amount at the time the licensee ceases to be an electric utility. In other words, licensees are given credit for future earnings on funds collected to date.

[66] Prepayment is the most costly method of financial assurance. Therefore, licensees are unlikely to use prepayment unless other mechanisms are unavailable or unless, in the case of surety bonds and letters of credit, the amount of collateral required approaches the prepayment amount.

Based on the research and analysis discussed in Section 3.2.4, other financial mechanisms (e.g., parent guarantees, insurance) are assumed to be unavailable.

Unless otherwise noted, all present value calculations were made using a discount rate of 7 percent, in accordance with NRC's *Regulatory Analysis Technical Evaluation Handbook,* August 1993, page B-2.

surety bonds equals the present value of the annual fees (assumed to be 1.5 percent of the face value of the credit or bond).

- Option A-2, in contrast, would allow licensees to avoid the costs arising under Option A-1 by letting them continue to use external sinking funds in the manner that they are currently used.

In the stranding deregulation scenario, licensees will, subsequent to deregulation, fail to meet *either* the current definition of electric utility (under Option A-1) *or* the proposed definition of electric utility (under Option A-2). Consequently, licensees will not be allowed to use external sinking funds except in combination with other financial mechanisms. This situation is analogous to, and has been modeled the same as, Option A-1 under managed deregulation.

Options B-1 and B-2

Two aspects of Options B-1 and B-2 require modeling: (1) the allowance of additional funding credits for earnings during the safe storage period on prepayment mechanisms and external sinking funds, and (2) the use of an assumed 2 percent real rate of return. Each of these features affects licensees' calculation of annual contributions to decommissioning funds, thereby generating costs or savings that are attributable to the option:

- <u>Credit for Earnings During Safe Storage.</u> Currently, the total amount of licensees' sinking funds must be sufficient at the time of reactor shutdown to pay for estimated decommissioning costs at that time. Annual contributions to the fund must be sufficient such that, with earnings on the fund during facility operation, the necessary value will be reached. Option B-2 would, in cases where decommissioning activities do not begin immediately with facility shutdown, permit the level of the decommissioning fund at shutdown to be less than the decommissioning cost estimate at shutdown. The funded amount at shutdown, however, would have to be sufficient such that, with earnings on the funds (at the assumed rate of return) during safe storage, it would provide adequate funds to pay for decommissioning activities. This additional earnings credit would reduce the annual contributions made by licensees, thereby generating savings attributable to the rule. A similar credit would be allowed for prepayment mechanisms.

- <u>Assumed 2 percent Real Rate of Return</u>. The proposed rule would allow licensees to assume a real earnings rate of 2 percent, except where a regulatory authority (e.g., FERC or PUCs) specifically allows otherwise. NRC believes that all power reactor licensees currently fall under the jurisdiction of a regulatory authority and, therefore, that all rate of return assumptions currently in use by licensees meet with the approval of the applicable regulatory authority. Therefore, it follows that, in the no retail deregulation scenario, the 2 percent provision will not apply to any licensees. Similarly, it will not apply under the managed deregulation scenario because regulators will continue providing oversight of the assumed earnings rate.[69] Under the stranding deregulation scenario, licensees' earnings rate assumptions no longer fall under the jurisdiction of an appropriate regulatory authority, and licensees also cease to meet NRC's definition of electric utility. In these cases, NRC regulations will not permit continued use of an external fund (unless coupled with another financial mechanism). Thus, the assumed earnings rate of 2 percent would be applied by the model only in calculating amounts not yet funded by the sinking fund (allowing for earnings of 2 percent) and by licensees using prepayment mechanisms to assure such unfunded amounts.[70]

Options B-1 and B-2 are modeled as follows. First, to avoid mis-stating impacts in cases where licensees are presently underfunding or overfunding their sinking funds, the analysis adjusts projected annual contributions of licensees such that the contributions, if continued through the facility's operating life, would be sufficient (with interest at an assumed pre-tax rate of return of 4.3 percent)[71] to fully fund the external sinking fund without overfunding or underfunding. Next, the model calculates the value of each licensee's external sinking fund at the beginning of 1998, when the rule is presumed to take effect. Annual contributions prior to 1998 are as just described, and the funds are assumed to earn a pre-tax return of 4.3 percent. (Consistent with IRS rules applicable to "qualified" decommissioning trusts, this analysis assumes a 20 percent tax on all fund earnings.) In 1998, the model assumes that all licensees will recalculate annual contributions to take advantage of the earnings credit allowed during safe storage. Assumed earnings rates are not revised to 2 percent because, as discussed above, licensees remain as regulated electric utilities at least until 2006 under all scenarios. Therefore, annual contributions beginning in 1998 decrease for all licensees that have reported plans to delay commencement of decommissioning activities beyond the expiration of their operating license (even if the licensees have not specified that the delays are the consequence of selecting the safe storage method of decommissioning).[72] Under the no retail deregulation and managed deregulation scenarios, each licensee

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To meet NRC's definition of electric utility, licensees must be able to recover the costs of decommissioning through rates, fees, or charges established by their regulatory authorities. In setting these rates, fees, or mandatory charges, regulators would (at least implicitly) approve or accept an earnings rate assumption. Because regulatory authorities such as FERC and State PUCs are responsible to their ratepayers, it seems unlikely that they would then give up oversight over monies collected in advance from the ratepayers to pay for decommissioning.

[70] In reality, licensees would also apply the 2 percent rate in calculating post-deregulation contributions to the sinking fund.

This analysis has incorporated the relatively simple assumption that pre-tax real rates of return on decommissioning funds will average 4.3 percent annually. This rate represents the historical average real rate on an investment portfolio that evenly balances high quality stocks and bonds. (This portfolio is representative of the actual investment policies applied to external decommissioning trusts, as reported in *Annual Survey of Nuclear Decommissioning Cost Estimates and Funding Policies, Public Utility Survey*, Goldman Sachs, August 1995, Table 31.) The average real rate of return for long-term government bonds is 1.7 percent, and the average real rate of return on large company stocks is 6.9 percent. Thus, 4.3 percent equals the average rate on a hypothetical portfolio consisting of 50 percent long-term government bonds and 50 percent large company stocks. (Interest rates are historical geometric means as reported in *Stocks, Bonds, Bills and Inflation 1995 Yearbook: Market Results for 1926-1994*, Table 6-7, Ibbotson Associates, Chicago, IL, 1995.)

Many licensees currently report plans to delay commencement of decommissioning activities beyond the expiration of their operating licenses. The reported delays, however, are typically fairly brief (e.g., less than 5

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continues these contributions until license expiration. Savings to licensees/ratepayers equal the present value of the reduced annual payments that result from the option.

