

Rulemaking Comments

ANPR 171
(74FR12735)

June 4, 2009 (11:04am)

From: Dan Ingersoll [dingersoll3@comcast.net]
Sent: Wednesday, June 03, 2009 7:23 PM
To: Rulemaking Comments
Subject: Comments on Advanced Notice of Proposed Rulemaking on Variable Annual Fee Structure for Power Reactors

OFFICE OF SECRETARY
RULEMAKINGS AND
ADJUDICATIONS STAFF

Subject: Advanced Notice of Proposed Rulemaking on Variable Annual Fee Structure for Power Reactors (NRC-2008-0664).

As described in the subject announcement contained in the Federal Register dated March 25, 2009, there is ample reason to reconsider the NRC fee structure given the diversity of new reactor designs that are being developed, especially smaller sized power plants and plants comprised of several very small reactor modules. Interests in smaller sized nuclear power plants have existed for multiple decades, but these interests have accelerated in recent years for two primary reasons: (1) the affordability of smaller plants compared to large (>1000 MWe) plants and the suitability of smaller plants for providing clean, economically stable power for energy-intensive applications other than base-load electricity generation. These drivers are not likely to diminish with time; hence, it is reasonable to predict that smaller sized nuclear plants will eventually move to market and be deployed.

The justification for establishing a variable fee structure is compelling and in fact, may be a key enabler for the deployment of smaller sized plants if implemented properly. Most of the smaller sized plant designs being developed anticipate a much higher level of "robustness" than current LWRs, meaning that they will have larger safety margins, reduced operational requirements and less frequent maintenance and refueling activities. Hence, the level of NRC oversight for these plants should be significantly less than for existing large plants. Of course, this expectation remains to be proven.

The basis for defining the variable structure is less obvious. Regarding the trade-off between rated thermal power and electrical power, it would appear more appropriate to base the fees on thermal power. While the distinction is not important for large base-load electricity generation plants, which all have a similar conversion efficiency, smaller sized plants are being considered for a number of non-electrical applications such as water desalination, advanced oil recovery from tar sands and shale oils, chemical processing including hydrogen production, and synthetic fuels production. So while a thermal power basis will clearly work for all plant applications, an electric power basis will apply to only a fraction of the anticipated plants.

Regarding plant configuration, the deployment plans for smaller sized reactors vary considerably, ranging from the 4S plant proposed in Alaska (single unit, 10 MWe, 20-year refueling cycle) to the reference plant proposed by NuScale (12 modules, 500 MWe total, nearly constant refueling). The level of NRC resources to oversee these two extremes may be quite different. It would therefore seem prudent to consider licensing (and levying fees) at the plant level based on total thermal power of the plant rather than the power of the individual modules. This approach is more likely to model the relative complexity of the plant, and hence the required level of NRC resources, than other alternative models. In this model, multiple independent (or nearly independent) "plants" (single unit or multimodule) that are collocated on a site would be charged independently in the same manner that current large plants are charged.

In summary, I very much encourage the NRC to pursue the development of a variable fee structure that will appropriately reflect the enhanced safety features of smaller sized nuclear power plants. This will enable these new designs to extend the substantial benefits of nuclear power to more communities and a broader range of energy applications. I appreciate the opportunity to respond to the proposed rulemaking.

Best regards,

Daniel Ingersoll

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