



BILLING CODE: 5001-06

DEPARTMENT OF DEFENSE

Office of the Secretary

Notice of Intent to Prepare an Environmental Impact Statement for Construction and Demonstration of a Prototype Advanced Mobile Nuclear Microreactor

AGENCY: Strategic Capabilities Office, Office of the Secretary of Defense, Department of Defense (DoD).

ACTION: Notice of intent.

SUMMARY: The DoD, Office of the Secretary of Defense, acting through the Strategic Capabilities Office (SCO), and in partnership with the U.S. Department of Energy, Office of Nuclear Energy (DOE), proposes to construct and demonstrate a prototype advanced mobile nuclear microreactor (prototype microreactor) to support DoD domestic energy demands and DoD operational energy demands (Proposed Action).

SCO, as lead agency, in partnership with DOE, as a cooperating agency, intends to prepare an Environmental Impact Statement (EIS) in accordance with the requirements of the National Environmental Policy Act (NEPA) and applicable implementing regulations for the Proposed Action. The EIS also will cover the planned disposition of the prototype microreactor following operation and demonstration. Through this EIS process, SCO will identify measures to avoid, minimize, or mitigate any negative impacts to human health or the environment associated with the Proposed Action.

DATES: SCO invites public comment on the scope of this EIS during a 30-day public scoping period commencing March 2, 2020, and ending on April 1, 2020. Public comment may also be made at the public scoping meeting on March 18, 2020, in Fort

Hall, Idaho (see “Public Scoping Meeting,” in the SUPPLEMENTARY INFORMATION section). In defining the scope of the EIS, SCO will consider all comments received or postmarked by the end of the scoping period. Comments received or postmarked after the scoping period end date will be considered to the extent practicable.

ADDRESSES: Written comments regarding the scope of the EIS and comments or questions on the scoping process may be sent by any of the following methods:

- Email: PELE_NEPA@sco.mil. Include “Prototype Microreactor EIS Comments” in the subject line.
- Mail: OSD Strategic Capabilities Office,
ATTN: Prototype Microreactor EIS Comments,
675 N. Randolph Street,
Arlington, Virginia 22203-2114.

FOR FURTHER INFORMATION CONTACT: Dr. Jeff Waksman, Program Manager; address: SCO, 675 N. Randolph St, Arlington, Virginia, 22203-2114; email: PELE_NEPA@sco.mil. Persons who use a telecommunications device for the deaf (TDD) may call the Federal Relay Service (FRS) at 1-800-877-8339 to contact the above individual during normal business hours. The FRS is available 24 hours a day, 7 days a week, to leave a message or question. You will receive a reply during normal business hours.

SUPPLEMENTARY INFORMATION:

Purpose and Need for Agency Action

The purpose of the Proposed Action is to construct and demonstrate a prototype microreactor that would be capable of producing 1-10 megawatts of electrical power.

Pursuant to the National Defense Authorization Act for Fiscal Year 2018, Public Law 115-91, 131 Stat. 1283, 1857, section 2831, codified in 10 U.S.C. 2911, the Secretary of Defense has the authority to “ensure the readiness of the armed forces for their military missions by pursuing energy security and energy resilience.” Further, pursuant to the Consolidated Appropriations Act, 2020, Public Law 116-93, section 4, and the Act’s accompanying congressional explanatory statement, 165 Congressional Record H10613, H10886 (daily edition December 17, 2019), SCO received an appropriation for this prototype microreactor.

The DoD is one of the largest users of energy in the world, and projections for future military operations predict energy demand will increase significantly in coming years. DoD installations need the capability to reduce their present reliance on local electric grids, which are highly vulnerable to prolonged outages from a variety of threats, placing critical missions at unacceptably high risk of extended disruption. Backup power is often based on diesel generators that have limited on-site fuel storage, are undersized for new homeland defense missions, are not prioritized to critical loads, and are inadequate in duration and reliability. Advanced nuclear power is capable of meeting the DoD’s need to increase energy security and resilience, but must demonstrate its technical and safety specifications at full size and power.

