Possible Near-Term Licensing Approaches for Micro-Reactors

The staff has identified three licensing approaches that could be used for nearer term micro-reactor applications. This enclosure describes these approaches as well as some benefits and drawbacks for each.

One approach is to review the submittal using a normal licensing process under Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50, "Domestic licensing of production and utilization facilities," or 10 CFR Part 52, "Licenses, Certifications, and Approvals for Nuclear Power Plants," using exemptions to regulations that are applicable to all power reactors and imposing additional requirements as necessary through license conditions or rulemaking. This approach is similar to what would be expected for all non-light water reactor (non-LWR) applicants, but it would include additional considerations for the potential policy issues outlined in Enclosure 1. Benefits of this approach include minimal schedule impacts beyond normal review timelines given that the use of exemptions is a well-understood process and can be applied on a issue-specific basis. The downsides associated with applying this approach in the long term include a potential lack of standardization in the regulatory approach to addressing issues between different applicants and the potential for relatively burdensome documentation preparation and associated review depending on the number and complexity of the exemption requests and need to impose additional requirements.

Another method that could be used to facilitate the licensing process for a micro-reactor application is a hearing order defining the applicable license review standards and any special standards or instructions, as the staff has used previously, for example with respect to the Louisiana Energy Services, L.P., enrichment facility application.[1]

Following receipt of an application and staff development of the proposed criteria for granting the license, the Commission could issue a hearing order. This approach would likely allow for the greatest flexibility and most efficient review (including particular instructions associated with an effective and efficient hearing process) following issuance of the order, but the overall efficiency would depend on the degree of early engagement between the applicant and the staff to develop the standards for issuance of the license that would be presented to the Commission for possible inclusion in the order. A hearing order could provide a focused regulatory structure and offer perhaps the most flexibility, but it would require substantial time and interaction between the applicant and the staff before submittal and acceptance of an application, and approval of the approach (including issuance of a hearing order) by the Commission. This approach also carries a risk of future litigation.

A third approach could involve the use of a rule of particular applicability. This would allow for a set of requirements potentially tailored to a specific docket and could allow for future efficiency gains if subsequent rulemaking for micro-reactors were desired (as the first rule of particular applicability could lay the groundwork for future applications). Compared to a hearing order, a rule of particular applicability carries a lower risk of litigation because it provides for the public notice-and-comment process associated with a rulemaking. Drawbacks include a substantial up-front time cost from both the staff and the applicant, as the rule would need to be promulgated before issuance of the license.

[1] Volume 56 of *the Federal Register*, page 23310 (56 FR 23310) (1991)

The staff notes that some of these processes create the potential for different requirements for the different micro-reactor designs if multiple designs are received at different times and the above approaches are not aligned.