NRC Annual Fees for Licensees

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1.0 INTRODUCTION

The U.S. Nuclear Regulatory Commission (NRC) is required to collect 90% of its annual appropriated budget through two types of fees. One type is for NRC services such as licensing and inspection activities. The other is an annual fee paid by all licensees, which recovers generic regulatory expenses and other costs not recovered through fees for specific services. These fees are described in NRC regulations 10 CFR 170 (licensing and inspection services) (Ref. 1) and 10 CFR 171 (annual fees) (Ref. 2).

In accordance with 10 CFR 171.15 (Ref. 3), these fees apply to "each person holding an operating license for a power, test, or research reactor; each person holding a combined license under part 52 of this chapter after the Commission has made the finding under § 52.103(g); each person holding a part 50 or part 52 power reactor license that is in decommissioning or possession only status, except those that have no spent fuel onsite; and each person holding a part 72 license who does not hold a part 50 or part 52 license shall pay the annual fee for each license held at any time during the Federal fiscal year in which the fee is due." This paragraph does not apply to test and research reactors exempted under 10 CFR 171.11(a) (Ref. 4). The FY 2010 annual fee proposed for each operating power reactor is $4,719,000. This fee is regularly "re-baselined" by the NRC (Ref. 5).

On March 25, 2009, the NRC issued an Advance Notice of Proposed Rulemaking (ANPR) for public comment in *Federal Register*, Vol. 74, No. 56, Docket ID NRC-2008-0664 (Ref. 6). The NRC was seeking comment on a proposal to amend its rule governing annual fees to establish a variable annual fee structure for nuclear power reactors based on licensed power limits. Current regulations governing annual fees require that each operating nuclear power reactor pay the same annual fee, regardless of the size of the reactor. Numerous comments on the ANPR have been received from the public and considered in the development of the approach proposed herein.

The following sections provide key definitions, a discussion of issues associated with developing an annual fee structure that is equitable to all of the stakeholders, and a recommended approach.

2.0 DEFINITIONS

1. SMALL, MEDIUM, AND LARGE REACTORS

For purposes of establishing an annual fee structure, the licensed thermal power rating of the reactor shall be used to define reactor size. The thermal power is preferred over electric power to include nuclear plants that produce process heat for industrial applications. The following definitions are employed:

- small reactors: ≤1000 MW(thermal)
- medium reactors: 1000 to 2000 MW(thermal)
- large reactors: ≥2000 MW(thermal).

Therefore, Small and Medium Sized Reactors (SMRs) are defined as the class of reactor having a licensed thermal power rating <2000 MW(thermal). The definitions above are roughly equivalent to the International Atomic Energy Agency (IAEA) definitions defined in terms of electric power output. Low Power Reactors (LPRs) are defined as the subset of small reactors having a licensed thermal power rating of ≤250 MW(thermal). This excludes test and research reactors.

2. MULTI-MODULE NUCLEAR PLANT

A multi-module nuclear plant is defined as a facility (1) that houses multiple co-located nuclear reactors (modules), (2) that shares a common Final Safety Analysis Report (FSAR), and (3) where each reactor has a licensed power rating of ≤1000 MW(thermal). *The licensed thermal power rating for a multi-module nuclear plant is the sum of the licensed thermal power rating of each module in operation*.

3. FINAL SAFETY ANALYSIS REPORT

The FSAR is required by 10 CFR 50.34(b) (Ref. 7) to be included in each application for a license to operate a nuclear facility and includes a description of the facility; the design bases and limits on its operation; and a safety analysis of the Systems, Structures, and Components (SSCs) and of the facility as a whole. A multi-module nuclear plant will have one combined FSAR for the total configuration of all modules combined rather than a separate FSAR for each reactor or module.

3.0 ANALYSIS OF PUBLIC COMMENTS AND PROPOSED OPTIONS

The NRC has received numerous comments from the public in response to its ANPR on "Variable Annual Fee Structure for Power Reactors." Several approaches were presented, and some concern was raised regarding assuring an equitable fee structure. This section summarizes the types of approaches submitted through the NRC's public comment process and includes a discussion on the issues associated with developing an equitable annual fee structure for nuclear power plants. The issues include adequately reimbursing the NRC for the cost of oversight, avoiding a fee structure that unfairly penalizes the development and deployment of SMRs, and assuring that the existing fleet of nuclear plants does

not unfairly bear the regulatory framework development costs associated with deploying SMRs. Three specific options that incorporate or address the public comments have been developed.