Under the stranding deregulation scenario, however, licensees are assumed to obtain a prepayment mechanism or a letter of credit or surety bond in 2006 to assure any costs not yet assured by the sinking fund. Prepayment amounts would be calculated to reflect both the safe storage earnings credit and the 2 percent earnings assumption. Because currently-reported safe storage periods are typically very brief (see previous footnote) and currently-reported earnings assumptions are, on average, higher than 2 percent, Option B-2 generates net costs under this scenario.

Options C-1 and C-2

Option C-1 would not impose a new reporting requirement, and NRC's ability to monitor funding would not improve. The model assumes that, under Option C-1, any underfunding that is currently projected (see Section 3.2.2) will not be corrected prior to decommissioning.

Option C-2 would require licensees to report periodically to NRC on the status of their decommissioning funds. NRC would use the data to ensure that licensees' external sinking funds are adequately funded by the time required. NRC's specific methods for making use of the data might include the following:

- *Benchmarking*. NRC could ensure, at the time of each periodic report, that each external sinking fund was appropriately funded. For example, the fund associated with a facility that is 30 percent through its operating life should be 30 percent funded (including assumed earnings on the amount currently funded). If the fund is not 30 percent funded, NRC could require the licensee to either (1) make an additional contribution to catch the fund up to the benchmark, or (2) increase future annual contributions as necessary to ensure the fund reaches the full amount of decommissioning costs. Under a more lenient benchmark, NRC might require action of the licensee only if the fund is not within some specified percentage of expected funding (e.g., within 5 percent of the 30 percent funding level). This more lenient benchmark may pose considerable risk, however, because even a small percentage of decommissioning costs can represent a very significant underfunding problem, particularly if the facility life is almost over and the underfunding must be corrected immediately or in a short amount of time.

- *Case-by-case reviews.* NRC might choose to focus its attention only on a specific subset of licensees (e.g., those closest to decommissioning, those that have relatively poorer funding status than other licensees, those undergoing corporate restructuring, those in questionable financial condition, those having operational difficulties).

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years). Licensees may yet elect to extend their safe storage periods as allowed by NRC regulations.

The analysis assumes that, under either of these methods, NRC's review of reports would be adequate both to ensure that licensees' cost estimates are at least as great as the appropriate certification amounts, as required by 10 CFR 50.75, and to correct any underfunding problems by the time of decommissioning. NRC might also use the data for informational purposes (e.g., to respond to Congressional or media inquiries).

The requirements would impose a reporting burden on licensees and a corresponding administrative burden on NRC to process the reports. They would also reduce the burden on NRC's inspectors at licensed facilities, who previously had to review analogous information at licensees' facilities, and also reduce the corresponding burden on licensees to prepare for the inspection, assist NRC personnel, and respond to inspection results.

Options D-1 and D-2

Currently, Federal licensees that are electric utilities may use statements of intent, though there is only one power reactor license, the Tennessee Valley Authority (TVA), that the NRC has considered to fall within this category. Consequently, modeling of Options D-1 and D-2 was specific to TVA.

Under Option D-1, TVA would continue to use statements of intent to demonstrate financial assurance. NRC would bear the risk described in the report from the Inspector General, i.e., that the statements of intent may not provide any meaningful financial assurance.[73] Option D-1 results in no change from the status quo, and therefore it generates no incremental costs or savings.

Option D-2 would eliminate statements of intent as an acceptable financial mechanism for use by electric utilities unless they also meet the definition of "Federal licensee," which the NRC is proposing for inclusion in its regulation. Under Option D-2, this analysis assumes that TVA's use of statements of intent, which are virtually costless to TVA, would no longer be acceptable. Instead, TVA would have to obtain another financial mechanism. This analysis assumes TVA would establish an external sinking fund.[74] Although TVA would be required to make significant annual payments into the fund, these payments are not costs of the rulemaking. Rather, these are advance payments for decommissioning activities for which the licensee is already responsible. Because Option D-2 results in the licensee paying these costs earlier than it would otherwise, the primary cost to the licensee consists of the opportunity cost of not being able to use the annual contributions from the time contributed until the time the funds otherwise would have been required. The model determines this opportunity cost by, first, calculating the present value to the licensee (assuming a 7 percent discount rate) of its future decommissioning costs and, second, subtracting this value from the present value of the annual contributions required (assuming level payments, a 4.3 percent assumed pre-tax rate of return, and a 7 percent discount rate).

Under the stranding deregulation scenario where TVA ceases to qualify as an electric utility in the year 2006, the model assumes that TVA prepays enough additional funds so that, with assumed earnings (of 4.3 percent), the fund grows to the full decommissioning cost by the time of license expiration. To address the possibility that NRC may apply Option B-2's 2 percent earnings assumption

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Audit Report: NRC's Decommissioning Financial Assurance Requirements for Federal Licensees May Not Be Sufficient, OIG/95A-20, U.S. Nuclear Regulatory Commission, Office of the Inspector General, April 3, 1996.

This is consistent with the fact that all or virtually all non-Federal electric utilities, who are ineligible to use statements of intent, have selected external sinking funds to demonstrate financial assurance for decommissioning.

along with Option D-2, the model repeats the calculation just described, but the prepayment amount is calculated under the 2 percent earnings assumption.[75] The financial assurance cost to TVA, calculated for each earnings assumption, is the opportunity cost of paying for decommissioning prior to the commencement of decommissioning (see discussion in the preceding paragraph).

Options E-1 and E-2

Option E-1 is the no-action alternative. Under Option E-2, NRC would require power reactor licensees to submit periodically any modifications to their currently effective financial mechanisms for NRC's review in light of potential changes in the electric utility industry's regulatory environment. These options address the possibility that certain provisions or flaws in licensees' decommissioning trust or escrow agreements could cause the mechanisms to wholly or partially fail. (A financial assurance mechanism is said to "fail" when it is not capable of providing decommissioning funds when needed.) By reviewing specific modifications to financial mechanisms and requiring revisions to problematic provisions, Option E-2 can impact the amount of funds the mechanisms will provide for decommissioning.

Option E-2 would generate administrative burdens both for licensees and for NRC, but it would provide the benefit of increasing the *effective level* of financial assurance that licensees already have in place without increasing the *actual level* of or the *annual contributions* to external sinking funds. Under Option E-1, there would be no added administrative burden, but the amount of financial assurance ultimately available for decommissioning could be less than anticipated.

Options E-1 and E-2 were modeled as follows. For a given licensee, the financial assurance risk is assumed to equal the decommissioning cost estimate times the joint probability that (1) the licensee's trust or escrow agreement contains a potentially "critical" flaw (i.e., a provision that circumvents or leaves open the future circumvention of protections important to NRC's interests), and (2) the licensee seeks to use funds for non-decommissioning purposes. In a highly-competitive environment, for example, officials at newly-deregulated electricity generating companies may succumb to temptation to "borrow" capital from a large decommissioning fund. One NRC licensee, the Tennessee Valley Authority, did in fact recently tap into internal decommissioning funds to pay off a significant amount of debt. (Internal decommissioning funds are similar to flawed trust and escrows in that they are not governed by effective restrictions on the use of funds.) Similar problems have been encountered with corporate pension funds that firms have used to pay operating expenses.

