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February 14, 2022

HALEU RFI

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U.S. Department of Energy

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RE: Response to RFI, DOE “Request for Information (RFI) Regarding Planning for Establishment of a Program To Support the Availability of High-Assay Low-Enriched Uranium (HALEU) for Civilian Domestic Research, Development, Demonstration, and Commercial Use”

To rfi-haleu, Dr. Vega and Mr. Reim:

I am writing on behalf of the Ohio Nuclear-Free Network and 47 other organizations identified below which collectively represent thousands of people concerned about the uses and misuses of nuclear materials and fission byproducts. We write in response to the DOE’s “Request for Information (RFI) Regarding Planning for Establishment of a Program To Support the Availability of High-Assay Low-Enriched Uranium (HALEU) for Civilian Domestic Research, Development, Demonstration, and Commercial Use” which appeared in the Federal Register on December 14, 2021.

The Department of Energy has been directed by Congress in the Energy Policy Act of 2020, 42 U.S.C. § 2001(a)(2)(F), to “establish. . . a consortium, which may include entities involved in any stage of the nuclear fuel cycle, to partner with the Department to support the availability of HA–LEU for civilian domestic demonstration and commercial use. . . .”

We object to the establishment of a sustained HALEU production effort because it will perpetuate and increase the potential for the trafficking of highly-enriched uranium (HEU) within as well as outside the borders of the United States. It will also contribute to accountability problems, since large but mostly unknown volumes of highly-enriched uranium fuel (HEU) will be created but probably not tracked under international nuclear arms control agreements. Mass sustained production of HALEU will foster prospective nuclear weapons proliferation and the

potentiality of thermonuclear war. HALEU production will absorb billions of public dollars which urgently should instead be prioritized to combat climate disaster and other vast problems in the United States.

Notwithstanding Congress' passage of the Energy Policy Act of 2020 to ensure a HALEU industrial sector, HALEU should not be produced at all. The report that Congress has ordered DOE to compile must clearly respect National Environmental Policy Act (NEPA) mandates in the path to begin a HALEU production consortium.

I. HALEU is Highly-Enriched Uranium (HEU)

DOE is already actively arranging for the manufacture of HALEU at various locations, including at the Centrus Corporation facility at DOE's Piketon, Ohio installation. While HALEU is nominally supposed to be enriched to 19.75%, Centrus is authorized by the U.S. Nuclear Regulatory Commission (NRC) "to enrich small amounts of uranium up to 25% to factor in process fluctuations."¹ Enrichment of uranium to 20% in HALEU is worrisome from a weapons proliferation standpoint. Uranium enriched above 20% is classified as "highly enriched uranium" (HEU), and is even more concerning.

Enrichment of uranium to the 20% range for HALEU means that about 85% of the work to create weapons-grade uranium has been done. The development of advanced reactor technologies dependent on HALEU fuel will prompt nuclear weapons competitions among some nations seeking to acquire advanced reactors for the purpose of operating electric power plants that double as bomb factories.

II. The HALEU program mandatorily must include consultation with experts in U.S. nuclear weapons nonproliferation policies

The Energy Policy Act explicitly requires that the Department of Energy must submit to Congress a report that describes actions proposed to be carried out by the Secretary of Energy under the HALEU sector development program. In compiling the report, the Secretary is directed to "consult with . . . experts in nuclear nonproliferation, environmental safety, safeguards and security, and public health and safety. . . ." 42 U.S.C. § 2001(b)(2)(vii). We submit that the

