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# United States Senate

COMMITTEE ON  
ENERGY AND NATURAL RESOURCES

WASHINGTON, DC 20510-6150

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December 13, 2022

The Honorable Jennifer Granholm  
Secretary  
U.S. Department of Energy  
1000 Independence Ave., SW  
Washington, DC 20585

Dear Secretary Granholm:

I am deeply concerned that the Department of Energy (DOE) is not moving quickly enough to ensure a domestic source of high-assay, low-enriched uranium (HALEU) for advanced reactors. I request that you provide an update on DOE's efforts and answer the attached questions.

DOE has been slow to move forward with actions to ensure a domestic supply of HALEU. As a result, one advanced reactor developer, TerraPower, recently announced that it anticipates a schedule delay in the completion of its Sodium reactor due to the anticipated lack of HALEU.

DOE has sufficient stockpiles of excess and previously used uranium to meet TerraPower's needs. However, years after identifying these sources, DOE has yet to process sufficient amounts of this excess uranium into HALEU. At this point, no single pathway will likely be sufficient to meet TerraPower's schedule. On the other hand, if DOE took a comprehensive approach and pursued multiple pathways, it is feasible that DOE could produce sufficient HALEU to minimize schedule delays for TerraPower and other advanced reactor developers.

I would also note that DOE has not yet issued a request for proposals to establish commercial HALEU enrichment here in the United States. It is baffling why DOE has not moved forward to accelerate the availability of commercially enriched HALEU. Each day DOE delays action increases the risk to America's advanced reactor developers.

As Congress continues working to secure additional authorizations and appropriations for DOE's HALEU initiatives, it is imperative DOE expeditiously uses its existing authorities and the \$700 million in funding to make HALEU available for our nation's first class of advanced reactors.

I ask that you answer the following questions no later than December 30, 2022.

Sincerely,

  
John Barrasso, M.D.  
Ranking Member

## Questions

1. The Energy Act of 2020 authorized DOE to establish a HALEU consortium. DOE announced the consortium's establishment on December 7, 2022, two years after it was authorized to do so. DOE's press release stated that the consortium "will help inform DOE activities to secure a domestic supply of HALEU." Why did the Department take so long to establish this consortium, especially if it is needed to inform the Department's path forward?
2. Why hasn't DOE issued its request for proposals to incentivize commercial HALEU enrichment here in the United States?
3. When will DOE issue its request for proposals to incentivize commercial HALEU enrichment here in the United States?
4. When will DOE begin purchasing HALEU commercially enriched in the United States?
5. What is your best estimate for how long will it take to establish commercial HALEU enrichment capacity sufficient to produce 20 metric tons per year?
6. What is your best estimate for how long will it take to establish commercial deconversion of HALEU, including the capability to reduce uranium oxide to uranium metal?
7. During DOE's recent industry day, and in conversations since then, the nuclear industry, key stakeholders, and National Environmental Policy Act (NEPA) experts share a view that DOE's plan to spend two years developing an environmental impact statement (EIS) represents an unnecessary delay and is duplicative of work that has been, or will be, done by the Nuclear Regulatory Commission (NRC). This concern was echoed in a recent article by the nuclear energy advocate group, the Breakthrough Institute.<sup>1</sup>
  - a. Why does DOE insist on preparing an EIS when the uranium facilities in question have already completed the required reviews under NEPA, or will have completed such NEPA reviews, as part of the NRC's licensing process?
  - b. Why does DOE think it is necessary to develop an EIS when it plans to purchase enriched uranium from licensed and operating facilities that already undergo rigorous reviews under NEPA as part of the NRC's licensing process?
8. DOE recently awarded a follow-on contract to Centrus to demonstrate HALEU production. It is anticipated that this project and subsequent commercial-scale enrichment will utilize 5 percent enriched uranium for feedstock. However, experts have pointed out that feeding these centrifuges with 10 percent enriched uranium would significantly increase HALEU production rates and ultimately accelerate the availability of the quantities of HALEU needed by advanced reactor developers. Considering that some enrichers are currently pursuing the ability to produce 10 percent enriched uranium, how much HALEU could be produced and on what timeline if 10 percent uranium was used as feedstock compared to the current plan to use 5 percent enriched uranium?

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<sup>1</sup> <https://thebreakthrough.org/issues/energy/the-future-of-nuclear-energy-comes-down-to-the-fuel>

9. When does DOE anticipate making commercially enriched HALEU available sufficient to meet the needs of America's advanced reactor developers?
10. How will DOE prioritize making commercially enriched HALEU available to America's advanced reactor developers?
11. How is DOE prioritizing the availability of HALEU produced from DOE-owned stockpiles of previously used uranium and excess highly-enriched uranium?
12. Has DOE committed to making highly-enriched uranium or HALEU available to any advanced reactor projects or other end-users to date?
  - a. If so, how much, by what date, and in what form?
  - b. If so, what considerations were made when giving these projects priority access for limited material?
  - c. Could alternate sources of fuel be made available to such projects without negatively impacting their schedules?
13. Please list all sources and quantities of DOE-owned uranium that DOE plans to make available as HALEU to advanced reactor developers and other end-users, including when such quantities will be made available.
14. Please list other sources and quantities of HALEU that DOE has identified and seeks to make available to advanced reactor developers and other end-users, including when such quantities will be made available.
15. Please identify all potential sources and quantities of DOE-owned uranium (including previously used fuel and waste material) that DOE has determined cannot be feasibly made available as HALEU. Please include in the response DOE's rationale for its determination for excluding these materials as a potential source of HALEU.
16. Several years ago, DOE identified about 20 metric tons of HALEU equivalent material at the Savannah River Site. Had DOE started processing that material at the time, DOE would have 20 tons of HALEU on hand this year. While this material is not ideal because of impurities and the high cost to process, it is technically possible to process and clean up this material sufficient for use in advanced reactors. Fuel fabrication could also be a challenge, but is something that could be done by DOE's national laboratories or at least one commercial fabricator.
  - a. Realizing this may be one of the only options to avoid reliance on Russia, why didn't DOE request funding to pursue this option when it was first identified as a possible solution?
  - b. Why hasn't DOE requested funding to pursue this option in subsequent years?

- c. How long would it take to begin producing HALEU from this material?
  - d. How many tons of HALEU per year could be produced?
17. Multiple potential sources of HALEU exist at the Idaho National Laboratory, including used Experimental Breeder Reactor II (EBR-II) fuel, used Advanced Test Reactor fuel, used naval reactor fuel, and other sources of uranium declared excess to national security needs.
- a. Please list each source and the quantity of HALEU that could be produced from each source.
  - b. How does DOE plan to utilize these sources to make HALEU available?
  - c. What actions has DOE taken to make available HALEU from these sources?
  - d. What additional actions are necessary to fully utilize this material for HALEU availability?