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Docket: NRC-2016-0146
NRC Vision and Strategy for Non-Light Water Reactor Mission Readiness

Comment On: NRC-2016-0146-0001
NRC Vision and Strategy for Non-Light Water Reactor Mission Readiness

Document: NRC-2016-0146-DRAFT-0004
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7/21/2016
81FR47443
4

General Comment

Please find attached Transatomic Power Corporation's comments on the draft NRC Vision and Strategy: Safely Achieving Effective and Efficient Non-Light Water Reactor Mission Readiness [Docket ID NRC-2016-0146].

Attachments

TAP_Comments_Docket_ID_NRC-2016-0146_19SEP16

TRANSATOMIC
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TAP-LTR-16-006

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September 19, 2016

Ms. Cindy K. Bladey
Office of Administration
Mail Stop: OWFN-12-H08
United States Nuclear Regulatory Commission
Washington, DC 20555-0001

Subject: Transatomic Power Corporation Comments on Draft "NRC Vision and Strategy: Safely Achieving Effective and Efficient Non-Light Water Reactor Mission Readiness" *81 Federal Register 47443*, [Docket ID NRC-2016-0146]

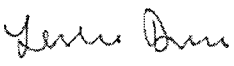
Dear Ms. Bladey:

On behalf of Transatomic Power Corporation (TAP), I am providing comments on the draft "NRC Vision and Strategy: Safely Achieving Effective and Efficient Non-Light Water Reactor Mission Readiness." This document represents a critical step forward in optimizing the NRC's non-LWR regulatory review processes while maintaining the agency's vital and longstanding mission to ensure public health and safety. We at TAP would like to express our sincere appreciation for the agency's preparation of this document.

Industry, by way of the Nuclear Energy Institute, has provided numerous comments on the draft that TAP wholly endorses. TAP's additional comments are detailed in Enclosure (1) to this letter. As advanced reactor developers move toward beginning licensing discussions with the NRC, and as the agency looks to implement the vision the document outlines, we look forward to further engagement in order to optimize advanced reactor regulatory engagement.

If you have any questions or require additional information, please contact me.

Sincerely,



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NRC Document Control Desk

Transatomic Power Corporation Comments on Draft "NRC Vision and Strategy: Safely Achieving Effective and Efficient Non-Light Water Reactor Mission Readiness" [Docket ID NRC-2016-0146]

Comment #	Location	Comment/Basis	Recommendation
1	*Section 5.2.1* *"Conceptual Design Assessments"* *pp. 22-24*	The Conceptual Design Assessment (CDA) process that the paper describes is far more in depth and rigorous than industry intended when calls were made for a "statement of licensing feasibility,"[1] to the point of potentially being an extraneous step in pre-application activities. The purpose of industry's original call for such a statement was to spur the development of a process analogous to a Pre-licensing Vendor Design Review (PVDR) under the Canadian Nuclear Safety Commission's (CNSC) regulatory framework. This is a process with a fixed scope and price, and is meant to "to increase regulatory certainty while ensuring public safety."[2] The high-level CDA process outline presented in the paper seems contains two key aspects that stand in stark contrast to the PVDR, and that raises certain concerns. First, the paper says, > The broad range of potential applicants and designs limits the ability to define a single product cost and schedule for the assessment of a conceptual design. Instead, the NRC will work with a designer to establish a mutually agreeable plan for a	Recommend revising the CDA process to be a direct analogue to, if not a carbon copy of, the PVDR for use in the United States. Anything beyond a fixed price/fixed scope high-level design review that "[informs] the vendor of the overall acceptability of the reactor design"[3] is undesirable, both because of the uncertainty surrounding such an endeavor, and because in such a case a vendor may do better to devote its resources to other forms of regulatory reviews.

[1] Nuclear Innovation Alliance, *Strategies for Advanced Reactor Licensing* (2016), p. 44.
[2] Canadian Nuclear Safety Commissions, GD-385, "Pre-licensing Review of a Vendor's Reactor Design" (2012), p. i.
[3] Ibid., p. 1.

		specific conceptual design that includes a defined scope and level of review, desired outcome in terms of regulatory observations, particular areas of focus, estimated review costs, and review schedules. This statement seems to describe a pre-application review plan analogous to those pursued for formal licensing and design review applications, such as Operating Licenses and Standard Design Certifications. If this is the case, then vendors would do well to skip the CDA process altogether and instead jump directly into pre-application activities; otherwise, the effort required to prepare such a plan could very well divert valuable time and resources that may be better utilized in other regulatory engagement activities. Second, a key aspect of the CNSC's PVDR process is that it is completely optional, a fact that is reiterated in multiple places in the CNSC's guidance on the process. In no place in the paper's CDA description does a similar disclaimer appear; it is referred to as optional only in the SDA flow chart on page 26. This leads to the concern that the CDA will become an expected step prior to any further licensing or design review activities taking place, an outcome that would run directly counter to the agency's goals in optimizing the regulatory process for non-LWR applications and reforming the inefficiencies that currently exist.	
2	*Section 6.0*	The timelines for commercial plant deployment that the document outlines are roughly in line both with TAP's	

	"Notional Non-LWR Deployment Timelines" *pp. 27-29*	technology development timeline and DOE's projections for advanced reactor development. Both timelines also set aside a nine-year block for "Test or Prototype Reactor Licensing," which also aligns with TAP's design goals. However, two issues present themselves with regard to the agency's nine-year timeline for readiness activities:	
		- First, in order to commercialize a non-LWR design by 2030, a developer must be well into the preliminary design process, and perhaps even have started the detailed design process, by 2025. Thus, any new regulatory guidance that comes out in the latter half of the nine-year window will likely be too late for developers to economically integrate into their design and safety case, potentially leading to lengthy and costly re-work.	- Recommend accelerating the agency's readiness activity development process so that the necessary processes are in place by 2021. The emphasis should be on readiness to come to terms on regulatory criteria by which the designs are judged sufficiently in advance, such that a stable and predictable design and safety analysis can be pursued without tail-end surprises or persistent recycling of work to meet new objectives. The intention of early regulatory engagement for advanced reactor developers, first and foremost, is to establish the criteria for the design so that the correct work can be done once. Absent a mechanism to get regulatory criteria stabilized at or near the same time as other design criteria will be disruptive.
		- Second, the "Test or Prototype Reactor Licensing" block presents an issue with regard to the processes that will be used to license advanced reactors during this period. The test or prototype reactors that vendors would like to build use the very technologies for which the document says efficient licensing process development will take nine years.	- Recommend clarifying the processes that the agency anticipates will be used to license test reactors. Because, in order to meet the existing definition in 10 CFR 50.2, prototype reactors will likely be far larger than feasible for many developers, and thus not an option under consideration, it is imperative that the test reactor development process is as timely as possible. Additionally, it is just as crucial that the basis for the developer's established test capability (test reactor and other non-nuclear

			testing programs) is consistent with the long term FOAK commercial development needs.