Based on experience reviewing hundreds of financial assurance mechanisms submitted by NRC's materials licensees (initial submissions as well as subsequent iterations) that were developed using guidance similar to the guidance available to Part 50 licensees, the probability that a given trust or escrow agreement contains a critical flaw is estimated to be in the range of 50 percent. The probability that the licensee and/or trustee might intentionally or inadvertently take advantage of the flaw and use the funds inappropriately is much more difficult to estimate, but will probably vary by scenario. For purposes of this analysis, the probabilities are estimated as follows: 0 percent under the no retail deregulation scenario (i.e., current regulation of licensees by FERC and PUCs), 5 percent under the more competitive managed deregulation scenario (i.e., no stranded decommissioning costs but diminished regulation), and 10 percent under the most competitive stranding deregulation scenario. These

[75] Due to lack of information on whether TVA will use the safe storage method of decommissioning at its reactors, the modeling for Option D does not account for Option B's credit for earnings during safe storage.

probabilities attempt to recognize the impact of increased competition on licensees' need for both working capital and investment capital.

3.3.4 Assumptions

Several assumptions are worth noting. First, with the exception of Options D-1 and D-2, which affect only one licensee, the model assumes that all licensees are regulated in an identical fashion by FERC, PUCs, and other regulators as applicable, and will continue to be regulated, or deregulated, in an identical fashion under the managed deregulation scenario and/or the stranding deregulation scenario. In reality, deregulation is not likely to affect every single licensee in the same way or to take effect at the same time (in 2006) for all licensees. This assumption tends to overstate the effect of each option relative to the alternative option and it imbues an "all or nothing" quality to the results. The approach is effective in showing how NRC's options will function under each of the three regulatory scenarios (i.e., no retail deregulation, managed deregulation, and stranding deregulation) and seems reasonable in the absence of more sophisticated analysis of the substantial uncertainty surrounding future deregulation and how electric utilities might evolve. Nevertheless, ongoing deregulation is likely to be a blend of (at least) the three scenarios modeled in this analysis. Actual values and impacts, therefore, are likely to fall in between the different amounts reported in this analysis.

Second, the analysis implicitly assumes that no premature closures of reactors will occur as a result of restructuring or deregulation. This topic has not been analyzed in this study (see Section 3.3.2), although the analysis did consider whether the rulemaking itself would lead to any premature closures of nuclear power reactor licensees (see Section 3.4).

Third, with the exception of Options C-1 and C-2 (reporting requirements), the model assumes compliance of all licensees with respect to total financial assurance levels and, in particular, annual contributions to external sinking funds. This assumption serves to isolate the effects of each option without the obfuscatory effects of overfunding or underfunding. This assumption was implemented by adjusting the size of licensees' projected annual contributions to external sinking funds to be the precise amount needed to achieve the appropriate funding level (assuming a 4.3 percent real rate of return on the funds).

Fourth, in calculating the portion of a newly-deregulated licensee's decommissioning cost that, at the time of deregulation in 2006, is unassured by the licensee's external sinking fund and which must therefore be assured by a surety bond, letter of credit, or prepayment, the analysis gives credit to the licensee for future earnings (i.e., until license expiration) on the amount of funding as of 2006. This assumption seems consistent with NRC's current policy of allowing electric utilities to take credit for earnings on their external sinking funds. Neither NRC regulations or guidance, however, explicitly state whether NRC would allow credits in the situation described above. If NRC would not allow such credits, then the results will understate costs of financial assurance in any option or scenario where licensees cease to meet the definition of electric utility.

Fifth, the methodology used to estimate licensees' costs of using surety bonds and letters of credit to cover amounts that are not assured by their sinking funds at the time of deregulation assumes that licensees will not continue to make annual contributions to the sinking funds. This assumption was used to simplify the analysis. In reality, however, licensees may continue funding sinking funds each year and this, in turn, would reduce the fees that must be incurred for surety bonds and letters of credit. Thus, the cost results related to use of surety bonds and letters of credit are upper bound costs.

Sixth, the analysis assumes the accuracy of the data described in Section 3.3.1 and, in particular, the reported decommissioning costs. If these reported costs are low, the analysis will tend to understate all results.

Finally, the following assumptions were used in the analysis of implementation and operation costs under each of the options: (1) Wage rates for NRC staff and licensee staff were calculated from 1996 wage rates developed by NRC for use in regulatory analysis of $67.50 per hour for NRC staff and $72.72 for licensee staff. The 1996 wage rates were converted to 1994 dollars to be compatible with the use of 1994 dollars in the balance of the analysis. The rates used (in 1994 dollars) were $64.55 for NRC staff and $69.54 for licensee staff. (2) The number of licensees used was 132, and was derived from the information in *Nuclear Plant Owners and Operators (Attachment 2 to SECY-94-280*), November 18, 1994. (3) Reporting requirements (including submission of any modifications to financial assurance mechanisms) were assumed to become effective 1 year after promulgation of the regulation in 1998, with the first reports required to be submitted by one third of the licensees in each of 1999, 2000, and 2001. The requirement was assumed to end in 2017. (4) Follow-up, when conducted, was assumed to be effective after one iteration. For example, follow-up for reports submitted in 1999 was assumed to be effective for those licensees' next required report in 2002, and no follow-up was assumed for the 2002 report or subsequent reports. (5) Review of submissions under Option A was assumed to take place at deregulation, assumed to be in 2006. (6) Review of modifications to financial assurance mechanisms under Option E was assumed to require a complete and detailed review of each mechanism currently in use, with one-third of mechanisms being reviewed in each of 1999, 2000, and 2001, and with follow-up for each mechanism in the year after its initial review. For this analysis, the level of effort required of licensees and NRC in submitting and reviewing subsequent modifications is assumed to be minimal. (7) All future costs were discounted to 1998, at a 7 percent discount rate.

3.4 Results

This section describes the results of the value-impact analysis. The values (or benefits) of the rule are calculated as any increase in the amount of financial assurance provided by an option and any cost savings to NRC or industry resulting from an option. Impacts are calculated as any decrease in the amount of financial assurance and any costs resulting from the option. Costs and savings include those related to financial assurance costs (such as surety fees, letter of credit fees, or the opportunity cost of prepaid decommissioning costs) and administrative burdens (such as reporting, preparation of financial mechanisms, review of financial mechanisms, guidance development, recordkeeping).