The microreactor must keep radiation exposure during power operation, abnormal operations, or upset conditions, as low as reasonably achievable. SCO seeks to produce a prototype that will minimize consequences to the nearby environment and population in case of kinetic or non-kinetic action affecting structural integrity or release of contamination. Further, SCO seeks to utilize nuclear materials in the construction of a

prototype microreactor that, if damaged, do not generate and impose excessive training and equipping burdens on forward area first responders, site medical facilities, or supported military personnel and the civilian population.

Proposed Action

The prototype microreactor is expected to be a small advanced gas reactor (AGR) using high-assay low enriched uranium (HALEU) tristructural isotropic (TRISO) fuel and air cooling. TRISO fuel is encapsulated and has been demonstrated in the laboratory to be able to withstand temperatures up to 1,800 degrees Celsius, allowing for an inherently safe prototype microreactor. The Proposed Action includes construction of the prototype microreactor and demonstration activities. The demonstration activities may include testing of project materials, startup and transient testing and evaluation of the constructed prototype microreactor, transportation and operational testing of the prototype microreactor or its components within the boundaries of the selected site to test and evaluate prototype microreactor mobility, and post-irradiation testing of project materials. The EIS also will cover the planned disposition of the prototype microreactor following operation and demonstration.

Additionally, there are expected to be ancillary activities necessary to support the Proposed Action. These include the fabrication of reactor fuel, the assembly of test/experimental modules at existing, modified, or newly constructed test/experiment assembly facilities, and the management of waste and spent nuclear fuel. After irradiation of the prototype microreactor, test/experimental cartridges would be transferred to post-irradiation examination facilities. SCO would make use of existing post-irradiation

facilities to the extent possible, but existing post-irradiation examination facilities may require expansion or modification.

Two locations are required for the prototype construction and demonstration. One would be inside an existing structure, and the second would be outside. The potential indoor location would utilize existing infrastructure for initial deployment in a containment structure. The second location would be an outdoor site and would also utilize existing facilities and infrastructure.

The joint effort between SCO and DOE established by interagency agreement will make use of DOE expertise, material, laboratories, and authority to construct and demonstrate this prototype microreactor. DOE will provide SCO regulatory oversight and expertise on technical, safety, environmental, and health requirements applicable to the construction and demonstration of the prototype microreactor. DoD plans to request authorization from the DOE pursuant to its authority under the Atomic Energy Act (42 U.S.C. 2121(b), 2140) and National Security Decision Directive 282, September 30, 1987, for the acquisition and operation of a prototype reactor. The Nuclear Regulatory Commission (NRC), consistent with its role as an independent safety and security regulator, is participating in this project to provide SCO with accurate, current information on the NRC's regulations and licensing processes in connection with construction and demonstration of a prototype advanced mobile nuclear microreactor. Consistent with an authorization by the Secretary of Energy, the prototype microreactor does not require a NRC license.

Alternatives

SCO will evaluate a range of reasonable alternatives for the Proposed Action in the EIS. As required by NEPA, the alternatives will include a No Action Alternative to serve as a basis for comparison with the action alternatives. Under the No Action Alternative, SCO would not pursue the construction or demonstration of a prototype microreactor. The following site features are considered necessary for the Proposed Action and will be used as screening criteria to identify a range of reasonable action alternatives:

- A site that has been previously used for nuclear activities that has sufficient infrastructure to support nuclear operations, including the planned disposition of the prototype microreactor following operation and demonstration.
- Access to an electrical grid and a grid independent from the commercial grid capable of performing research.
- An established control zone (to facilitate emergency planning for reactors with safety features not previously demonstrated).
- Adjacent nuclear facilities available for examination and characterization of radioactive components and materials (e.g., hot cells, analytical chemistry).
- Ability to manufacture and test shielding for the prototype microreactor.
- Variable climate conditions that are suitable demonstration conditions.
- Sufficient space for transportation and operational testing and evaluation of the mobility of the prototype microreactor or its components within the boundaries of the site, including both indoor and outdoor testing facilities.
- A site that is or can be subject to DOE authority or control.

The range of action alternatives may consider multiple sites or multiple locations within one site. SCO has identified the following potential sites as locations for the Proposed

Action: Idaho National Laboratory (INL), and Oak Ridge National Laboratory (ORNL).