1. OPTION 1: NO RULE CHANGE AND REINSTATE 10 CFR 171.11(c)

One approach is to not change the existing rule until the NRC conducts a new study for SMRs similar to that conducted to establish the final fee rule 51 FR 33224 on September 18, 1986. The previous exercise included a review of inspection and licensing fees over a 1-year period that did not show a correlation between the power level of the nuclear units and the amount of effort expended by the NRC staff on those units. The conclusion of the study indicated that there was "no necessary relationship or predictive trend between thermal megawatt rating of a reactor and the NRC regulatory costs" (Ref. 8). Although there have been significant enhancements in plant performance over the past 24 years that have reduced regulatory burden, other changes such as those related to plant security have had a normalizing effect. Because of this, it is likely that a new study would not show significant differences in NRC regulatory costs for existing reactors above a certain thermal megawatt rating. However, reductions in regulatory burden are expected to accrue for SMRs and multi-module plants because such plants are being specifically designed with state-of-the-art technology. Furthermore, incremental additions to plant power generally do not bear the same regulatory burden as first installations. Since 1970, U.S. nuclear power plants have completed 127 power uprates totaling 5695 MW(electric) (Ref. 9). Utilities have opted to uprate their plant thermal power because it represents a low-cost means of increasing production without increasing the regulatory burden to the overall plant. A typical 5% power uprate on a 1000-MW(electric) plant represents a 50-MW(electric) incremental change, which is the total power output of some SMRs. Similarly, the incremental addition of power modules at an existing site would not bear the same regulatory burden as the installation of the first module. As such, the fees for module additions should also be incremental.

It is recognized that the current annual fee structure provides stability in the budgeting process for the existing fleet of commercial nuclear power plants. Relief in fees for SMRs could be obtained by re-establishing the provisions of 10 CFR 171.11 (c) to allow consideration of reactor size via an exemption request. This provision was eliminated in FY 2005. As an example, Big Rock Point was able to request partial exemption from annual fees using this provision.

This option presents a serious challenge to SMR investors and potential customers who are currently making decisions of significant financial consequence. The "No Rule Change" approach introduces significant uncertainty into the investor/customer decision-making process because it introduces the possibility that SMRs may face unreasonably high annual fees on a reactor basis, particularly for multi-module plants. Similarly, reliance on fee exemption requests on a case-by-case basis produces significant regulatory costs to establish fees and introduces uncertainty in the annual cost of operating the plant. The situation is somewhat similar to the position that the current commercial nuclear fleet was facing prior to the final fee rule.

2. OPTION 2: A SAFETY-BASED ANNUAL FEE STRUCTURE

Because of the significant reduction in risk being postulated by Probabilistic Risk Assessment (PRA) studies conducted for the next generation of nuclear plants, including SMRs, another possible approach was to consider an annual fee structure based on a combination of rated thermal power and safety measures such as core damage frequency. The premise is that nuclear plants with reduced risk of core damage and a smaller source term represent a lesser risk and hence a commensurate reduction in

oversight costs for the NRC. In this model, the core thermal power would serve as a measure of the size of the fission product source term. This approach would be applicable to all nuclear power reactors, thereby offering the potential for fee reductions to plants with lower risk factors. It also encourages a risk-based approach to nuclear power.

The primary difficulty with this approach is that it introduces a new level of complexity in establishing an annual fee structure. It introduces the question of PRA uncertainty that may encourage significant analysis efforts, NRC review, and costs related to reducing such uncertainties. This approach does not recognize that the entire commercial fleet currently meets the NRC's safety goal for core damage frequency and that operation over the past 30 years has demonstrated that nuclear plants are safe.

This option could be augmented to address the issue of equity in sharing the regulatory oversight costs by establishing a minimum annual fee that would cover NRC costs associated with the oversight of any nuclear power plant regardless of size.

This option could also be augmented to recognize the reduced regulatory burden to NRC for plants with excellent "plant health." Reduced annual fees could be considered for plants with no significant open findings.

3. OPTION 3: FEE LIMITS AND SLIDING SCALE FOR SMRS AND MULTI-MODULE PLANTS

Another option is to assess a minimum annual fee from all nuclear power plants to cover generic costs associated with the regulatory oversight. In addition, a sliding scale, based on thermal power, would be implemented for reactors with a total licensed thermal power rating ≤2000 MW(thermal). For a multi-module plant, the sliding scale would be based on the sum of the licensed thermal power rating of each module. Lastly, the annual licensing fees will be capped for all nuclear power plants above 2000 MW(thermal). It is proposed that annual fee credits be provided to plants based on plant performance that reduces regulatory burden.

