EDDIE BERNICE JOHNSON, Texas
CHAIRWOMAN

FRANK D. LUCAS, Oklahoma
RANKING MEMBER

Congress of the United States
House of Representatives

COMMITTEE ON SCIENCE, SPACE, AND TECHNOLOGY

2321 RAYBURN HOUSE OFFICE BUILDING

WASHINGTON, DC 20515–6301

(202) 225–6375
www.science.house.gov

November 13, 2019

The Honorable Rick Perry
Secretary
U.S. Department of Energy
1000 Independence Avenue SW
Washington, DC 20585

The Honorable Dan Brouillette
Deputy Secretary
U.S. Department of Energy
1000 Independence Avenue SW
Washington, DC 20585

Dear Secretary Perry and Deputy Secretary Brouillette,

We are deeply concerned about the Department of Energy's award to Centrus Energy Corporation to demonstrate a method of producing High-Assay Low-Enriched Uranium (HALEU).[1] While the Committee on Science, Space, & Technology supports the Department's research activities to accelerate the development of advanced nuclear reactor technologies and concepts in general, we have questions about how this contract was funded, why other companies were not allowed to compete for the award, and whether the need for HALEU in the near-term is well-supported.

HALEU

The uranium isotope commonly used as a fuel in nuclear reactors is Uranium-235 (U-235). This isotope occurs naturally in low concentrations in the uranium in the earth. Using high-efficiency centrifuges, uranium can be enriched to higher concentrations of U-235, which can then be used in both civilian and defense nuclear applications. Civilian nuclear reactors used for electricity

[1]Department of Energy. Notice of Intent to Sole Source - Solicitation Number: 89303519CNE000005_AddQA. January 11, 2019. Accessed at https://www.fbo.gov/index?s=opportunity&mode=form&id=d623daed774f5bcbd6750a29d2692641&tab=core&_cview=0

production today generally require low enriched uranium (5% or less U-235). Highly enriched uranium—used in nuclear weapons—contains concentrations of at least 20% U-235 and is usually enriched to about 90%.[2] HALEU is a third category of fuel made with concentrations of U-235 between 5% and 20%. HALEU is manufactured either by enriching lower concentrations or down-blending higher concentrations of U-235.

The commercial nuclear industry has expressed interest in a reliable supply of HALEU because nearly all of the proposed advanced reactor designs being developed today will require HALEU for fuel to operate.[3] Today, nuclear energy provides more than half of our nation's emission-free electricity and advanced nuclear reactor concepts will be an important component of our clean energy future, because they are designed to deliver the same zero-carbon, high capacity-factor electricity that our nation's current nuclear fleet provides, but with added safety, security, and flexibility.

The Department issued a Notice of Intent on January 7, 2019, to award a no-bid contract to Centrus to demonstrate production of HALEU.[4] On May 31, 2019, the Department formally noticed the award and accompanying Justification for Other than Full and Open Competition. Under this award, the Office of Nuclear Energy would award Centrus a $115 million contract over a three-year period to achieve the demonstration of HALEU production by June 2022.[5] Later documentation from the Department indicates that its allocation for this project in FY2019 was $35 million. The Department's FY2020 budget request suggests that the Department's goal for achieving demonstration is not June 2022, but the end of FY2021.[6] The contract that DOE signed with Centrus on October 31, 2019 itself names two competing dates for the demonstration milestone: April 1, 2022 and June 1, 2022.

DOE's Requirement for HALEU Demonstration by 2021 or 2022

Although the availability of HALEU for credible present and future applications is important, the Department has not presented adequate justification for requiring a new demonstration of HALEU production by September 30, 2021, April 1, 2022, or June 2022. The Department's own Nuclear Energy Advisory Committee (NEAC)—the technical advisory body that exists to give independent expert advice on nuclear issues—has noted that at least two other alternative

---

[2]World Nuclear Association. *Military Warheads as a Source of Nuclear Fuel.* February 2017. Accessed at https://www.world-nuclear.org/information-library/nuclear-fuel-cycle/uranium-resources/military-warheads-as-a-source-of-nuclear-fuel.aspx

[3]Korsnick, Maria. Nuclear Energy Institute. Letter to The Honorable Rick Perry, Secretary of Energy. July 5, 2018. Accessed at https://www.nei.org/CorporateSite/media/filefolder/resources/letters-filings-comments/letter-perry-haleu-20180705.pdf

[4]U.S. Department of Energy. Notice of Intent to Sole Source - Solicitation Number: 89303519CNE000005_AddQA. January 11, 2019. Accessed at https://www.fbo.gov/index?s=opportunity&mode=form&id=d623daed774f5bcbd6750a29d2692641&tab=core&_cview=0

5U.S. Department of Energy. Contract Award Number 89303519CNE000005. May 31, 2019. Accessed at https://www.fbo.gov/index?s=opportunity&mode=form&tab=core&id=e000d27ae6a3ea75169b043a5970ce71&_cview=0