¹See Enclosure 1 to Letter, ACO 20-0013 from Centrus Corporation to Nuclear Regulatory Commission, Office of Nuclear Material Safety and Safeguards (May 7, 2020) (ADAMS No. ML20139A100, p., 5 of .pdf) ("Enrichment levels up to 25 wt. percent 235U are authorized to permit for process fluctuations which can create small amounts of higher weight percent material."). Also, see "License Application for the American Centrifuge Plant," (ADAMS No. ML20125A116), § 5.0, p. 25: ("The HALEU Demonstration Program is designed to enrich and safely handle uranium with an operational limit less than 20.0 wt. percent 235U; however, enrichment levels up to 25 wt. % 235U are authorized to permit for process fluctuations which can result in higher weight percent material."). See also email, J. Trefethen (NRC) to T. Clements (SRS Watch) (3/19/2021), <https://srswatch.org/wp-content/uploads/2021/03/Emails-between-Tom-Clements-and-NRC-on-Centrus-March-2021.pdf>

required consultations must be embodied in a Programmatic Environmental Impact Statement (PEIS).

Proliferation analysis must encompass U.S. compliance mechanisms under several international treaties which bind the U.S. and require safeguards against nuclear weapons proliferation, materials theft, and weaponization by thieves, vandals and terrorists. Production and trafficking of HALEU, domestically and internationally, may be inconsistent with or violate those agreements. Mass production and export of HALEU by the United States may particularly violate treaty and policy commitments, and could render U.S. compliance with nuclear arms limitations and governing regimes impossible.

These important U.S. treaty commitments should be assessed for their relevance to the proposed program of HALEU availability:

- ***New Strategic Arms Reduction Treaty (New START)***, which imposes limits on the size of the world's two largest nuclear arsenals (United States and Russia).
- ***Comprehensive Nuclear Test Ban Treaty (CTBT)***, which bans any nuclear weapon test explosion or any other nuclear explosion (*i.e.*, true zero yield). It is frequently associated with a ban on the production of fissile material for anything other than verified peaceful use. Such a ban would impose a quantitative limit on the amount of nuclear material available for weapons use. That objective is the basis for an initiative at the Conference on Disarmament (CD) to negotiate a treaty banning further production of fissile material for weapons purposes — the draft Fissile Material Cut-Off Treaty (FMCT).
- ***Treaty on the Non-Proliferation of Nuclear Weapons (NPT)***, which is a multilateral treaty aimed at limiting the spread of nuclear weapons including three elements: (1) non-proliferation, (2) disarmament, and (3) peaceful use of nuclear energy. Each of these elements requires international reporting and monitoring of safeguards.
- ***Treaty on the Prohibition of Nuclear Weapons (TPNW)***, a recent and unprecedented agreement which prohibits states from developing, testing, producing, manufacturing, acquiring, possessing, or stockpiling nuclear weapons or other nuclear explosive devices.²

²Article 1 of the TPNW states:

- “1. Each State Party undertakes never under any circumstances to:
- (a) Develop, test, produce, manufacture, otherwise acquire, possess or stockpile nuclear weapons or other nuclear explosive devices;
 - (b) Transfer to any recipient whatsoever nuclear weapons or other nuclear explosive devices or control over such weapons or explosive devices directly or indirectly;
 - (c) Receive the transfer of or control over nuclear weapons or other nuclear explosive devices directly or indirectly;
 - (d) Use or threaten to use nuclear weapons or other nuclear explosive devices;

International law requires reduction and ultimately, termination, of global nuclear arsenals. On July 8, 1996, the International Court of Justice issued an advisory opinion, “The Legality of the Threat or Use of Nuclear Weapons,” in which the ICJ ruled that under the Nonproliferation Treaty (NPT), nuclear weapons are generally illegal, and all states that possess them are obligated to conclude negotiations on all aspects of nuclear disarmament.³

The development of a HALEU supply chain may threaten the United States’ ability to comply with the spirit, if not also the letter, of these treaty obligations, despite the fact that under our Constitution, treaty obligations are the “supreme law of the land.”⁴

III. Maximum disclosure and scrutiny of HALEU under NEPA is obligatory

Notably, there is no mention by DOE in the RFI that the Department will comply with all applicable laws, and particularly the National Environmental Policy Act (NEPA), in the development of a HALEU supply industry. The Department must acknowledge environmental justice, environmental impacts, distributive impacts, treaty and other anticipated effects on U.S. nuclear power and weapons production and distribution before this undertaking begins. A national HALEU program will require meaningful engagement with all stakeholders, including State, local, tribal governments, and disadvantaged communities. A Programmatic Environmental Impact Statement (PEIS), accompanied by project-specific EISes, is warranted here before a consortium is created.