Before reviewing the values and impacts of each option, it is worth noting several points to place these results in the appropriate context. The three modeled scenarios (i.e., no retail deregulation, managed deregulation, and stranding deregulation) are necessarily simplifications of the many possible outcomes of the deregulatory process. These scenarios, however, were designed to highlight the effects of the various regulatory options on the range of values and impacts of the rule. For example, it seems unlikely that the stranding deregulation scenario will come to pass for all licensees, but this scenario effectively demonstrates the possible outcome to NRC if other regulators (i.e., FERC and PUCs) cease to be relevant. In general, the model's identical treatment of licensees under the various scenarios tends to overstate the effects of each option relative to the alternative option and to imbue an "all or nothing" quality to the results. Nevertheless, the approach is effective in showing how NRC's options will function under each of the three regulatory scenarios and seems reasonable in the absence of more sophisticated analysis of the substantial uncertainty surrounding future deregulation and how electric utilities might evolve. Ongoing deregulation is likely to result in a blend of these and other scenarios.

Consequently, actual values and impacts are likely to fall in between the different amounts reported in this analysis.

The analysis has not attempted to address the issue of reactors or licensees that may cease operations prematurely (see Section 3.3.2), but it does consider the possibility that the rulemaking itself could lead to premature closures. To accomplish this, incremental costs of the rulemaking were calculated for each licensee under the assumption that each continues to operate as a viable entity and can continue to comply with applicable financial assurance requirements. The resulting costs were then compared to licensee financial data. Based on this analysis, it appears that the incremental costs generated by this rulemaking are unlikely to lead to premature closures (i.e., not accounting for the unknown effect of deregulation and increased competition). Accepting this preliminary conclusion that this rulemaking will not itself generate premature closures, the analysis focuses on how NRC's financial assurance program can best prepare for the uncertainties of deregulation.

3.4.1 Estimated Values and Impacts of Options A-1 and A-2

The discussion of values and impacts is divided into two subsections. The first subsection addresses financial assurance values and impacts. The second subsection addresses implementation and operation values and impacts.

Financial Assurance Values and Impacts

In the no retail deregulation scenario, licensees would meet NRC's current definition of electric utility as well as its proposed definition of electric utility. Consequently, licensees would continue using external sinking funds under Option A-1 and Option A-2. Therefore, in this scenario, neither option would generate any financial assurance costs or savings.

Under managed deregulation, all licensees are assumed to meet the proposed definition of electric utility, but not the current definition. Therefore, under the no-action option (Option A-1), licensees are not allowed to continue using an external sinking fund unless another financial mechanism is also used to assure amounts not yet funded. The cost for all licensees to obtain another mechanism to assure the unfunded decommissioning costs is estimated at between $704-$1,051 million, depending on whether licensees can obtain surety bonds or letters of credit or whether they must instead use prepayment mechanisms.[76] This cost is attributable to deregulation rather than to the rule. Selection of Option A-2 would mean these costs are never incurred, thereby generating savings of $704-$1,051 million.

Under stranding deregulation, all licensees are considered unable to meet either the current or the proposed definition of electric utility. Therefore, under either option, licensees would incur costs of obtaining another mechanism to assure their unfunded decommissioning costs. These costs, for all licensees, are estimated at between $704-$1,051 million (the same as in the managed deregulation scenario), depending on whether licensees can obtain surety bonds or letters of credit or whether they must instead use prepayment mechanisms. Again, however, these costs are attributable to deregulation rather than to the rule.

These results are sensitive to the assumption that deregulation occurs in 2006. Specifically, the savings generated by Option A-2 under managed deregulation would be much higher ($1,704-$2,375

Further details on modeling assumptions are provided in Section 3.3.3.

million) if deregulation occurred in 2001. Conversely, savings would be much lower ($250-$400 million) if deregulation occurred in 2011.

In all scenarios, licensees are assumed to comply with NRC's financial assurance requirements even if they no longer meet the definition of electric utility (current or proposed) and must demonstrate financial assurance using methods other than external sinking funds. These other methods would be more costly to licensees than would external sinking funds (see discussion of impacts above), but they would provide the same level of financial assurance.

These values and impacts are summarized in Exhibit 3-3.

Exhibit 3-3

Financial Assurance Values and Impacts Under Options A-1 and A-2

	No Retail Deregulation	**Managed Deregulation**	**Stranding Deregulation**
Option A-1: No action			
Values/Impacts	-	-	-
Option A-2: Revise definition of utility			
Values			
- Decrease in financial assurance costs	-	$704M-$1,051M	-

Implementation and Operation Values and Impacts

The implementation and operation costs that could result from Option A are described in Exhibit 3-4. Under Option A-1, NRC would continue to rely on review of licensees' financial assurance status by State PUCs and FERC and would incur no additional burden, even for licensees that no longer meet the current or proposed definition of utility. Under Option A-2, NRC would need to prepare a component of guidance for licensees similar to *Regulatory Guide 1.159* explaining the new definition of "utility" and specifying the actions that licensees that do not meet the new definition will have to take. Such guidance would be needed even if, in fact, no licensees cease to be regulated as utilities, because NRC cannot know in advance that this will occur. Under both the managed deregulation and the stranding deregulation scenarios of Option A-2, the analysis assumes that NRC carries out a review of the financial assurance submissions prepared by licensees that no longer meet the definition of utility. In the most extreme case, no utilities would remain in regulated status, even in the managed deregulation scenario, and all reviews would be conducted by NRC rather than State PUCs or FERC. This review would begin with the onset of deregulation, assumed to be in 2006. Two alternatives were examined for this review:

- Under the first alternative, the review would be limited to a check of the key elements of the submission, at about two hours per submission, with follow-up only in a few cases of very serious errors or omissions.

- Under the opposite alternative, the review would be a detailed examination of the text of the submitted financial mechanisms, requiring up to 40 hours to complete. Follow-up could be required for an estimated 50 percent of the submissions requiring up to an additional 40 hours.

Licensees were assumed to require up to 40 hours to prepare submissions for either a limited or a detailed review. In the case of a detailed review, licensees could require up to an additional 40 hours to respond to problems.

Exhibit 3-4

Implementation and Operation Costs Under Options A-1 and A-2

	No Retail Deregulation	**Managed Deregulation**	**Stranding Deregulation**
Option A-1: No action			
NRC/Licensees	-	-	-
Option A-2: Revise definition of utility			
NRC			
- Preparation of part of new *Regulatory Guide*	$10,000	$10,000	$10,000
- Review of submissions and follow-up	-	($9,900-$285,100)	-
Licensees			
- Submission for review	-	($93,500-$307,200)	-

3.4.2 Estimated Values and Impacts of Options B-1 and B-2

Financial Assurance Values and Impacts

In the no retail deregulation scenario, under Option B-2, licensees can reduce annual contributions to external sinking funds due to the additional earnings credit allowed under this option. The 2 percent return does not apply because licensees remain regulated utilities. The savings to licensees is estimated to be at least $481 million. Savings could be substantially higher if licensees begin selecting the SAFSTOR method of decommissioning early enough to take greater advantage of the earnings credit during the safe storage period.[77] These savings would not be incurred under Option B-1.