Within the INL site, the following specific options for indoor and outdoor facilities have been identified for inclusion in the range of alternatives to be considered:

The following indoor locations at INL will be considered:

- (a) Chemical Processing Plant 691 (CPP-691) situated within the Idaho Nuclear Technology and Engineering Center (INTEC);
- (b) Experimental Breeder Reactor II (EBR II) situated within the Materials and Fuels Complex (MFC);
- (c) Power Burst Facility 613, situated within the Critical Infrastructure Test Range Complex (CITRC); or
- (d) Alternate facilities and infrastructure identified during the scoping process.

The following outdoor locations at INL will be considered:

- (a) Near the Materials and Fuels Complex (MFC);
- (b) Within the Critical Infrastructure Test Range Complex (CITRC); or
- (c) Alternate facilities and infrastructure identified during the scoping process.

The indoor and outdoor locations at INL were identified during preliminary planning for the preparation of this notice. If multiple indoor or outdoor locations at ORNL prove suitable as action alternatives during the EIS process, SCO will analyze those locations individually in the same manner.

Through the EIS process, the required site features will be used to identify a range of reasonable action alternatives to be considered in the EIS. SCO will consider any

scoping comments on alternative sites, and plans to evaluate multiple locations to ensure specific facilities and infrastructure are recommended that minimize environmental impacts.

Impacts Analysis

The EIS will include an analysis of potential impacts to the quality of the human environment from the range of reasonable Action Alternatives, and the No Action Alternative. Because the specific design of the prototype will be unknown during the preparation of the EIS, SCO will consider potential environmental impacts from all reasonable designs that are under consideration. The EIS will analyze impacts of the Proposed Action to natural and cultural resources, to include Native American resources and concerns; to public health from potential exposure to radionuclides under routine and credible accident or emergency scenarios including natural disasters such as floods, hurricanes, tornadoes, or seismic events; any disproportionately high and adverse effects on minority and low-income populations (i.e., environmental justice impacts); and potential impacts of intentional destructive acts, including sabotage and terrorism, as well as other issues that may emerge during the scoping process.

Public Scoping Process

SCO invites Federal agencies, state, local, and tribal governments, and the general public to comment on the scope of the EIS. This includes any comments on the identification of reasonable alternatives and specific environmental issues to be addressed. Analysis of written and oral public comments provided during the scoping period will help further identify concerns and potential issues to be considered in the Draft EIS.

Public Scoping Meeting

SCO, acting on behalf of DoD, will host a public scoping meeting to provide the public with information about the NEPA process and to invite public comments on the scope of this EIS. The public meeting will begin with a presentation on the NEPA process and then a presentation on the Proposed Action and the alternatives. Following the presentations, there will be a moderated session during which members of the public can provide oral comments on the scope of the EIS analysis. Commenters will be allowed three minutes to provide comments, which will be recorded.

The public meeting will be held on March 18, 2020, at 5:00 p.m. Mountain Daylight Time at: Shoshone-Bannock Event Center, Fort Hall Indian Reservation, 777 Bannock Trail, Fort Hall, Idaho 83203.

For those who cannot attend the public meeting in-person but are interested in watching the presentations, there will be two options for viewing. The first option is a live webcast of the public meeting. The second option is viewing a recording of the public meeting. The internet address for the live webcast and rebroadcast of the public meeting presentations is https://www.cto.mil/pele_eis/.

EIS Preparation and Schedule

Following the scoping period announced in this Notice of Intent, and after consideration of all comments received during scoping, SCO will prepare a Draft EIS for the construction and demonstration of the prototype microreactor. Once the Draft EIS is completed, it will be made available for a 45-day public review and comment period. SCO will announce the availability of the Draft EIS in the Federal Register and local media outlets. SCO expects the Draft EIS will be available for public review and

comment in 2021. All interested parties are encouraged to respond to this notice and provide a current address if they wish to be notified of the Draft EIS circulation.

Dated: February 20, 2020.

Aaron T. Siegel,

Alternate OSD Federal Register Liaison Officer, Department of Defense.

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