[6] U.S. Department of Energy. Fiscal Year 2020 Budget Request. April 2019. Accessed at https://www.energy.gov/sites/prod/files/2019/04/f61/doe-fy2020-budget-volume-3-Part-2.pdf.

programs that could potentially provide serviceable quantities of HALEU already exist.[7] Congress provided $20 million for highly enriched uranium recovery preparation and testing to support needs for HALEU in FY2019 with the intent of funding these alternative programs.[8]

In the commercial reactor space, several companies have introduced proposals for new advanced reactor concepts. Out of all the advanced nuclear reactor designs currently going through the Nuclear Regulatory Commission's licensing process, NuScale Power is by far the closest to deployment. NuScale, through its agreement with Utah Associated Municipal Power Systems, has announced that it expects to achieve commercial operation with its small modular reactor in 2026.[9] However, this reactor design would not require HALEU for its operation.

In short, although there are multiple prospective advanced reactor concepts that would require HALEU, it is extremely unlikely that any of them will be sufficiently developed for commercial operation in the near future and therefore would not require a HALEU supply in the timeframe set forth by the Department. Further, the Department's National Nuclear Security Administration (NNSA) projects that new HALEU for research reactors and medical isotope production will not be required until 2035.[10] Additional discussion on potential Department of Defense applications for HALEU are below.

Inadequate Justification for its Sole-Source Award

The Department did not provide adequate justification for awarding the Centrus contract on a sole-source basis. Section 951 of the Energy Policy Act of 2005, the authorizing statute for the Department's Office of Nuclear Energy, clearly states that "the Secretary shall conduct programs of *civilian* nuclear energy research, development, demonstration, and commercial application" (emphasis added).[11] Since all of the proposed funding is to be drawn from the Office of Nuclear Energy—with no NNSA or Department of Defense support— then to be in accordance with the law, the primary purpose of this project must be for civilian energy applications.

However, in its May 2019 justification for granting the sole-source award, the Department stated that Centrus was the only firm qualified because it is U.S.-owned and controlled, and thus would

---

[7]Nuclear Energy Advisory Committee (NEAC) Existing Fleet Subcommittee. "Initial Report to the Nuclear Energy Advisory Committee (NEAC) and the Assistant Secretary for Nuclear Energy." March 2019. Accessed at https://www.energy.gov/sites/prod/files/2019/04/f61/NEAC%20EF%20Subcommitte%20Report%201%20FINAL.pdf

[8]Id. See also U.S. House of Representatives, Committee on Appropriations, Subcommittee on Energy & Water Development. House Report 115-929 (Conference Report). Accessed at https://www.congress.gov/115/crpt/hrpt929/CRPT-115hrpt929.pdf

[9]NuScale Power. "UAMPS at vanguard of NuScale's relentless march towards commercialization." Accessed at https://www.nuscalepower.com/newsletter/nucleus-fall-2018/uamps-update

[10]U.S. Department of Energy National Nuclear Security Administration (NNSA). "Uranium Enrichment Industry Day." Slideshow. November 1, 2017. Accessed at https://gain.inl.gov/SiteAssets/HALEU/NNSAIndustryDayNov12017.pdf

[11] The Energy Policy Act of 2005. Public Law 109-58. August 8, 2005. Accessed at https://www.congress.gov/109/plaws/publ58/PLAW-109publ58.pdf

allow for HALEU produced by Centrus to be used in "defense-related" advanced reactor applications.[12] The letter of that requirement in the justification reads as follows:

> *V. Unique Qualifications of the Proposed Contractor or Nature of Action Requiring Use of the Authority: ACO is the only source capable of executing the contract activities to meet the requirements of the HALEU Demonstration Program. DOE's objective is to demonstrate the capability to produce HALEU by June 2022 utilizing U.S.-origin uranium enrichment technology. The use of existing U.S.-origin enrichment technology is needed in order to meet this schedule. Demonstrating the capability of U.S.-origin enrichment technology for the production of HALEU is the objective because only U.S.-origin technology would be capable of producing HALEU for use in any type of advanced reactor application, civilian or defense-related. The AC-100M enrichment technology is the only existing U.S.-origin uranium enrichment technology, and, further, it has the potential to be deployed at a commercial-scale serving the broadest market need. In addition, due to the sensitive nature regarding access to and operation of U.S.-origin enrichment technology, the Department requires the contractor to be a U.S.-owned and U.S.-controlled entity. ACO, as well as Centrus Energy Corp., are U.S.-owned and U.S.-controlled entities. Further, ACO is the only U.S.-owned and -controlled entity with an existing NRC license that would enable it to meet DOE's schedule for the demonstration, and ACO is currently subleasing DOE's facility in Piketon, Ohio designed for uranium enrichment operations. ACO is in this unique position because it developed the AC-100M centrifuge and associated equipment; it possesses proprietary data associated with advanced designs related to that technology; and it has demonstrated technical expertise in operating the AC-100M equipment and technology. In sum, ACO is the only U.S.-owned and -controlled entity capable at this time to demonstrate and operate the only existing U.S.-origin uranium enrichment technology on the required schedule.*[13]

The language of the justification suggests that the Department is making the award in order to satisfy some perceived need for the Department of Defense or some other national security application. If the Department intends for the demonstration project to fulfill requirements for significant defense as well as civilian purposes, the Committee would expect to see the project supported by funds outside of the Office of Nuclear Energy.