The estimated impacts of Option B-2 under managed deregulation are the same as in the no retail deregulation scenario, assuming that NRC also implements Option A-2.[78]

Under the standing deregulation scenario, however, the impacts of Options B-2 would differ. In particular, savings from the allowance of credits for earnings during safe storage ($322 million) would, in aggregate, be outweighed by the new costs to licensees of having to apply NRC's 2 percent earnings assumption on amounts funded to date plus any additional prepayments made at the time of deregulation. (Use of a 2 percent real rate of return would require increased annual contributions for those licensees that currently assume a higher rate, and decreased contributions for licensees that currently assume a lower rate. The overall effect, however, is an increase in costs to licensees because the average real rate assumed by licensees is 3.7 percent.) The costs to licensees of Option B-2 assuming stranding deregulation are estimated at between $323-$1,511 million, depending on whether licensees can obtain surety bonds or letters of credit or whether they must instead use prepayment mechanisms.[79] Selection of Option B-1 would result in no costs being incurred.

These results are sensitive to the assumption that deregulation occurs in 2006. Specifically, if deregulation occurred in 2001, the savings generated by Option B-2 under stranding deregulation would be lower ($141 million) and the costs would be higher ($539-$2,946 million). Conversely, if deregulation occurred in 2011, savings would be higher ($450 million) and costs would be lower ($150-$640 million).

These values and impacts are summarized in Exhibit 3-5. Licensees are assumed to comply with NRC's financial assurance requirements regardless of whether or not (1) NRC allows credits for earnings during safe storage, or (2) licensees use the 2 percent earnings assumption required by NRC (i.e., in the event that FERC or PUCs no longer oversee their assumed rates of return). Therefore, Options B-1 and B-2 may affect costs or savings to licensees (see discussion of impacts above), but they would provide the same level of financial assurance.

[77] Licensees are required to make a preliminary determination of decommissioning methods only 5 years prior to termination of operations. Many licensees currently report plans to delay decommissioning activities beyond the expiration of their operating licenses. The reported delays, however, are fairly brief (e.g., less than 5 years).

[78] If NRC were to implement Option A-1, however, then the values and impacts of Options B-1 and B-2 under managed deregulation would be the same as under the stranding deregulation scenario (as discussed above).

[79] Further details on modeling assumptions are provided in Section 3.3.3.

Exhibit 3-5

Financial Assurance Values and Impacts Under Options B-1 and B-2

	No Retail Deregulation	**Managed Deregulation**	**Stranding Deregulation**
Option B-1: No action			
Values/Impacts	-	-	-
Option B-2: Allow credit for earnings during safe storage and an assumed 2 percent real rate of return (assuming Option A-2 is also implemented)			
Values			
- Decrease in financial assurance costs	$481M	$481M	$322M
Impacts			
- Increase in financial assurance costs	-	-	$323M-$1,511M

Implementation and Operation Values and Impacts

Except for preparation of the component of guidance addressing the rules on calculation of annual contributions to decommissioning funds, there are no additional implementation and operation costs that result from either Option B-1 or Option B-2. Although Option B-2 would require licensees to recalculate the size of annual contributions to sinking funds (or prepayment mechanisms) in the year the rule takes effect (or when deregulation occurs), licensees are assumed to already calculate such contributions each year (i.e., under Option B-1). No additional burden would be imposed on NRC because NRC does not review licensees' calculation of annual contributions. Exhibit 3-6 summarizes the implementation and operation costs for NRC and licensees of Option B.

Exhibit 3-6

Implementation and Operation Costs Under Options B-1 and B-2

	No Retail Deregulation	**Managed Deregulation**	**Stranding Deregulation**
Option B-1: No action			
NRC/Licensees	-	-	-
Option B-2: Allow credits for earnings during safe storage and an assumed 2 percent real rate of return			
NRC			
- Preparation of part of new *Regulatory Guide*	$4,000	$4,000	$4,000
Licensees			
- Calculation of annual contributions to sinking fund (or prepayment)	-	-	-

3.4.3 Estimated Values and Impacts of Options C-1 and C-2

Financial Assurance Values and Impacts

Assuming that NRC uses the reports to address potential underfunding of external sinking funds, then Option C-2 would eliminate any underfunding of external sinking funds by the time of shutdown both under the no retail deregulation scenario and under the managed deregulation scenario. In this case, the value of Option C-2 would equal the amount of the corrected underfunding, or $2.7 billion (see discussion in Section 3.2.2).

Impacts for Option C-2 under the stranding deregulation scenario (or for the managed deregulation scenario if Option A-1 is implemented) would vary depending on the level of oversight NRC provides during the transition to other financial mechanisms. In general, however, impacts would be reduced in these cases relative to the amounts already discussed (which assume either the no retail deregulation scenario, or managed deregulation with Option A-2). Although financial assurance costs incurred by licensees would increase under Option C-2, the added costs would not be attributable to this rulemaking, but rather would be attributable to current financial assurance requirements. The values and impacts of Options C-1 and C-2 are summarized in Exhibit 3-7.

Exhibit 3-7

Financial Assurance Values and Impacts Under Options C-1 and C-2

	No Retail Deregulation	**Managed Deregulation**	**Stranding Deregulation**
Option C-1: No action *Values/Impacts*	-	-	-
Option C-2: Reports used to ensure adequate funding *Values* - Increase in financial assurance coverage levels	$2,700M	$2,700M	≤ $2,700M

Implementation and Operation Values and Impacts

Under Option C-1, the no-action alternative, no additional implementation and operation costs would be incurred by NRC or licensees. Licensees would continue, as they do under the current rule, not to be required to report on the status of their decommissioning funds until approximately 5 years before the projected end of operation (10 CFR 50.75(f)). Records of the cost estimate or certification amount and of the funding mechanism used for assuring funds also would continue to be kept in an identified location where they may be reviewed in the inspection process if necessary.

Option C-2, in which licensees would be required to submit periodic reports on decommissioning fund status, will impact NRC implementation and operation and industry implementation and operation. Option C-2 would substantially eliminate implementation and operation costs, both to NRC and to licensees, associated with compliance inspections that may otherwise be required under Option C-1.

NRC implementation and operation costs are expected to include development of a component of a *Regulatory Guide* describing the reporting requirement (this will be part of a more extensive regulatory guide addressing each of the new actions included in the rule); development and implementation of a report tracking system; and review and analysis of reports, beginning in 1999, 1 year after promulgation of the rule for one-third of reporting licensees each year.

The analysis assumes NRC would follow-up on about 50 percent of the reports received each year. The frequency of follow-up necessary was assumed to be zero after the initial series of reports.

