

**DECOMMISSIONING FUNDING FOR
A PEBBLE BED MODULAR REACTOR (PBMR) FACILITY**

I. ISSUE:

10 CFR § 50.75 requires licensees to establish financial assurance for decommissioning. Section 50.75(e)(1) provides six methods for providing financial assurance. These methods include prepayment, an external sinking fund, surety, insurance, or other "equivalent" method. However, Section 50.75(e)(1) essentially restricts use of external sinking funds to licensees that recover decommissioning funds through rates or a non-bypassable charge. Most other licensees have used the prepayment method (e.g., licensees in license transfer proceedings).

This paper evaluates the implications of these requirements for the PBMR.

II. EXELON'S PROPOSAL:

1) The first PBMR license application will propose a decommissioning funding method for the PBMR. Exelon has not yet selected a decommissioning funding method. However, Exelon is evaluating the possibility of seeking NRC approval for an alternative decommissioning funding mechanism that provides for partial prepayment of the total decommissioning cost estimate and annual contributions for the remainder spread over 20 years. Exelon believes that such a mechanism would be permissible under Section 50.75(e)(1)(vi) as an "equivalent" method (or, at the very least, would qualify for an exemption under 10 CFR § 50.12).

2) NRC should initiate rulemaking to modify Section 50.75(e)(1) to explicitly authorize the use of this alternative funding mechanism for new plants. This rulemaking should be initiated independently of the licensing proceeding for the PBMR, and should

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also address other alternative decommissioning funding methods being developed by the industry.

III. ANALYSIS:

10 CFR § 50.75(e)(1) states that financial assurance for decommissioning is to be provided by one or more of the following methods: (i) prepayment in the form of a trust, escrow account, government fund, certificate of deposit, or other payment acceptable to the NRC, (ii) external sinking fund for a licensee that recovers the estimated cost of decommissioning through "cost of service" rates or non-bypassable charge for decommissioning costs, (iii) surety method, insurance, or other guarantee method, (iv) a statement of intent (for a federal licensee), (v) contractual obligations, and (vi) any other mechanism, or combination of mechanisms, that provides (as determined by the NRC) an assurance mechanism equivalent to the other methods in this section. Since a new PBMR modular facility would likely not recover decommissioning costs through rates or a non-bypassable charge, it would not be allowed to use the external sinking fund method under 10 CFR § 50.75(e)(1)(ii) for the PBMR.

Most license transfers to date involving sales of reactors to unaffiliated third parties have satisfied NRC's decommissioning funding assurance requirements by fully prepaying and conveying those funds to the new licensee at closing. According to the NRC, while prepayment places a significant up-front burden on licensees, prepayment provides assurance that a licensee will be able to meet its decommissioning obligations. However, if NRC were to require 100% prepayment of the decommissioning cost estimate for new plants, such prepayment might jeopardize the economic viability of any

the economic viability of any new plant that is to be operated on a merchant basis because of the higher present worth of a prepayment relative to other funding mechanisms which contemplate payment(s) at a later time.

Exelon is giving further consideration to whether some of the other funding arrangements authorized under 10 CFR § 50.75(e) may be feasible for a PBMR operated as a merchant plant by Exelon. For example, Exelon is considering the insurance option pursuant to 10 CFR § 50.75(e)(1)(iii), and long term power sales contracts that provide for the funding of decommissioning costs pursuant to 10 CFR § 50.75(e)(1)(v). Exelon is also considering some funding mechanisms being developed by the industry.

Additionally, Exelon is evaluating the economic feasibility of requiring a new PBMR to accumulate decommissioning funding on an accelerated basis during the first 20 years of operation. Use of such a funding mechanism, in which Exelon would make partial prepayment (5%, for example) of the total decommissioning cost estimate and annual contributions for the remainder spread over 20 years, would substantially reduce the initial costs associated with the PBMR while still providing assurance of funds for decommissioning at the time a module is likely to be decommissioned.

Exelon believes that such a prepayment funding mechanism would provide adequate assurance of decommissioning funding for a new plant. By definition, it will guarantee that sufficient funds are available if a plant operates for its licensed lifetime. Furthermore, partial prepayment, coupled with accelerated funding over the first 20 years of operation, is reasonable in light of the small risk of premature shutdown during that period.

In particular, according to NUREG-1350, NRC has issued more than 120 full power operating licenses for power reactors with a capacity of 100 MWe or greater. Of these, all but nine operated for approximately 20 years or longer (or are currently operating). Of these nine, five operated for more than 12.5 years; two operated for about nine years; one (Pathfinder) operated for about three years; and one (TMI-2) was closed due to an accident. This history indicates that more than 90% of power reactors have operated for approximately 20 years or longer (or are currently operating) and that all but two of the remaining plants have operated for about 9 years or longer. This history provides adequate assurance that the alternative funding method will cover the decommissioning costs at the time of termination of operation.¹

Exelon believes that this alternative approach satisfies 10 CFR § 50.75(e)(1)(vi) which allows a licensee to provide financial assurance via "[a]ny other mechanism, or combination of mechanisms, that provides, as determined by the NRC upon its evaluation of the specific circumstances of each licensee submittal, assurance of decommissioning funding equivalent to that provided by the [enumerated] mechanisms." If NRC disagrees, however, Exelon believes that NRC could grant an exemption from Section 50.75(e)(1) to permit this alternative funding approach (or select another option).

If Exelon decides to use an alternative funding mechanism, its application for the PBMR will provide more details and a justification for the mechanism. However, if NRC

¹ Exelon recognizes that the NRC considered and rejected an accelerated funding mechanism when it revised the decommissioning funding rule in 1998. However, NRC rejected such an approach *for existing operating reactors*, many which have operated for well over twenty years. As NRC noted, an accelerated funding mechanism *for existing operating reactors* might not as sure adequate decommissioning at the end of the licensed lifetime, let alone in the event of premature shutdown. Obviously, this rationale is not applicable to newly licensed plants. The NRC did not

is conceptually opposed to use of partial prepayment with accelerated funding over twenty years (either under Section 50.75(e)(1)(vi) or as an exemption), Exelon needs to know as soon as possible so that this can be factored into Exelon's evaluation of the economic feasibility of the PBMR. Additionally, if NRC believes that there may be other acceptable funding mechanisms that can accomplish the same purpose, Exelon is willing to consider the economic feasibility of those methods. To avoid duplicative efforts for future merchant nuclear power plants, the NRC should initiate rulemaking to revise 10 CFR § 50.75(e)(1) and explicitly allow alternative approaches for new plants. Exelon is working with the Nuclear Energy Institute and other nuclear generation companies to identify a number of possible alternative funding methods and develop supporting information for use in rulemaking. This rulemaking should be initiated independently of licensing of the PBMR.