The NRC regulates and licenses the mining, refinement and other components of the present uranium supply chain. Under the Atomic Energy Act, the Commission has a legal duty to consider whether when granting a license, such an action “would be inimical to the common defense and security of the United States or would constitute an unreasonable risk to the health and safety of the public.” *See, e.g.*, 42 U.S.C. § 2077(c)(2)⁵ and § 2099.⁶ These mandates surely

(e) Assist, encourage or induce, in any way, anyone to engage in any activity prohibited to a State Party under this Treaty;

(f) Seek or receive any assistance, in any way, from anyone to engage in any activity prohibited to a State Party under this Treaty;

(g) Allow any stationing, installation or deployment of any nuclear weapons or other nuclear explosive devices in its territory or at any place under its jurisdiction or control.”

<https://www.un.org/disarmament/wmd/nuclear/tpnw/>

³Specifically, the Court stated that “There exists an obligation to pursue in good faith and bring to a conclusion negotiations leading to nuclear disarmament in all its aspects under strict and effective international control.” <https://www.un.org/law/icjsum/9623.htm> (unanimous holding).

⁴U.S. Const. Art. VI, Cl. 2 states: “This Constitution, and the Laws of the United States which shall be made in Pursuance thereof; and all Treaties made, or which shall be made, under the Authority of the United States, shall be the supreme Law of the Land. . . .”

<https://www.law.cornell.edu/constitution/articlevi>

⁵42 U.S.C. § 2077(c)(2) states, “The Commission shall not: . . . (2) distribute any special nuclear material or issue a license pursuant to section 2073 of this title to any person within the United States if

will require consideration of the radiological and other hazardous effects, such as the potential for nuclear material trafficking and weapons proliferation, that might follow from DOE's creation of a HALEU supply chain.

A subsidized, permanent HALEU supply chain is an economic development scheme where many activities and processes will threaten to harm, or actually harm, workers and neighbors. Many of those affected will be people of color and/or people with low incomes. NEPA analysis must precede the HALEU supply development and must consider the range of risks to the public health and safety potentially arising from the anticipated permitting or licensing decisions, and must consider all reasonable alternatives that could eliminate or mitigate those risks. The consideration of those risks is obligatory even if they are not quantifiable. *See, San Luis Obispo Mothers for Peace v. NRC*, 449 F.3d 1016, 1033 (9th Cir. 2006).

Proliferation and security issues have historically been addressed in NEPA decision-making. *See Scientists' Institute for Public Information, Inc. v. Atomic Energy Commission*, 481 F.2d 1079 (D.C. Cir. 1973), where the Court of Appeals required the AEC, DOE's predecessor, to prepare a programmatic environmental impact statement (PEIS) on its Liquid Metal Fast Breeder Reactor (LMFBR) Program. Nonproliferation and terrorism were addressed in the subsequent LMFBR EIS.

NEPA requires DOE to explain the nuclear weapons implications of its various proposals. At the preliminary injunction hearing in the 1974 case, *West Michigan Environmental Action Council v. AEC*, Dkt. No. G-58-73 (W.D. Mich. 1974) the then-Atomic Energy Commission (AEC) settled the litigation by committing to prepare a Programmatic Environmental Impact Statement on plutonium recycling known as, the "Generic Environmental Statement on Mixed Oxide Fuel" (GESMO), No. RM-50-1.