Industry implementation and operation costs are expected to include development of procedures to ensure that information required to be reported is collected and the report prepared in a timely manner, following promulgation of the regulation in 1998; recordkeeping, making use of existing records systems; report preparation, once every 3 years beginning in 1999; and report follow-up, to respond to NRC inquiries concerning the contents of the report, assumed to occur for about 50 percent of the reports submitted, generally consisting of a telephone inquiry with follow-up letter, if NRC uses the reports to ensure adequate funding.

Exhibit 3-8 summarizes implementation and operation costs of Options C-1 and C-2.

Exhibit 3-8
Implementation and Operation Costs Under Options C-1 and C-2

	No Retail Deregulation	**Managed Deregulation**	**Stranding Deregulation**
Option C-1: No action			
NRC/Licensees	-	-	-
Option C-2: Reports used to ensure adequate funding			
NRC			
- Preparation of part of *Regulatory Guide*	$4,000	$4,000	$4,000
- Detailed review of reports to verify adequacy of funding and follow-up	$128,770	$128,700	$128,770
Licensees			
- Reporting and follow-up	$444,455	$444,455	$444,455

3.4.4 Estimated Values and Impacts of Options D-1 and D-2

Financial Assurance Values and Impacts

Option D-1 would allow the continued use of statements of intent by Federal nuclear power reactors. Significant questions have arisen, however, regarding the security of funds assured by statements of intent (see related discussion in Sections 2.4 and 3.3.3). Consequently, under Option D-1, the $1.66 billion in financial assurance that statements of intent were providing may be, in effect, unassured. Option D-2 (under all scenarios) would eliminate the statement of intent as an acceptable mechanism for electric utilities unless they also qualify as "Federal licensees." This would require the one licensee that currently uses statements of intent, TVA, to obtain alternative financial assurance (e.g., external sinking funds) for the full amount of its decommissioning obligations (i.e., approximately $1.66 billion) in order to comply with current NRC financial assurance requirements.

In the no retail deregulation scenario, TVA would incur no costs under Option D-1. Under Option D-2, however, TVA would have to establish an alternative financial mechanism. The cost of this assurance equals the opportunity cost to TVA of committing decommissioning funds to its external sinking funds before the commencement of decommissioning. This cost is estimated at $124 million.[80]

The estimated impacts under managed deregulation are the same as in the no retail deregulation scenario, because TVA is likely to continue to qualify as an electric utility (and hence to be allowed to continue to use external sinking funds) even under managed deregulation.

Because of TVA's unique status among electric utilities, it is unclear whether stranding deregulation would have the same effect on TVA as it would on other electric utilities. Assuming, however, that TVA funds an external sinking fund until 2006 but then no longer qualifies as an electric utility at that time, TVA would have to obtain alternative assurance for amounts not yet funded. This cost of Option D-2 is estimated at $153-243 million,[81] depending on whether NRC has also implemented Option B-2. (Option D-2 costs are higher if Option B-2 has been implemented because TVA would then be limited to an assumed earnings rate of 2 percent.) Under Option D-1, TVA would continue using statements of intent and would incur no financial assurance costs.

These values and impacts are summarized in Exhibit 3-9.

This excludes the opportunity costs to TVA related to $365 million that it has already contributed to external decommissioning trusts.

This assumes TVA prepays remaining decommissioning costs in the year 2006. TVA's costs would decrease if it is able to obtain and use a surety bond or letter of credit instead of a prepayment mechanism.

Exhibit 3-9

Financial Assurance Values and Impacts Under Options D-1 and D-2

	No Retail Deregulation	**Managed Deregulation**	**Stranding Deregulation**
Option D-1: No action			
Values/Impacts	-	-	-
Option D-2: Clarify which licensees are eligible to use statements of intent by defining the term "Federal licensee"			
Values			
- Increase in financial assurance coverage levels	$1,663M	$1,663M	$1,663M
Impacts			
- Increase in financial assurance costs	$124M	$124M	$153M-$243M

Implementation and Operation Values and Impacts

Exhibit 3-10 summarizes the implementation and operation costs for Option D. Under Option D-1 there would be no implementation and operation costs for NRC or for the licensee, TVA, because TVA would continue to be able to use the statement of intent. Under Option D-2, NRC was assumed to incur costs to review the new financial assurance arrangements submitted by TVA to replace the statement of intent. NRC costs could vary depending on the type of review and on whether follow-up is required, but should not exceed $2,600. The licensee would incur costs to set up a new method of financial assurance to replace the statement of intent, to prepare a submission to NRC demonstrating the new method, and potentially to respond to NRC's follow-up. These costs should not exceed $4,200.

Exhibit 3-10

Implementation and Operation Costs Under Options D-1 and D-2

	No Retail Deregulation	**Managed Deregulation**	**Stranding Deregulation**
Option D-1: No action			
NRC/Licensees	-	-	-
Option D-2: Clarify which licensees are eligible to use statements of intent by defining the term "Federal licensee"			
NRC			
- Review replacement financial assurance	$2,600	$2,600	$2,600
Licensees			
- Secure and submit replacement financial assurance	$4,200	$4,200	$4,200

3.4.5 Estimated Values and Impacts of Options E-1 and E-2

Financial Assurance Values and Impacts

Under Option E-1, the amount of financial assurance ultimately available at the time of decommissioning may be less than anticipated because the terms of the financial mechanism are assumed not to adequately protect NRC's interests. Under Option E-2, NRC would seek to minimize the risk of inadequate financial mechanisms by (1) requiring licensees to submit periodically any modifications to their financial mechanisms to NRC for a detailed review, and (2) requiring revisions as needed to eliminate problematic provisions in the mechanisms. For a variety of reasons discussed in Section 2.5 and Section 3.3.3, flawed financial mechanisms are unlikely to actually fail until and unless deregulation occurs. Thus, in the no retail deregulation scenario, there is no difference in the value of licensees' financial assurance regardless of whether Option E-1 or Option E-2 is implemented.

As deregulation and increasing competition occur, however, the risk associated with flawed mechanisms becomes more significant. Under managed deregulation, the effective level of financial assurance provided by licensees is estimated to be in the range of $930 million less than the nominal value of that assurance due to the potential use by licensees of flawed financial mechanisms. Under stranding deregulation, the effective level of financial assurance is estimated to be in the range of $1,860 million less than the nominal value of that assurance. In order to ensure that benefits are realized under this option, NRC would need to conduct, in the first reporting period, a complete and detailed review of each mechanism currently in use.

There are no additional financial assurance costs (i.e., fees on surety bonds or letters of credit, or opportunity costs of funded amounts) estimated to result from either Option E-1 or Option E-2 because neither the amount nor the method of licensees' financial assurance demonstrations is assumed to change under either option. Rather, under Option E-2, licensees will work with NRC to perfect their current financial mechanisms (see implementation and operation discussion below).

These values and impacts are summarized in Exhibit 3-11.

