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**Subject:** [External\_Sender] Union of Concerned Scientists' Comments on the ANR GEIS, Docket ID: NRC-2020-0101  
**Attachments:** anr geis scoping comments 6 30 20.pdf

Please find the comments attached. Thank you for your consideration.

Sincerely,

Edwin Lyman  
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**Federal Register Notice:** 85FR24040  
**Comment Number:** 3125

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**Comments on the Nuclear Regulatory Commission’s Notice to Conduct Scoping and  
Prepare an Advanced Nuclear Reactor Generic Environmental Impact Statement  
Docket ID: NRC-2020-0101**

Edwin S. Lyman, PhD  
Director of Nuclear Power Safety  
Union of Concerned Scientists  
Washington, DC  
June 30, 2020

The Union of Concerned Scientists (UCS) observes that the NRC has significantly narrowed the scope of its proposed Advanced Nuclear Reactor Generic Environmental Impact Statement (ANR GEIS) to include only “small-scale” reactors (nominally less than approximately 30 megawatts thermal) and having a “correspondingly small” environmental footprint. Even so, there is little technical basis for proceeding with this misguided action.

1. As UCS pointed out in its comments on the NRC’s November 15, 2019 Federal Register notice, there are many technologies that could be defined to be “advanced” reactors, employing significantly different materials, fuels, and coolants, and generating a variety of different wastes and effluents. The environmental impacts associated with construction and operation of such reactors could also vary significantly. These differences are not only quantitative (e.g. those that scale with reactor power), but also qualitative. UCS believes that even for “small-scale” reactors there will be few, if any, meaningful Category 1 issues (those environmental impacts that could be analyzed generically). Thus this GEIS would have little practical impact in facilitating licensing, because so many issues would qualify as Category 2 and require site-specific (and presumably also reactor-specific) evaluations.

2. Also, simply stating that a reactor is “small-scale” does not automatically imply that it will have a “small” environmental footprint. For example, a recent Idaho National Laboratory study found that the committed effective inhalation dose to a member of the public at a 4.7 km distance from a 20 MWth micro-reactor experiencing a core damage accident could be as large as 254 rem for a sodium-cooled fast reactor and 333 rem for a molten salt fast reactor.<sup>1</sup> (Note the significant difference in the result for different reactor types.) Even at a 16 km distance downwind, inhalation doses could exceed 50 rem, depending on atmospheric conditions. This is not a small environmental footprint by any means.

3. The rationale for developing an ANR GEIS is also dubious because of the apparent lack of actual interest among prospective advanced reactor applicants in a GEIS. SECY-20-0020 states that<sup>2</sup>

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<sup>1</sup> T.P. Reiss, *Evaluation of Microreactor Inhalation Dose Consequences*, INL/EXT-20-58163-Revision-0, Idaho National Laboratory, April 2020.

<sup>2</sup> U.S. NRC., “Results of Exploratory Process for Developing a Generic Environmental Impact Statement for the Construction and Operation of Advanced Nuclear Reactors,” SECY-20-0020, February 28, 2020.

“During the exploratory process, the staff gathered the necessary information to determine whether a GEIS for the construction and operation of advanced reactors is viable. However, the staff did not receive sufficient information on advanced reactors with power level greater than approximately 30 Mwt [sic] and a correspondingly small footprint. Therefore, the staff could not include these larger size reactors in the determination of viability of the GEIS at this time.”

Although not written clearly, this seems to imply that the 30 MWth limit referenced in the April 30, 2020 Federal Register notice was developed not from any underlying technical analysis but simply because developers of larger reactors did not provide the staff with information. Thus the figure appears to be a matter of circumstance. Moreover, there is currently only one vendor engaged in pre-application discussions with the NRC for a reactor with a power level below 30 MWth, the 3 MWth Westinghouse eVinci. The only other small-scale reactor candidate that has engaged with the NRC, Oklo, has already submitted a combined operating license application for a first-of-a-kind unit and thus will have no use for the GEIS unless it pursues a second reactor at a different site. Thus development of the GEIS would seem likely to benefit only a single company for the foreseeable future, unless the maximum power level defined as “small-scale” (and presumably the associated environmental footprint) were to increase significantly. Given that the staff estimates development of the GEIS would only take 24 months, it would appear prudent to at least delay the process until it becomes clear that there is a large enough field of applicants to justify the investment of staff time and resources. The staff itself points out in SECY-20-0020 that “uncertainties in the number of future advanced reactor applications the NRC will receive may impact the benefit of developing an advanced reactor GEIS.”

4. Finally, the April 30, 2020 Federal Register notice states that “demographics” would be one of the aspects included in the technology-neutral Plant Parameter Envelope (PPE). UCS does not see how critical aspects of demographic data related to racial and economic inequity—aspects that the NRC *must* consider in its National Environmental Policy Act (NEPA) evaluation of environmental justice impacts—could be so neatly dispensed of on a generic basis. A key aspect of nuclear reactor siting is the potential for a disproportionately high risk impact on BIPOC (Black, Indigenous, and People of Color)—especially if the NRC follows through with plans to remove current prohibitions on siting of new nuclear reactors in densely populated urban areas, which could facilitate placement of new reactors in BIPOC communities. As the NRC stated in its August 2004 “Policy Statement on the Treatment of Environmental Justice Matters in NRC Licensing Actions,” “The Commission believes it is difficult to foresee or predict many circumstances, if any, in which a meaningful NRC EJ [environmental justice] analysis could be completed for a generic or programmatic EIS given the lack of site-specific information.” We agree.

Thank you for your consideration.