July 14, 2021

Mr. John Tappert
Director, Division of Rulemaking, Environmental, and Financial Support
Office of Nuclear Material Safety and Safeguards
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

Subject: Unified Industry Position on the NRC's Rulemaking on "Risk-Informed, Technology-Inclusive Regulatory Framework for Advanced Reactors" (RIN-3150-AK31; NRC-2019-0062)

Dear Mr. Tappert:

The Nuclear Regulatory Commission (NRC) is progressing on the development of the 10 CFR Part 53 rulemaking to establish a much-needed technology-inclusive, performance-based and risk-informed regulatory framework for new reactors in accordance with the direction of the Nuclear Energy Innovation and Modernization Act. We appreciate the NRC process that releases preliminary rule language early in the process to facilitate stakeholder engagement in the development of Part 53, and we are encouraged by the staff's progress to date. Through this process, the NRC staff has received substantial feedback from stakeholders, and we recognize the challenges associated with considering all of this input in real-time. We also recognize that the nature of the NRC's process for developing Part 53 contributes to differing input from industry members and can make it difficult for the staff to understand what is the industry consensus position.

The purpose of this letter is to provide a unified industry position on the NRC's Part 53 rulemaking, and in particular, on the preliminary rule language that has been released to-date. The goal of this letter is to clarify to the NRC those key elements on which all the industry (represented by the signatories of the letter) agrees. Industry members are unified in these overall objectives, and any differences in the perspectives between individual members relate to the details of the Part 53 rule language and how best to achieve these objectives. Thus, NRC will be able to incorporate the unified industry position into future iterations and discussions of the preliminary rule text.

1. **Usefulness** – A unanimous view among all stakeholders is that Part 53 should be "used and useful." There are three goals that will ensure that Part 53 is used and useful. 1) Part 53 must ensure that all technologies and licensing approaches that can demonstrate reasonable assurance of adequate protection are viable, 2) regulating under Part 53 must be less burdensome over the lifecycle of activities (e.g., licensing, construction, operations, oversight), than regulating under the existing Parts 50 and 52, and 3) Part 53 must be built upon performance-based requirements that define clear and objective acceptance criteria. While a Part 53 rule that allows, or is only efficient for, a subset of designs or licensing approaches may be used, it would not achieve the goals of the Nuclear Energy Innovation and

Modernization Act if it requires or drives some advanced reactors or licensing approaches to use Parts 50 or 52. Lessons learned from recent applications received and pre-application engagements should be incorporated to the maximum extent practicable to ensure the broadest scope of realistic design types and licensing approaches for advanced reactors are fully considered prior to finalization of the draft text of Part 53. Thus, Part 53 must endeavor to be inclusive, flexible and predictable, and this is accomplished through performance-based, rather than prescriptive, requirements. However, some of the NRC's preliminary requirements are prescriptive and overly detailed, and we encourage the NRC to consider options to make these more performance-based. Guidance should be used, and will be important, to explain how various technologies and licensing approaches can meet the regulations, including the use of surrogates for performance criteria where applicable.

2. **Efficiency** – Part 53 must be ambitious in establishing a regulatory framework that is more efficient than what is currently available in Parts 50 and 52. Efficiency in the context of Part 53 would manifest itself in the timelines and costs associated with meeting regulatory expectations and programs for the NRC's entire set of regulatory components, which includes "regulations and guidance," licensing and oversight, operational experience, and supporting research through the lifecycle costs of the reactor (design, licensing, construction, operation and decommissioning). While this certainly requires that Part 53 be technology-inclusive, performance-based and risk-informed, it also requires that the NRC consider whether Part 53 could achieve an adequate level of safety more efficiently. Thus, we encourage the NRC to scrutinize every proposed requirement and the totality of all of the requirements with the question "Are these requirements absolutely necessary to achieve reasonable assurance of adequate protection, or is there a smaller set of requirements that can achieve reasonable assurance of adequate protection more efficiently?" Two categories of requirements stand out as potentially not being needed in Part 53: 1) historical requirements that upon further consideration are not needed to provide reasonable assurance of adequate protection (an example are the siting requirements, for which industry has previously provided suggestions to make more streamlined, less prescriptive and more performance-based, offering enhanced efficiency in Part 53), and 2) requirements that have no equivalent in Parts 50 and 52 and are not needed to establish reasonable assurance of adequate protection (examples include design requirements for ALARA and occupational exposures, and the need for all types of technologies to have an aging management program for the initial license period), which should not be included in Part 53.

