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**Docket:** NRC-2019-0226

Agency Action Regarding the Exploratory Process for the Development of an Advanced Nuclear Reactor  
Generic Environmental Impact Statement

**Comment On:** NRC-2019-0226-0003

Agency Action Regarding the Exploratory Process for the Development of an Advanced Nuclear Reactor;  
Generic Environmental Impact Statement

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## General Comment

See attached file(s)

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## Attachments

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Union of Concerned Scientists Comments on the  
“Agency Action Regarding the Exploratory Process for the Development of an  
Advanced Nuclear Reactor Generic Environmental Impact Statement” (ANR GEIS)  
Docket ID NRC-2019-0226

Edwin S. Lyman, PhD  
Director of Nuclear Power Safety  
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Washington, DC  
January 24, 2020

1. The Nuclear Regulatory Commission (NRC)’s November 15, 2019 Federal Register notice (82 FR 62599) is fatally flawed because it fails to define the term “advanced reactors.” This defect is not remedied by question (a) in Section III of the notice because that question does not ask the public to define the term “advanced reactor” but only to determine which advanced reactor technologies should be included in the scope of the GEIS.

The term “advanced reactor” does not appear in the NRC’s regulations (10 CFR), and other NRC documents provide differing and inconsistent definitions. For example, the 2008 Policy Statement on the Regulation of Advanced Reactors (73 FR 60612) implicitly defines “advanced reactors” as any reactor other than a “current-generation” light-water reactor (which are themselves defined as nuclear power plants “licensed” before 1997). Thus any light-water reactor licensed after 1997 would appear to be classified as an “advanced” reactor. However, the Federal Register notice seeking public comment on the regulatory basis for a rule governing security of advanced reactors” defines such reactors as “light-water small modular reactors and non-light-water reactors” (84 FR 33861). This appears to exclude new large light-water reactors licensed after 1997, which would be inconsistent with the 2008 Policy Statement. Even more confusing, the NRC’s website seems to suggest in numerous places that “advanced reactors” refer only to non-light water reactor designs and not light-water SMRs.

The public should not be left to try to sort out what the NRC is actually proposing to develop here. If the NRC intends to go forward with this proposal, it should rescind the November 15, 2019 notice and only reissue it once it has clearly defined the term “advanced reactor.”

2. Whether or not “advanced reactors” are defined to exclude light-water reactors, it is hard to imagine a facility category for which development of a generic EIS would be *less* appropriate. The proliferation of new reactor designs being put forward today is practically a Noah’s Ark of diversity. The vast range of power levels, fuel and coolant materials, structural materials, core designs, auxiliary systems, spent fuel characteristics, and proposed applications would result in a correspondingly diverse range of

environmental impacts. These include not only radiological impacts resulting from normal operation and accidents but also the impacts of chemical exposures and releases on workers, public health, and the environment. For example, some molten-salt reactors would use large quantities of highly toxic beryllium, which is not likely to be found in a gas-cooled reactor.

Simply put, the NRC has offered absolutely no technical justification for this proposal. It appears that the proposal is a response to political pressure by new reactor vendors and their associates who assert (as part of a misleading public relations campaign) that any new reactor design that is called “advanced” will automatically be so much safer and have environmental impacts so much smaller than current reactors that in-depth environmental reviews would be unnecessary. But that, of course, is far from being verified. And it is a determination that can only be made on a reactor-specific basis. For example, depending on design features, a 2 MW reactor could conceivably have as great an environmental impact as a 1000 MW reactor in the event of a severe accident.

Attempting to develop a generic EIS to envelop all of these disparate impacts would be a costly and time-consuming fool’s errand. Ultimately, any reactor applicant seeking to reference such a such an EIS would have to do a great deal of design-specific and site-specific analysis to attempt to show that it could fit within the envelope: largely the same work that would have had to be done to carry out the necessary project-specific National Environmental Policy Act (NEPA) analysis in the first place. And the NRC would have to verify the applicant’s analysis. It is hard to see how this effort would increase efficiency on the part of either applicants or the NRC—if NEPA requirements are to be fully satisfied.

In summary, there is no technical basis for the notion that there is a class of facilities called “advanced” reactors that have such similar characteristics and environmental impacts that it would be appropriate for the NRC to develop a generic environmental impact for their construction and operation.