3.1 Minimum Annual Fee

It is proposed that a minimum annual fee, or a "base fee," be applied to all nuclear plants regardless of size to cover NRC generic costs associated with, but not limited to

- rulemaking activities
- regulatory guidance development
- operating experience review
- incident response center operation
- emergency planning and drills.

It is proposed that LPRs [nuclear power plants with a licensed thermal power rating ≤250 MW(thermal)] serve as the basis for establishing the minimum annual fee. The assumption is that LPRs represent the minimum regulatory burden among power-producing nuclear plants. This assumption is supported by the NRC's assessment of reduced fees for two LPRs: LaCrosse and Big Rock Point. With regard to thermal power and radioactive material inventory, an LPR would fall between a test/research reactor and a spent fuel storage facility. A test/research reactor has low thermal power, has a small radioactive material inventory, and is assessed an annual fee of $81,800 (Ref. 5). A spent fuel storage facility has zero power, has significant quantities of radioactive material, and is assessed an annual fee of $143,000

(Ref. 5). Therefore, a reasonable basis for a minimum annual fee would be approximately $110,000, which falls between the two categories already established by the NRC.

3.2 SMR Sliding Scale

It is proposed that the annual fee for SMRs and multi-module nuclear plants be scaled relative to the licensed thermal power rating for the plant. For a multi-module plant, the licensed thermal power rating is the sum of the licensed thermal power rating of each module in operation.

The annual fee would be determined by the following formula for plants with a total licensed thermal power rating ≥250 and ≤2000 MW(thermal):

Annual Fee = Minimum Annual Fee + [Power — 250][MW(thermal)] x Fee Rate [$/MW(thermal)].

The sliding scale provides a linear interpolation between the minimum and maximum annual fees. The resulting fee rate (i.e., slope) using this approach is $2.63/kW(thermal) based on the NRC's FY 2010 proposed fees. The sliding scale is not proposed for test and research reactors.

3.3 Maximum Annual Fee

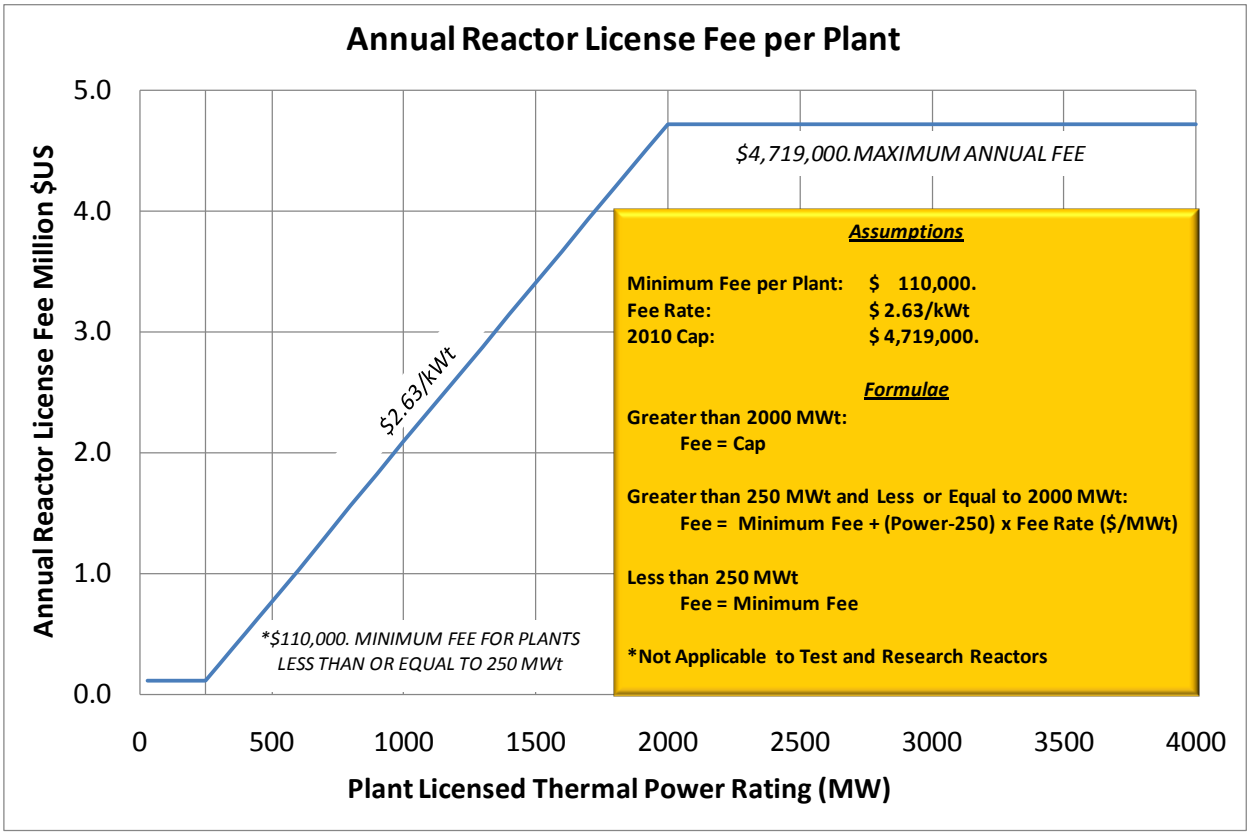
It is proposed that the annual fee be capped for all nuclear power plants with a plant licensed thermal power rating >2000 MW(thermal). This would be consistent with the NRC study that indicated that there was "no necessary relationship or predictive trend between thermal megawatt rating of a reactor and the NRC regulatory costs" [51 FR 33224 (September 18, 1986)]. It is expected that this will remain true for all plants exceeding 2000 MW(thermal). The current approach for establishing the fee structure would be implemented for these reactors. The proposed FY 2010 budget for operating power reactors is $4,719,000.