3. **Technology Inclusive** – One of the opportunities to improve the efficiency of Part 53 is to eliminate the need to use exemptions to safety requirements in order to license reactor technologies that differ from large light-water reactors (LLWRs), which would be necessary in

Parts 50 and 52.[1] We agree with the NRC's approach to establish technology-inclusive safety requirements that accomplish the same goal as the LLWR-specific requirements in Parts 50 and 52. In particular, we support the NRC's overall structure of Part 53 (into subparts) that covers the lifecycle of the facility. We also support the NRC's concept of providing reasonable assurance of adequate protection through the use of high-level safety criteria and subsidiary performance-based functional requirements (e.g., design, operations) that are necessary and sufficient to meet the safety criteria. In particular, we agree with the NRC's intent to build flexibility by establishing the performance expectations, and not prescribing the detailed features that are required for all reactors. We also agree that Part 53 should not prescribe General Design Criteria, like in 10 CFR Part 50 Appendix A, and note that the most fundamental and technology-inclusive GDC are already in the Part 53 preliminary rule text. While we agree with the NRC's pursuit of a graded approach to the rule's safety structure, we noted that the NRC's proposed two-tier structure adds unnecessary complexity and potentially significant regulatory burden without any benefit. Thus, consistent with the recent ACRS letter[2], we recommend that the NRC remove the two-tier structure in order to establish a more efficient safety construct. We note that the NEI discussion draft proposed a graded safety structure that would provide a more efficient safety construct and also put the technical requirements together (NEI 53.4).[3] Thus, we encourage the NRC to re-consider this structure as an option for addressing industry and ACRS comments.

4. **Risk informed** – The NRC policy statement on Probabilistic Risk Assessments encourages the staff to pursue greater use of PRA in decision making to the extent that it is practical. Part 52 requires a PRA and the NRC's draft regulatory basis for the Part 52 lessons learned rulemaking proposes to also require a PRA for Part 50 applications. The use of PRA has provided benefits through a better understanding of facility risks in the design, and through the use of risk insights in the operations of the plant. We agree that the primary expectation in Part 53 should be that decisions for initial licensing and operations are informed by the use of a PRA. In doing so, Part 53 should allow a variety of roles and uses of the PRA that are practical for the applicant's design and licensing approach. We expect some applicants to use a PRA in a "leading" role as established in NEI 18-04, while other applicants will use a PRA in a "confirmatory/supporting" role that has been found acceptable and historically used in the NRC approval of previous Part 52 applications. Thus, the NRC should allow for both "leading" and "confirmatory/supporting" roles of the PRA in Part 53. If there are cases where requirements would look different between each of these roles, the NRC should establish optionality through alternative requirements. For example, if a "leading" role requires that the PRA be used to establish the licensing basis event and categorize SSCs, then that can be established as an optional requirement. Further, if other requirements are dependent upon or only applicable to

[1] Nevertheless, the NRC should also seek to minimize the unnecessary burden of exemptions to non-applicable regulations, which could be done through the use of entry criteria or an affirmative safety case (see NEI's May 14, 2021 comment letter on docket ID NRC-2009-0196).
[2] May 20, 2021 Letter to Chairman Hanson from ACRS Chair Matthew Sunseri.
[3] February 11, 2021 Letter to Kevin Coyne from Marcus Nichol.

the use of a "leading" role for the PRA, then those requirements can establish appropriate entry conditions. However, if entry conditions are necessary to realize more efficient alternatives to operational requirements (e.g., Emergency Preparedness, Security), then the entry conditions should be based upon the safety profile of the design, not on a specific way in which the PRA is used. Finally, Part 53's flexibility in being technology-inclusive should recognize that in some cases (e.g., for very simple designs with high margins to safety) a PRA may not provide any practical benefit over alternative methods that systematically consider events. Thus, the NRC should contemplate how Part 53 can minimize the need for exemptions for designs that can demonstrate a qualitative risk evaluation is a suitable substitute for a PRA.

