

**FINANCIAL PROTECTION REQUIREMENTS
UNDER THE PRICE-ANDERSON ACT AND 10 CFR PART 140
AS APPLICABLE TO A
PEBBLE BED MODULAR REACTOR (PBMR) FACILITY**

I. ISSUE:

The Price-Anderson Act imposes certain financial protection requirements on each licensee of a nuclear "facility," which includes a maximum retrospective premium of almost \$90 million in the event of a nuclear incident involving a nuclear plant in the United States. NRC's implementing regulations impose these requirements on each "nuclear reactor," so that a licensee would be liable for a maximum retrospective premium of nearly \$90 million *per reactor*. 10 CFR § 140.11. If NRC were to impose this requirement on each module, a 10-module PBMR nuclear facility would have a potential liability of almost \$900 million. This amount is greatly disproportionate to the potential liability for other reactor facilities of similar size, and runs counter to the intent of the Act in spreading the risk of liability across the industry.

II. EXELON'S PROPOSAL:

- 1) For the first PBMR application, Exelon will request an exemption from the requirements of 10 CFR § 140.11. Exelon will request that NRC treat a 10-module PBMR facility as one nuclear "facility" within the meaning of the Price-Anderson Act.
- 2) Independently of the licensing of the PBMR, the NRC should initiate rulemaking to provide that a multiple module facility is a single "facility" under the Price-Anderson financial protection requirements.

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III. ANALYSIS:

A. Potential Liability of a PBMR under 10 CFR Part 140

The Price-Anderson Act is included in Section 170 of the Atomic Energy Act (AEA), 42 U.S.C. § 2210. It contains a comprehensive statutory scheme intended to: (1) protect the public against losses from personal injury or property damage arising out of nuclear incidents involving the design, construction, operation or maintenance of nuclear facilities, or the handling or use of nuclear materials; and (2) encourage the development of the nuclear industry by limiting the total liability arising out of any nuclear incident and protecting and indemnifying any person, or entity, who might otherwise be liable, against personal liability in this area by spreading the risk of liability about the industry.

Under Section 170(b) of the Act, the amount of primary financial protection required for facilities designed for producing substantial amounts of electricity and having a rated capacity of 100,000 electric kilowatts [100 MWe] or more must be equal to the maximum amount of commercially available nuclear liability insurance. 42 U.S.C. § 2210(b). This amount is currently \$200 million. In addition to this primary financial protection, Section 170(b) requires licensees of such facilities to participate in an industry retrospective rating plan, or secondary layer of protection. This secondary protection provides for the assessment of additional deferred premiums in the event that the public liability from a nuclear incident exceeds the primary financial protection required of the licensee involved in the incident. *Id*

At the present time, the total amount of financial protection available under the Act from both the primary and secondary layers is about \$9.7 billion, as follows: (1) the

primary layer of \$200 million; and (2) a secondary layer of approximately \$9.5 billion, based upon a maximum retrospective premium of \$88.095 million per nuclear incident per nuclear facility. Under Section 170(b) of the AEA, the maximum amount of the standard deferred premium that may be charged per year to a licensee is \$10 million for each facility for which [the] licensee is required to maintain the maximum amount of primary financial protection.

10 CFR § 140.11 requires that financial protection be provided for each *nuclear reactor*. This requirement has significant implications for modular facilities such as the PBMR. If a multiple module PBMR facility is not treated as a single licensed nuclear "facility" for purposes of Price-Anderson, Exelon's potential liability in the event of a nuclear incident at another plant would be multiplied by the number of modules at a site. For example, if the maximum retrospective premium charge of \$88.095 million were applied on a per module basis, a ten-module facility would be subject to additional retrospective assessments of more than \$880 million for each PBMR facility, for each nuclear incident at another plant. Neither Exelon nor its lenders would find this acceptable. Without relief, 10 ten-module facilities would assume secondary financial liability roughly equal to the entire financial protection that is available under Price-Anderson today. This result would be contrary to the intent of the Price-Anderson Act in spreading the risk of liability across the industry.