Although the Committee would be supportive of the production of HALEU fuel for advanced reactors by a company headquartered in the United States as the result of a competitive selection process, the Department has not provided any written justification for why a U.S.-based company headquarters would be required even for a dual defense-civilian application of the project. Department staff indicated in a phone conversation with Committee Staff on April 10, 2019, that the defense-related goal for the HALEU demonstration could potentially be in support of a Department of Defense project related to the military's use of small mobile nuclear reactors for electricity in remote locations. However, the Pentagon only issued a Request for Information

---

[12]U.S. Department of Energy. Contract Award Number 89303519CNE000005. May 31, 2019. Accessed at https://www.fbo.gov/index?s=opportunity&mode=form&tab=core&id=e000d27ae6a3ea75169b043a5970ce71&_cview=0

[13]U.S. Department of Energy, Nuclear Energy Oak Ridge Site Office. Justification for Other Than Full and Open and Competition. Contract Award Number 89303519CNE000005. May 31, 2019. Accessed at https://www.fbo.gov/utils/view?id=d6414a76faf5d816299ba5be6059c2a1

for those purposes in January 2019[14] and a Request for Solutions in May 2019.[15] DOD has not yet invested any direct funds in the development of these technologies or issued any requirements for their use. This is a strong indication that the Department of Defense does not have a near-term need for HALEU to support any defense applications that may ultimately result from these investments made by the Department of Energy.

During this same phone call, Department staff also indicated that the 1992 Treaty of Washington, which governs uranium enrichment activities in the United States, is the reason the Department sought U.S.-origin enrichment technology.[16] Despite numerous requests, the Committee has not received additional clarification from the Department on how the Treaty of Washington limited the Department's options and ultimate decision in this matter. Although domestic sourcing of nuclear fuel may be a desirable goal for both commercial and national security reasons, the integrity of the contracting process demands a legal justification.

We appreciate that it is a positive outcome when federally-supported demonstration projects result in incidental co-benefits that solve problems for other agencies or industries. But we note that the entire decision to issue the award to Centrus on a sole-source basis seems organized around outcomes that would advantage the Department of Defense exclusively, which has neither contributed financially to the demonstration nor articulated a formal requirement or needs assessment concerning HALEU.

The Committee is also not aware of any reason why the civilian applications for HALEU would require it to be produced by a U.S.-headquartered company. Indeed, about 90% of the uranium used for civilian nuclear power in 2018 was sourced from outside of the United States.[17] There are other enrichment companies that could meet the requirements of the demonstration program. For example, Urenco USA testified at a House Energy and Commerce Subcommittee hearing on May 22, 2018, that its New Mexico facility could be modified to produce HALEU using its existing technology and within 24 months of the Nuclear Regulatory Commission amending its operating license.[18]

---

[14]Solicitation Number: RFI-01182019-RD-WHS019. https://www.fbo.gov/index?s=opportunity&mode=form&tab=core&id=5f70e466e904a1b12748d6e04fcbaad4&_cview=0

[15] https://govtribe.com/opportunity/federal-contract-opportunity/request-for-solutions-pele-requestforsolutionspele

[16]Treaty between the Three Governments of the United Kingdom of Great Britain and Northern Ireland, the Federal Republic of Germany and the Kingdom of the Netherlands and the Government of the United States of America regarding the Establishment, Construction and Operation of a Uranium Enrichment Installation in the United States. July 24, 1992. Accessed at http://fissilematerials.org/library/urenco92.pdf.

