Licensing Technical Requirements Modernization Project

The NRC's recently issued draft *Vision and Strategy: Safely Achieving Effective and Efficient Non-Light Water Reactor Mission Readiness* (ML 16139A812) points to the need for updates and adaptations of selected portions of the current light water reactor (LWR)-based regulatory framework to provide for the efficient development and deployment of advanced non-LWRs and reducing regulatory uncertainty during the development of advanced reactor designs.

Southern Company and industry partners have created an initiative—the Licensing Technical Requirements Modernization Project (the Project)—to identify important elements of the NRC regulatory process that need to be updated or adapted to support advanced non-LWR reactors. The Project's objective is to identify gaps in the regulatory process for non-LWR designs and propose solutions based on greater use of risk-informed and/or performance-based practices on a technology-inclusive basis. The Project will propose specific changes in practice that facilitate updates and adaptations to elements of the existing regulatory process. Key to the success of these efforts will be the NRC staff's active engagement in support of these efforts through a series of public meetings that will be requested as needed. This project is being coordinated with NEI through the Advanced Reactor Working Group.

The Project proposals focus on key portions of the NRC Vision and Strategy draft Implementation Action Plans (IAPs), including:

- development of guidance for a flexible non-LWR process for setting technical requirements within the bounds of existing regulations
- identification and resolution of technology-inclusive policy issues that impact the regulatory reviews and/or licensing of non-LWR nuclear power plants
- facilitating industry codes and standards needed to support the non-LWR life cycle.

This Project and associated interactions with the NRC staff are consistent with the Commission's policy on advanced reactors and draft Vision and Strategy, which encourage the earliest possible interaction of applicants, vendors, other government agencies and the NRC to provide for early identification of regulatory requirements for advanced reactors and to provide all interested parties, including the public, with a timely, independent assessment of the safety and security characteristics of advanced reactor designs. These interactions and the establishment of clear regulatory guidance early in the non-LWR development and deployment cycle contributes toward minimizing complexity and enhancing stability and predictability in the licensing and regulation of advanced non-light water reactors.

Moreover, the Project objective is consistent with SECY 15-0168, "Recommendations on Issues Related to Implementation of a Risk Management Regulatory Framework." Relative to consideration of advanced non-LWR designs, the SECY states:

> The staff believes that the adoption of a risk-informed regulatory framework, similar in concept to an RMRF, would provide the greatest benefits for new reactor designs that employ non-traditional technologies (e.g., Generation IV designs). The staff will continue to engage stakeholders interested in pursuing such a risk-informed framework.

The objective of this project is also supportive of the U.S. Department of Energy's draft *Vision and Strategy for the Development and Deployment of Advanced Reactors (May 2016),* which identifies the need to work with the NRC in the development of a regulatory framework for advanced reactors over the next four years as a key to the industry's overall development and deployment timeline. The effort is further supported by the DOE's Gateway for Accelerated Innovation in Nuclear (GAIN) initiative.

To determine the scope of this of the Project, we have assessed the licensing needs for advanced non-LWRs based on a review of past efforts, and through fresh industry inputs. The Project will provide industry proposals for technology-inclusive, risk-informed performance-based (RIPB) licensing technical requirements through systematic examination of licensing precedents, examples of successful RIPB regulatory practice, identification of other RIPB uses, and potential challenges within existing NRC regulations. The Project intends to provide its proposals and perspectives primarily through a series of complementary white papers and then work with the NRC staff to reach alignment on actions to achieve the objectives identified in each white paper.

The following white papers are currently in production and scheduled for submittal as follows:

1. Licensing Basis Event Selection (LBE) Process White Paper, projected completion 2Q CY2017

2. Probabilistic Risk Assessment (PRA) Technical Adequacy for LBE and Road Map, projected completion 3Q CY2017

3. PRA Technical Adequacy for RIPB Decision Making, projected completion 4Q CY2017.

Other longer-term activities are in the planning stage and will be identified at a later date, and the need for additional white papers may be identified as work progresses.