B. Legal Authority of the Commission to Treat Multiple Modules as a Single Facility for Purposes of the Price-Anderson Act

The imposition of such disproportionate liability on a PBMR facility is not required by the Price-Anderson Act. Under the Act, the NRC has the authority to treat multiple modules at a site as a single nuclear facility.

Although 10 CFR § 140.11 imposes financial protection requirements on each "nuclear reactor," the Price-Anderson Act is not so restrictive. Section 170(a) of the AEA requires each "license" to have a condition requiring the "licensee" to maintain financial protection. Section 170(b) of the AEA requires each "licensee" to have primary financial protection for "facilities" and to have a secondary layer of financial protection "for facilities designed for producing substantial amounts of electricity and having a rated capacity of 100,000 electrical kilowatts or more."

Thus, Section 170 of the AEA and 10 CFR § 140.11(a)(4) contain similar provisions, except that the Act pertains to "licenses," "licensees," and "facilities," while the Commission's regulations pertain to "nuclear reactors." As discussed below, the rulemaking history of 10 CFR § 140.11 and the legislative history of the Price-Anderson Act do not suggest that each nuclear reactor must be treated as a single licensed nuclear "facility" under the Price-Anderson Act.

1. Rulemaking History

Nowhere in the rulemaking history of 10 CFR Part 140 is there any suggestion that each nuclear reactor must be treated as a single licensed nuclear facility under the Price-Anderson Act. See *generally* Financial Protection Requirements and Indemnity Agreements, 26 Fed. Reg. 2944 (to be codified at 10 CFR Part 140) (Apr. 7, 1960); 24 Fed. Reg. 3508 (proposed May 1, 1959); 25 Fed. Reg. 6681 (proposed Aug. 28, 1958); 24 Fed. Reg. 7223 (proposed Sept. 11, 1957).¹

¹ Both 10 CFR § 50.2 and § 140.2 define "nuclear reactor" narrowly as any apparatus used to sustain nuclear fission in a self-supporting chain reaction. If the Commission had intended the term "nuclear reactor" (with such a narrow definition) to represent the only interpretation of such a broad term as "facility" as used in the Act, the Commission would presumably have discussed this matter in these Federal Register notices. Because the Commission did not do so, its use of the term "nuclear reactor" in the regulations presumably represents an exercise of the Commission's rulemaking discretion rather than a statutory interpretation of the term "facility."

To the contrary, the Commission has treated an entire site (rather than each reactor on the site) as a single facility for some purposes under the Price-Anderson Act. For example, 10 CFR § 140.11(b) states that primary financial protection [i]n any case where a person is authorized pursuant to part 50 of this chapter to operate two or more nuclear reactors at the same location must only be in the amount of the highest amount which would otherwise be required for any of those reactors: *Provided*, That such primary financial protection covers all reactors at the location. The Commission originally adopted this provision requiring only one primary policy for each site because the insurance syndicates have advised that the nuclear energy liability policies which they are planning to issue will cover nuclear hazards arising out of the possession, disposal, or use of special nuclear material at a described location. 24 Fed. Reg. at 3510.

Thus, the rulemaking history of the NRC regulations implementing the Act suggests that a PBMR with multiple modules on a single site could be treated as a single nuclear facility under the Price-Anderson Act.

2. Legislative History

The legislative history of the Act supports the conclusion that the Commission is free to interpret multiple modules as a single nuclear "facility" under the Price-Anderson Act. The term "facility" as used in Section 170 is not defined. Therefore, the Commission has discretion in providing its own definition, consistent with the intent of the Act.