Exhibit 3-11

Financial Assurance Values and Impacts Under Options E-1 and E-2

	No Retail Deregulation	**Managed Deregulation**	**Stranding Deregulation**
Option E-1: No action			
Values/Impacts	-	-	-
Option E-2: Require modifications to mechanisms to be submitted periodically for detailed review			
Values			
- Increase in financial assurance coverage levels	-	$930M	$1,860M

Implementation and Operation Values and Impacts

Option E-1, the no-action alternative, would involve no implementation and operation costs for NRC or licensees. Option E-2 involves a detailed review by NRC of any modifications to the currently existing financial assurance mechanisms, with examination of the modified text of trust funds or other financial instruments, investigation of the current levels of funding, and follow-up to ensure licensees with problems understand and correct the deficiencies in their financial assurance. This option would involve costs to NRC. Licensees would also incur costs to prepare periodic submissions of any modifications to their current mechanisms and respond to follow-up from NRC. Exhibit 3-12 summarizes the estimated costs of this option.

Exhibit 3-12

Implementation and Operation Costs Under Options E-1 and E-2

	No Retail Deregulation	**Managed Deregulation**	**Stranding Deregulation**
Option E-1: No action			
NRC/Licensees	-	-	-
Option E-2: Require modifications to mechanisms to be submitted periodically for detailed review			
NRC			
- Detailed review and follow-up	$500,000	$500,000	$500,000
Licensees			
- Preparation of submission of modifications to current financial assurance and follow-up to resolve problems	$525,000	$525,000	$525,000

4. BACKFIT ANALYSIS

The regulatory analysis for the proposed rule also constitutes the documentation for the evaluation of backfit requirements, and no separate backfit analysis has been prepared. As defined in 10 CFR 50.109, the backfit rule applies to "modification of or addition to systems, structures, components, or design of a facility; or the design approval or manufacturing license for a facility; or the procedures or organization required to design, construct or operate a facility. . . . " resulting from new or amended provisions in Commission rules. Such backfitting can be plant-specific or apply to multiple facilities ("generic backfitting").

The proposed amendments to NRC's requirements for the financial assurance of decommissioning of nuclear power plants address generic requirements. The proposal would revise the definition of "electric utility," add a definition of "Federal licensee," and add several associated definitions that are generic in nature; amend generically the requirements pertaining to the use of prepayment and external sinking funds; and impose generic new reporting requirements for power reactor licensees on the status of decommissioning funding that specify the timing and contents of such reports.

NUREG-1409, NRC's *Backfitting Guidelines*, lists several criteria (provided below in italics) for determining whether a particular proposed rule falls within the scope of the backfit rule. The criteria, proposed actions, and a description of whether the actions meet each criterion follow:

- *The positions or requirements would bring about improvements in safety of nuclear power reactors.*

  The current proposal would enhance the safety provided by NRC's reactor decommissioning requirements, by helping to ensure that the reactor decommissioning is adequately financed and that delays or shortfalls do not occur in the funding of decommissioning that could create threats to health or safety.

- *The positions or requirements impose changes in hardware, procedures, or organization of nuclear power reactors.*

  The current proposal would require no changes in hardware or organization of nuclear power reactors. However, the proposal could result in changes in the procedures for operation of facilities in that (1) external sinking funds, by themselves, would not remain as an acceptable decommissioning funding option for those licensees that no longer meet the definition of "electric utility," (2) TVA might no longer qualify for use of a statement of intent, and (3) a specified rate of return on decommissioning funds during operation and the decommissioning period would be used in the absence of a different rate approved by a PUC or FERC.

- *The backfit rule does not cover NRC actions that merely request information and do not impose changes in hardware, procedures, or organization.*

  The current proposal includes revisions to reporting requirements that constitute a request for information.

- *The backfit rule does not apply to purely administrative matters.*

  The proposed rule is not purely administrative. It involves changes to the jurisdictional definitions pertaining to licensees and also affects the regulatory options available to licensees.

The NRC has determined that the proposed action is a backfit for the reasons described above. However, in order for NRC to maintain assurance of adequate funding during the changing uncertainties of deregulation, this action is an “adequate protection” backfit. Consequently, the proposed change to the regulations is required to satisfy section 50.109(a)(5) and a full backfit analysis is not required pursuant to section 50.109(a)(4)(ii).

5. DECISION RATIONALE

1. Option A-2 would revise the definition of "electric utility," which specifies when nuclear power reactor licensees may use an external sinking fund that builds up to the required level of decommissioning funding, and when such owners must provide "up-front" financial assurance for the full amount of decommissioning. Under Option A-2, entities that no longer qualify as "electric utilities" because they are no longer able to recover the cost of decommissioning through electricity rates or mandatory fees will be required to notify NRC of the change in their situation and to provide financial assurance for the full amount of their decommissioning obligation immediately. Without the change of definition that would be made under Option A-2, entities that no longer meet the existing definition of utility because they no longer can recover costs of decommissioning through rates, but which are receiving decommissioning funds through non-bypassable system exit fees, line charges, or other means established in the course of industry deregulation, would still be required to incur costs, in total, of up to $704 million to $1,051 million (or more if deregulation occurs prior to 2006) for establishing financial assurance to supplement their external sinking funds (Exhibit 3-3). (Under both the old definition and the new definition, entities that <u>cannot</u> recover the costs of decommissioning through rates or mandatory fees will be required to provide full assurance immediately.) Option A-2 therefore is justified both as a cost saving measure and as a response to uncertainty about how electric industry deregulation will affect the recovery of decommissioning costs through rates and mandatory fees.

2. Implementation and operation costs of reviewing financial assurance submissions by entities that no longer meet the revised definition of "electric utility," as well as industry costs to prepare the submissions, will be incurred only when electric industry deregulation occurs that affects a nuclear power reactor licensee, and only if that deregulation causes the licensee to cease to meet the definition of utility. Option A-2 would allow NRC and licensees to avoid implementation and operation costs in cases where licensees are receiving decommissioning funds through mandatory system exit fees, line charges, or other means established in the course of industry deregulation.

3. For the reasons stated in (1) and (2) above, Option A-2 is superior to Option A-1, the no-action alternative.

4. Option B-2, allowing licensees credit for earnings during safe storage but requiring use of an assumed real rate of return of 2 percent in cases where neither FERC nor PUCs approve of other assumed rates, would allow savings of $481 million (Exhibit 3-5) over Option B-1, the no-action alternative, if either no retail deregulation occurs or retail deregulation occurs that allows nuclear reactor licensees to continue to receive decommissioning funds through rates or mandatory fees described in Option A-2. Under those conditions licensees could continue to use their own assumed rates of return (which may be reviewed and approved by State PUCs and/or FERC) until funds are spent on decommissioning. Savings could be substantially higher if licensees begin selecting the SAFSTOR method of decommissioning early enough to take greater advantage of the earnings credit during the safe storage period.