3.4. Annual Fee Structure

The following chart presents an annual reactor license fee structure based on Option 3 using FY 2010 information for purposes of discussion. Option 3 could also be developed in terms of a stepped-change annual fee structure rather than a linear scale.

4.0 RESOURCES FOR REGULATORY INFRASTRUCTURE DEVELOPMENT

The NRC has access to budgetary resources not provided by fees from the existing fleet of nuclear plants. First, 10% of the NRC's annual budget is obtained as appropriations from the federal government. For FY 2011, this amounts to a net appropriations request for $138.3 million (Ref. 10). Second, applicants submitting information as part of the preapplication or design certification processes are required to reimburse the NRC for their time. The proposed rate for FY 2011 is $259/hour (Ref. 5). Some of these resources have been used in the past to support regulatory infrastructure development for new technologies. This includes conducting confirmatory experiments and analyses to evaluate the safety aspects of new technologies and designs for nuclear reactors, materials, waste, and security. Although a primary portion of regulatory research has been related to the oversight of operating light water reactors (LWRs), recent applications for advanced LWRs and preapplication activity initiated by non-LWR vendors have prompted the NRC to consider long-term research needs (Ref. 10).



5.0 RECOMMENDATIONS

The ANS President's Special Committee on SMR Generic Licensing Issues (SMR Special Committee) strongly supports the NRC's effort to develop a variable reactor license fee structure for SMRs and multi-module nuclear plants. The ANS Task Force believes that the following principles are helpful in determining the best annual license fee structure under 10 CFR 171:

1. Ensure public safety by adequately reimbursing the NRC for the cost of regulatory oversight.

2. Utilize a fee structure that equitably shares regulatory oversight costs among both large- and smaller-scale generation facilities and ensure that the existing fleet of nuclear plants does not bear the regulatory framework development costs associated with deploying new technologies.

In light of these principles, the SMR Special Committee recommends that the NRC implement Option 3, a sliding or terraced scale based on fairness to the stakeholders and allocating regulatory expenses to ratepayers rather than investors. Where the owner and operator of the reactor lack the ability to directly or indirectly pass through NRC licensing fees to ratepayers, the annual fee for that reactor should be covered by general tax revenues, subsidies from government agencies [such as the U.S. Department of Energy (DOE)], or other sources. To the extent a facility receives market risks and rewards for sales of its output, increasing profitability would be reflected in increased tax revenue. To the extent such a facility is not profitable, charging a flat reactor licensing fee to that facility would be inconsistent with promoting safety, assuming the link between operating revenue and safety implicit in

10 CFR 50.33(f) (Ref. 11) exists. Basing the amount of licensing fee obtained from general tax revenues or government subsidies for merchant plants based on the thermal output for annual license fees as proposed in Option 3 above is a reasonable approach that balances stakeholder interests. Adjustment of the NRC fee structure and funding of SMR licensing activities through general tax revenue would likely require legislative action.

The structure proposed by this option balances the benefits of smaller reactors and equitably distributes regulatory oversight costs by the nature of the rate-setting mechanism applicable to the facility. Where the facility lacks the authority or market power to pass licensing fees through to ratepayers, charging the facility a flat licensing fee is inconsistent with the safety assumptions embodied in 10 CFR 50.33(f)(2). We believe that this structure will initially help enable the development of SMR and multi-module nuclear plants by reducing financial barriers to entry. From a long-term perspective, this may benefit the safety, security, and efficiency of future large-scale facilities and the nuclear industry as a whole.

