



February 14th, 2023
U.S. Nuclear Regulatory Commission
Washington, DC 20585

Subject: NRC Seeks Public Input on the Notice of Intent to Conduct Scoping Process and Prepare Environmental Impact Statement; TRISO–X Special Nuclear Material License. Docket ID: NRC-2022-0201. (87 FR 77146).

Dear Jill Caverly,

The Nuclear Innovation Alliance (NIA) is a non-profit “think-and-do” tank working to enable advanced nuclear energy as a solution to mitigate climate change. NIA is catalyzing the next era of nuclear energy through policy analysis, research, outreach, and education. We focus on federal policy and regulatory reform to support advanced reactor development and deployment while meeting national environmental and energy security goals.

NIA appreciates the opportunity to comment on the environmental scoping for the TRISO-X Advanced Reactor Fuel Fabrication Facility (TRISO-X FFF), and to express our support for the nuclear fuel fabrication facility’s construction at the Horizon Center Industrial Park site in Oak Ridge, TN, because of its public benefits.

During its review process, the Nuclear Regulatory Commission (NRC) will be in a unique position to demonstrate flexibility to scale its reviews based on the hazards and regulatory questions relevant to specific applications. NRC will be able to set precedent in its assessment of the unique characteristics of first-of-a-kind (FOAK) reactor fuel technology and any potential environmental impacts related to manufacturing and handling. The NRC’s experience with this review will also generate lessons learned that will be applicable to future advanced nuclear reactor technology environmental reviews, including HALEU-based and TRi-structural ISOtropic particle fuel (TRISO)-based fuel fabrication facilities.

Under the U.S. Department of Energy Advanced Reactor Demonstration Program (ARDP), the Department of Energy (DOE) selected X-energy, the parent company of TRISO-X, to deploy their High Temperature Gas Reactor (HTGR) technology *and* to deliver a commercial TRISO fuel fabrication facility. The facility will be able to produce 16 metric tons per year (MTU/year).¹ The commercial facility’s design will allow TRISO-X to manufacture fuel for any number of advanced or small nuclear reactors based on TRISO fuel.² The project is also expected to generate more than 400 jobs and attract approximately \$300 million in investment to the Oak Ridge, TN community.³

¹ See TRISO-X Fuel Fabrication Facility Environmental Report Submittal at <https://www.nrc.gov/info-finder/fc/triso-x.html>

² *Ibid.*

³ See X-energy News Release, *X-energy’s TRISO-X Selects Oak Ridge Horizon Center for First Commercial Advanced Reactor Fuel Fabrication Facility in North America* at <https://x-energy.com/media/news-releases/x-energy-triso-x-selects-oak-ridge-horizon-center-for-first-commercial-advanced-reactor-fuel-fabrication-facility-in-north-america>

The rapid scaling of innovative advanced reactor technologies is essential for deep decarbonization and energy security. The facility's capability to produce fuel for different TRISO based reactor designs will improve timelines for advanced reactor deployment. Insights and conclusions from the TRISO-X FFF environmental impact statement will have relevance to subsequent fuel fabrication facility license applications. Efficient environmental reviews are a critical step in the licensing process to swiftly confront climate change, energy security, demonstrate FOAK technology, and result in more equitable environmental outcomes.

During the TRISO-X FFF environmental scoping, NIA recommends that NRC utilize performance-based principles so the scope of the review is commensurate with the reasonably conceivable hazards and environmental impacts. NIA encourages NRC staff to limit the scope of its review to topics relevant to the TRISO-X fuel facilities decision based on the documented findings. In NRC's assessment of risks, there should also be an emphasis on the positive environmental impact of nuclear energy and the role of the TRISO-X facility in enabling the future of advanced nuclear reactors.

Thank you for your consideration of NIA's comments. We appreciate the work of NRC staff as it completes the environmental scoping for the TRISO-X nuclear fuel facility. NIA welcomes further discussion on this topic. Please contact me at vibarrajr@nuclearinnovationalliance.org if you require additional information or have any questions.

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