In 1976, the successor NRC began administrative proceedings to compile a record on reprocessing spent nuclear fuel and recycling the recovered plutonium. In preparing a Draft Environmental Impact Statement (DEIS), the NRC was required in 1976 to supplement its GESMO to address protection of plutonium from theft, diversion, or sabotage. The President's Council on Environmental Quality (CEQ) told the NRC that in its opinion, the draft GESMO was inadequate because it failed to address adequately the special dangers of sabotage and theft posed by large-scale transportation of plutonium materials. The CEQ also "directed the Commission to avoid taking any licensing steps in the interim period which could result in the foreclosure of alternative safeguards or which could result in unnecessary 'grandfathering' of existing facilities' safeguards systems."

the Commission finds that the distribution of such special nuclear material or the issuance of such license would be inimical to the common defense and security or would constitute an unreasonable risk to the health and safety of the public."

⁶⁴² U.S.C. § 2099 says, "The Commission shall not license any person to transfer or deliver, receive possession of or title to, or import into or export from the United States any source material if, in the opinion of the Commission, the issuance of a license to such person for such purpose would be inimical to the common defense and security or the health and safety of the public."

Natural Resources Defense Council, Inc. v. United States Nuclear Regulatory Commission, 539 F.2d 824, 832-33 (2d Cir. 1976). As a nuclear weapons state, the U.S. and the International Atomic Energy Agency (IAEA) had entered into a safeguards agreement under the still-recent NPT which governed nuclear material held and used in DOE facilities. The Second Circuit paused NRC licensing to allow for the completion of the PEIS to address the safeguards issues because : “Congress, in enacting NEPA, intended that agencies apply its standards to the decision to introduce a new technology as well as to the decision to license related activity; see 42 U.S.C. § 4331(a) (1970); S.Rep. No. 91-296s, 91st Cong., 1st Sess., 20 (1969).” *Id.* at 539 F.2d 841.

In 2009, the DOE was required to address nonproliferation issues in its preparation of the “Draft Global Nuclear Energy Partnership Programmatic Environmental Impact Statement” (GNEP PEIS, DOE/EIS-0396). It attempted to do so by relying on a separate “Nonproliferation Impact Assessment: Companion to the Global Nuclear Energy Partnership Programmatic Environmental Impact Statement,” prepared by the Office of Nonproliferation and International Security of the National Nuclear Security Administration (NNSA). This artificial separation was challenged by environmentalists. Subsequent to those critical comments, DOE ceased all work on the GNEP PEIS.

Security concerns cannot excuse a federal agency from NEPA's requirements. See *Weinberger v. Catholic Action of Hawaii/ Peace Educ. Project*, 454 U.S. 139, 102 S. Ct. 197, 70 L. Ed. 2d 298 (1981) (holding that the Navy was required to perform a NEPA review and to factor its results into decisionmaking even where the sensitivity of the information involved meant that the NEPA results could not be publicized or adjudicated).

IV. Conclusion: Formation of a HALEU manufacturing and distribution system must be addressed in a Programmatic Environmental Impact Statement that includes extensive consultation with experts in nuclear nonproliferation, environmental safety, safeguards and security, and public health and safety

DOE’s creation of a standing HALEU technology and transportation network may intend the peaceful development of High-Assay Low-Enriched Uranium for electric power, production of medical isotopes and other uses. But such a massive and expensive program inevitably carries real implications for health and environmental damage as well as proliferation of highly-enriched uranium and theft, smuggling and unregulated enrichment activities. HALEU must not, intentionally or otherwise, become a commodity for the promotion of nuclear weapons.

Congress mandates that DOE consult with experts in nuclear nonproliferation, environmental safety, safeguards and security, and public health and safety. The only way to assure the public that those consultations take place, and that their scope fulfills congressional direction, is by means of compilation of a public Environmental Impact Statement. If DOE proceeds down this road, comprehensive treaty-compliance, nonproliferation, environmental and public health and safety concerns must be wholly addressed and accompanied by maximum opportunities for public participation and comment before any agency action is taken.

Thank you.

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