5. **Recognize Confidence in Licensee Controls** – One of the biggest opportunities to achieve a more efficient regulatory framework is to recognize the NRC has confidence in licensee controls over the licensing basis, and use this confidence to efficiently exercise its role for effective regulation for the initial licensing, oversight and enforcement throughout the lifecycle of the facility. This confidence is based upon an understanding that 1) the NRC imposes requirements that are effective even after the NRC issues a license for a new reactor, and 2) the licensee is competent in fulfilling their responsibility to meet these programmatic requirements. These requirements may include quality assurance, operational programs, reporting and reliance on NRC accepted Consensus Codes and Standards. However, some of the NRC preliminary Part 53 requirements are duplicative (for example multiple requirements related to configuration control, even though this function is provided by the QA requirements). We think Part 53 has a great opportunity to make operational requirements more performance-based and risk-informed. While the NRC preliminary rule text does make improvements in the areas of Technical Specifications and In-Service Inspections, we believe more can be done to make operational requirements more efficient. Furthermore, the NRC has stated in public meetings that the proposed Facility Safety Program (FSP) would transfer some licensing basis control during operations from the NRC to the licensee. In a recent meeting, the NRC staff asked the industry to decide if we want more control over the licensing basis. The answer is 'yes' we want more control over the licensing basis, and in fact we believe this will result in a more effective and efficient process to provide reasonable assurance of adequate protection (it is noted that in this paradigm the NRC would continue to execute its inspection and oversight roles that are appropriate to the safety profile of the reactor). However, the current versions of the NRC's preliminary rule language for the FSP and other requirements appear to instead increase NRC control over the licensing basis, and would have the opposite effect by not transferring any licensing basis control to the licensee. Thus, we recommend the NRC re-evaluate the Part 53 requirements related to controlling the licensing basis, and perform a thorough review of the Part 53 rule text to determine where control can be transferred.

6. **Urgency** – As articulated in the Letter from Congress[4], Part 53 needs to be completed in a timely manner in order to ensure that it is available to more efficiently license new reactors in anticipation that more nuclear energy will be needed to achieve the nation's energy, climate, economic and national security goals. Thus, the Commission's schedule for a Final Rule for Part 53 reflects this urgency. The Commissions goal is achievable, although we recognize that urgency should not come at the expense of achieving the goal for creating a rule that will be used and useful. While several first-of-a-kind technologies are expected to submit applications before Part 53 is available, the work the staff is doing in 2021 to establish the technical basis for Part 53 will be available, such that applications in the subsequent licensing wave can be developed in a way that allows the flexibility for licensing of the design to be efficiently pursued under Part 53, if so desired.

We hope that these comments help to inform the NRC's Part 53 rulemaking effort through a better understanding of where there is a unified industry position. We look forward to further engagement with the NRC on this urgent and monumental opportunity to establish a Part 53 to license advanced reactors as efficiently as possible.

Sincerely,

Chris Nolan
VP, Regulatory Affairs, Policy and Emergency Preparedness
Duke Energy

Mark Sartain
VP, Nuclear Engr & Fleet Support
Dominion Energy

Greg Cullen
VP, Energy Services and Development
Energy Northwest

Marilyn Kray
VP, Nuclear Strategy and Development
Exelon Generation

Amir Afzali
Director, Next Generation Licensing and Policy
Southern Company

Dan Stout
Director, Nuclear Technology Innovation
Tennessee Valley Authority

[4] May 25, 2021 Letter to Chairman Hanson from Senators Capito, Whitehouse, Barrasso, Crapo and Booker.

Joe Miller
President
BWXT Advanced Technologies

Gary Peters
Director, Licensing and Regulatory Affairs
Framatome

Michelle Catts
Sr. VP, Nuclear Programs
GE-Hitachi

Tammy Morin
Sr. Licensing Manager
Holtec International

Peter Hastings
VP, Regulatory Affairs & Quality
Kairos Power

Tom Bergman
VP, Regulatory Affairs
NuScale Power

Caroline Cochran
Co-Founder and COO
Oklo

Tara Neider
Sr. VP and Natrium Project Director
TerraPower

Robin Rickman
VP, Business Development
Terrestrial USA

Rick Paese
Fellow Engineer
Westinghouse

Mr. George Vanderheyden
Chief Nuclear Officer
X Energy, LLC

Doug True
Sr. VP and Chief Nuclear Officer
Nuclear Energy Institute

Jeff Merrifield
Chair, Advanced Nuclear Working Group
US Nuclear Industry Council

C: Margaret Doane, EDO, NRC
Daniel Dorman, DEDR, NRC
Ms. Andrea Veil, NRR, NRC
Mr. Rob Taylor, NRR, NRC
Mr. Mohamed K. Shams, NRR/DANU, NRC
Mr. John Segala, NRR/DANU/UARP, NRC
Mr. Robert H. Beall, NMSS/REFS/RRPB, NRC
Mr. William D. Reckley, NRR/DANU/UARP, NRC
Ms. Nanette Valliere, NRR/DANU/UARP, NRC
Rulemaking.Comments@nrc.gov