The SMR Special Committee recommends that the federal appropriations portion of the NRC budget (i.e., non-fee base) continue to provide for the cost of developing the regulatory infrastructure needed to (1) conduct 10 CFR 170 activities related to SMR and multi-module designs and (2) assure their safe operation subsequent to deployment. This approach recognizes that the existing fleet of nuclear plants should not be expected to bear the regulatory framework development costs associated with deploying new SMR technologies and is consistent with NRC testimony to Congress (Ref. 12). Federal appropriations for such purposes have been mandated for other forms of energy production as part of our nation's efforts to assure energy independence and security (Refs. 13 and 14). The SMR Special Committee further recommends that collaborative efforts between the NRC, the DOE, and reactor vendors be considered for infrastructure development that requires SMR regulatory research.

6.0 REFERENCES

1. C*ode of Federal Regulations*, Title 10, "Energy," Part 170, "Fees for Facilities, Materials, Import and Export Licenses, and Other Regulatory Services Under the Atomic Energy Act of 1954, As Amended," U.S. Nuclear Regulatory Commission.

2. C*ode of Federal Regulations*, Title 10, "Energy," Part 171, "Annual Fees for Reactor Licenses and Fuel Cycle Licenses and Materials Licenses, Including Holders of Certificates of Compliance, Registrations, and Quality Assurance Program Approvals and Government Agencies Licensed by the NRC," U.S. Nuclear Regulatory Commission.

3. C*ode of Federal Regulations*, Title 10, "Energy," Part 171, "Annual Fees for Reactor Licenses and Fuel Cycle Licenses and Materials Licenses, Including Holders of Certificates of Compliance, Registrations, and Quality Assurance Program Approvals and Government Agencies Licensed by the NRC," Sec. 171.15, "Annual Fees: Reactor Licenses and Independent Spent Fuel Storage Licenses," U.S. Nuclear Regulatory Commission.

4. C*ode of Federal Regulations*, Title 10, "Energy," Part 171, "Annual Fees for Reactor Licenses and Fuel Cycle Licenses and Materials Licenses, Including Holders of Certificates of Compliance, Registrations, and Quality Assurance Program Approvals and Government Agencies Licensed by the NRC," Sec. 171.11, "Exemptions," U.S. Nuclear Regulatory Commission.

5. *Federal Register*, "NRC 10 CFR Parts 170 and 171, Revision of Fees Schedules; Fee Recovery for FY 2010; Proposed Rule," Vol . 75, No. 46, pp. 11376–11402 (Mar. 10, 2010).

6. *Federal Register* "Variable Annual Fee Structure for Power Reactors," Advance Notice of Proposed Rulemaking," Vol. 74, No. 56, Docket ID NRC-2008-0664, pp. 12735–12737 (Mar. 25, 2009).

7. C*ode of Federal Regulations*, Title 10, "Energy," Part 50, "Domestic Licensing of Production and Utilization Facilities," Sec. 50.34, "Contents of Applications, Technical Information," U.S. Nuclear Regulatory Commission.

8. NRC Analysis in support of 51 FR 24078, 24082-3 (July 1, 1986).

9. Semi-Annual Status Report on the Licensing Activities and Regulatory Duties of the United States Nuclear Regulatory Commission April–September 2009, Enclosure to Letter from Commissioner Gregory Jaczko to Honorable Thomas Carper, Chairman, Subcommittee on Clean Air and Nuclear Safety, Committee on Environmental and Public Works, U.S. Senate (Nov. 19, 2009).

10. NUREG-1100, "USNRC Congressional Budget Justification for FY 2011," Vol. 26, U.S. Nuclear Regulatory Commission (Feb. 2010).

11. C*ode of Federal Regulations*, Title 10, "Energy," Part 50, "Domestic Licensing of Production and Utilization Facilities," Sec. 50.33, "Contents of Applications; General Information," U.S. Nuclear Regulatory Commission.

12. Honorable Peter B. Lyons, Commissioner, U.S. Nuclear Regulatory Commission, "Building for the Future in a Time of Change," 21st Annual Regulatory Information Conference, Rockville, Maryland, March 10, 2009. ADAMS ML090690766.

13. Public Law 109 - 58 - Energy Policy Act of 2005.

14. Public Law 110-140 - Energy Independence and Security Act of 2007.