Furthermore, even if the term "facility" were interpreted as meaning "utilization facility," the definition of "utilization facility" in the AEA is sufficiently broad to allow the

Commission to treat multiple modules as a single "utilization facility." Section 11(cc) of the AEA defines that term as follows:

any equipment or device except an atomic weapon, determined by rule by the Commission to be capable of making use of special nuclear material in such quantity as to be of significance to the common defense and security, or in such manner as to affect the health and safety of the public, or peculiarly adapted for making use of atomic energy in such quantity as to be of significance to the common defense and security, or in such manner as to affect the health and safety of the public

42 U.S.C. 11(cc). There is nothing in this language that would prevent the Commission from treating multiple modules as a single utilization facility. Furthermore, there is nothing in the legislative history that would prevent the Commission from treating multiple modules or reactors as a single utilization facility.²

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In conclusion, a careful reading of the legislative and rulemaking history in this area demonstrates that there is no legal or statutory barrier to the NRC amending or clarifying Part 140 to treat multiple PBMR modules as a single PBMR nuclear "facility" for purposes of the Price-Anderson Act.

C. Appropriate Treatment of the PBMR under the Price-Anderson Act

For the first PBMR application, NRC should grant an exemption from 10 CFR § 140.11, so that the PBMR facility is treated similarly to an equivalent sized light water reactor (LWR). In particular, Exelon's potential liability for retrospective premiums *in the*

² During the drafting and debates concerning the Price -Anderson Act and the subsequent amendments to the Act that created the secondary layer of protection, the words "reactor" and "facility" were sometimes used interchangeably. See, e.g., 103 Cong. Rec. 10711 (daily ed. Jul. 1, 1957 (statement of Rep. Price); *Hearings Before the Joint Committee on Atomic Energy*, 84th Cong. 109 (1956) (statement of Charles H. Weaver, Vice -President of Westinghouse Electric Corp); S. Rep. No. 85-296 (1957), reprinted in 1957 U.S.C.C.A.N. 1803; H.R. Rep. No. 85-435, at 20 (1957); S. Rep. No. 94-454 (1975), p. 9, reprinted in 1975 U.S.C.C.A.A.N. 2251, 2259. However, since a reactor is undoubtedly a utilization facility, and since the concept of modular

event of an accident at another plant should not be substantially higher than the liability of an equivalent sized LWR, merely because Exelon is using a modular design rather than a LWR design. As Exelon will show in its license application, the risks of a severe accident at a 10-module PBMR facility are less than the risks of a severe accident at a LWR (and therefore the risk that another nuclear plant will incur retrospective liability under the Price-Anderson Act *as a result of an accident at the PBMR facility* is less than the risk of such liability from an accident at a LWR). Exelon's application for the first PBMR application will provide additional support for such an exemption, including providing a technical justification for the exemption based upon a comparison of the risks of a PBMR facility and an LWR.

Given the flexibility provided by the Price-Anderson Act and the AEA in general, Exelon believes that NRC has the authority to grant an exemption from 10 CFR § 140.11 for the first PBMR application, and to treat multiple modules at a site as a single nuclear facility with a single license for purposes of the Price-Anderson Act (or otherwise limit the potential liability of the PBMR).

As a long term solution to this matter, NRC should initiate rulemaking to amend Section 140.11(a)(4) to state explicitly that the financial protection requirements apply to each licensee for a nuclear "facility," and that a nuclear facility may include multiple modules at a site. The definitions of utilization facility and nuclear reactor in 10 CFR § 50.2 should also be amended to include multiple reactor modules at a site. Exelon is working with the Nuclear Energy Institute to provide supporting information and justification for such rulemaking.

reactors had not yet been developed, the interchangeable use of these terms is not particularly surprising and does not preclude multiple reactors from being treated as a single facility.

In proposing such a change in the regulations, Exelon realizes that it may be appropriate to limit the number and size of modules that may be treated as a single nuclear facility. Exelon suggests that the total size of each modular nuclear reactor facility subject to the Price-Anderson financial protection requirements be limited to no more than 1500 MWe (which would bound a 10-module PBMR facility). Such a limit provides a reasonable basis for rulemaking, by placing a modular nuclear facility on an equivalent footing with a current LWR, for purposes of the Price-Anderson Act.