5. Option B-2 would result in net costs to nuclear reactor licensees under scenarios where licensees may not continue to use their own assumed rates of return but must instead use the required 2 percent rate of return established under Option B-2. In this case, the savings resulting from the extended earnings credit described in (4) would, on balance for all licensees, be offset by higher costs associated with the 2 percent earnings assumption. Specifically, if nuclear reactor licensees cease to qualify as utilities under the definition in Option A-2 because after deregulation they cannot receive decommissioning funds from rates or mandatory fees (and therefore are presumed not to be supervised by State PUCs and/or FERC), Option B-2 would limit them to an assumed 2 percent rate of return prior to safe storage as well as during the safe storage period. The net effect of the 2 percent rate and the extended earnings credit could increase financial assurance costs by $1 million to $1,189 million (or more if deregulation occurs prior to 2006), although these costs may be mitigated by additional savings as discussed in (4).

6. Option B-2 is superior to Option B-1, the no-action alternative, under any assumption about the form of electric industry deregulation. If retail deregulation does not occur, or occurs in the form hypothesized in (4), licensees will realize substantial savings (at least $481 million). If deregulation occurs in the form hypothesized in (5), licensees will incur net financial assurance costs under Option B-2 ($1 million to $1,189 million). The net costs will vary, depending on whether the licensees use prepayment or a third-party financial assurance mechanism to provide financial assurance for the difference between their existing external sinking funds and the full amounts of financial assurance that they must provide. The net costs will also vary, depending on the difference between estimated real rates of return the licensees had previously been using for their external sinking funds and the more conservative 2 percent rate that they will be required to use by Option B-2 if they are no longer under the supervision of State PUCs and/or FERC. However, both components of the increased costs will reduce the potential for significant underfunding of decommissioning.

7. Option C-2, requiring triennial reports by licensees to NRC on the status of decommissioning financial assurance, would allow NRC to address whether adequate decommissioning funds have been set aside to date. Option C-2 would impose implementation and operation costs on NRC and licensees (Exhibit 3-8). However, a reporting requirement coupled with strong follow-up action to address any cases of underfunding identified through the analysis of the reports received could result in avoidance of up to $2,700 million in unfunded decommissioning that could be experienced under the no-action alternative or if a reporting requirement is coupled with limited follow-up (Exhibit 3-7).

8. Option C-2 also has non-quantifiable benefits for regulatory efficiency, because it would allow NRC to develop and provide to Congress and the public detailed information about the current status of decommissioning funding.

9. For the reasons stated in (7) and (8) above, Option C-2 is superior to Option C-1, the no-action alternative.

10. Option D-2, defining the term “Federal licensee” to restrict the use of statements of intent by Federal power reactor licensees, would require TVA and NRC to incur limited

implementation costs to secure and approve an alternative financial mechanism. TVA also would be required to incur costs of from $124 million to $243 million to provide alternative financial assurance, depending on the type of assurance that is used. However, qualitative analysis suggests (Section 3.2.4) that the statement of intent has inherent flaws that make it a weak form of financial assurance. It may provide only a promise by the licensee to seek and obtain funds at some future time when they are needed. TVA's statement of intent apparently was not the equivalent of a parent guarantee provided by the Federal government; NRC's Office of Inspector General has uncovered reasons to believe that the Federal government does not in fact intend to provide any guarantee that it will provide funding for TVA's decommissioning costs. TVA's statement of intent thus most closely resembles a self-guarantee, based on its commitment to set rates or issue bonds, notes, or other indebtedness sufficient to provide finds for decommissioning. Option D-1, the no-action alternative, represents the situation if TVA cannot meet this self-guarantee commitment. Under Option D-1, unfunded decommissioning costs of up to $1,663 million could be incurred. Option D-2 therefore is the preferable alternative.

11. Option E-2 would involve a detailed examination of changes to licensees' financial assurance arrangements, particularly any modifications to their financial assurance mechanisms such as trust funds and other contractual instruments, that were last examined in 1990 when they were initially set up. Under Option E-2, both NRC and licensees would incur implementation costs to conduct and follow up on such an examination, primarily in the first reporting period after the rulemaking. However, flaws in financial assurance mechanisms putting at risk the ability of NRC to draw on the funds when necessary are expected to become more critical as the electric utility industry is deregulated, due to increased pressures on working capital and investment capital of firms in a competitive environment, and the possibility that such capital might be taken from funds supposedly set aside for decommissioning. The estimated shortfalls in decommissioning funds that could result from Option E-1, the no-action alternative, are sensitive to estimates concerning the proportion of financial assurance mechanisms that currently contain or may in the future contain problematic provisions, and the estimates of the proportion of cases in which attempts might be made to use the funds for other purposes. NRC has obtained information, based on experience in review of financial assurance mechanisms by non-reactor licensees, that approximately half of all unreviewed mechanisms may contain flaws; NRC has no information about use of decommissioning funds for other purposes. NRC and licensees could incur combined implementation costs for a detailed review of modifications to mechanisms with follow-up of approximately $1.0 million (Exhibit 3-12). Such a review could avoid unfunded decommissioning costs of from $930 million to $1,860 million (Exhibit 3-11).

6. IMPLEMENTATION

This action would be enacted through a Proposed Rule Notice and public comment and a Final Rule, with promulgation of the Final Rule by 1998. Implementation can begin immediately following the enactment of the final rulemaking. No impediments to implementation of the recommended alternatives have been identified. Regulatory Guides for licensees would be required to provide an explanation of the regulatory requirements and methods for applying NRC's assumed 2 percent real rate of return, the triennial reporting requirements, and the requirements for regulatory compliance for licensees that no longer satisfy the definition of "electric utility" or "Federal licensee."

The Honorable Dan Schaefer, Chairman
Subcommittee on Energy and Power
Committee on Commerce
United States House of Representatives
Washington, DC 20515

Dear Mr. Chairman:

In the near future, the Nuclear Regulatory Commission (NRC) intends to publish in the Federal Register the enclosed proposed amendment to the Commission's rules in 10 CFR Part 50. This proposed rule is being developed to amend the NRC's regulations relating to financial assurance requirements for the decommissioning of nuclear power plants. This is being done in response to the anticipated deregulation of the power generating industry. The proposed action would revise the definition of "electric utility" contained in 10 CFR 50.2, would add a definition of "Federal licensee" to address the issue of which licensees may use statements of intent, and would require licensees to periodically report on the status of their decommissioning funds and changes in their external trust agreements. Lastly, the Commission is proposing to allow licensees to take credit for the earnings on decommissioning trust funds from the time of the funds' collection through the decommissioning period.

The Commission is issuing the proposed rule for public comment.

Sincerely,

Dennis K. Rathbun, Director
Office of Congressional Affairs

Enclosure:
Federal Register Notice

cc: Representative Ralph Hall

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The Honorable James M. Inhofe, Chairman
Subcommittee on Clean Air, Wetlands, Private
Property and Nuclear Safety
Committee on Environment and Public Works
United States Senate
Washington, DC 20510

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