[17]Congressional Research Service. *Section 232 Investigation: Uranium Imports*. July 15, 2019. Accessed at https://www.everycrsreport.com/files/20190715_IN11145_51896b0cd6f998949a8b7483f2425b6b1c13ca13.pdf

[18]Mann, Melissa, URENCO USA, Inc. Testimony before the House Committee on Energy & Commerce, Subcommittee on Energy. May 22, 2018. Accessed at https://energycommerce.house.gov/sites/democrats.energycommerce.house.gov/files/documents/Testimony-Mann-EP-Hrg-on-DOE-Legislation-Advanced-Nuclear-Energy-Tech-2018-05-2_0.pdf

Funds Raided from University Research Program

The Department's approach to paying for the HALEU award by raiding another meritorious program without congressional notification is troubling. The Department did not request FY2019 appropriations for a demonstration of HALEU production. Accordingly, Congress did not allocate funds for this specific activity in the FY2019 spending minibus.[19] In order to gather the funding needed to make the award to Centrus, the Department withdrew $23 million from the Nuclear Engineering University Program (NEUP)—nearly one-third of its overall funding—in the middle of its funding cycle.[20] While this did not violate specific congressional guidance, the Department should have taken significant steps to work with and notify its congressional committees of jurisdiction of this action and intent.

The Nuclear Engineering Department Heads Organization (NEDHO) wrote to you on February 1, 2019, saying that this raid of the NEUP account would deliver a significant blow to university-based education programs in nuclear engineering and related disciplines across the United States.[21] The Department's withdrawal of NEUP's funding effectively shut out many university faculty members from federal research funding for at least a year, and possibly longer.

While the reductions in funding to the university sector are concerning, we are also alarmed at the timing of the cuts. The notice to the universities came just before their proposals were due, and NEDHO reported that as a result, "hundreds of hours of effort towards creating research proposals were summarily lost."[22] Sustained federal support for university research is critical to maintaining U.S. leadership in the global nuclear community and preparing our future workforce of nuclear engineers. When the Department abruptly changes course in this manner, it erodes public trust in government, sending a signal to the academic community and the private sector that it may not be worth their time to pursue cost-shared research opportunities in the future.

In its March 2019 report, NEAC said that "we are extremely concerned not only with the cuts, but with the process that led to them." NEAC recommended that the Department's Office of Nuclear Energy "reexamine its method of dealing with such short-term budget issues" and restore its support for NEUP to 20% of the Office of Nuclear Energy's research and development funds in the future.[23]

---

[19] Consolidated Appropriations Act of 2019. Public Law 115-244 and accompanying report. September 21, 2018. Accessed at https://www.congress.gov/115/plaws/publ244/PLAW-115publ244.pdf.

[20] Nuclear Energy Advisory Committee (NEAC) Existing Fleet Subcommittee. "Initial Report to the Nuclear Energy Advisory Committee (NEAC) and the Assistant Secretary for Nuclear Energy." March 2019. Accessed at https://www.energy.gov/sites/prod/files/2019/04/f61/NEAC%20EF%20Subcommitte%20Report%201%20FINAL.pdf.

[21] See Appendix.

[22] Id.

[23] Nuclear Energy Advisory Committee (NEAC). "Report to NEAC Fuel Cycle and Infrastructure Subcommittee." March 14, 2019. Accessed at https://www.energy.gov/sites/prod/files/2019/04/f61/Fuel%20Cycle%20%26%20Infrastructure%20SC%20Report%203-14-2019.pdf

Lack of Cost Share

The Department's written descriptions suggest the Centrus award includes a non-federal cost-share.[24] Section 988(c) of the Energy Policy Act of 2005 requires no less than a 50% cost share from a non-federal source for demonstration projects supported by the Department.[25] Yet the October 31, 2019 contract for the project describes a cost-sharing ratio of 80-20, in which the Government may be responsible for up to 80% of costs incurred. The Committee has not been able to identify any further documentation from DOE about its cost-share plans despite requests for further information.

Requests for Documents and Information

In order to illuminate the Department's process and justification for issuing the sole-source award to Centrus, Committee staff first reached out to the Department on this matter on April 10, 2019. Thus far, we have received unsatisfactory responses to our repeated requests for briefings, clarification, and documentation. On September 11, 2019, we were told the Committee would receive by September 13, 2019, a response to a discrete set of questions we sent to the Department on August 8, 2019. As of today, the Committee is still awaiting this response. This lack of cooperation is impeding the Committee in carrying out its constitutionally-mandated oversight responsibilities.

Please address the following requests and questions no later than December 3, 2019:

1. The timelines presented in the Department's FY2020 budget request and other written descriptions of the award to Centrus are inconsistent with the May 31, 2019 Justification for Other than Full and Open Competition (JOFOC). Please confirm whether DOE intends to demonstrate HALEU production by September 30, 2021, June 2022, or some other date.

2. If the Centrus project is intended to satisfy Department of Defense requirements in addition to civilian power production goals of the Office of Nuclear Energy, please provide a breakdown of the project activities committed to satisfying defense vs. civilian missions, including associated funding amounts.

3. The May 31, 2019 justification for executing a sole source award to Centrus states that "due to the sensitive nature regarding access to and operation of U.S.-origin enrichment technology, the Department requires the contractor to be a U.S.-owned and U.S.-controlled entity."

    a. Did the Department document this requirement in writing in greater detail? If so, please share those documents.
    b. What specific passages in law, regulation, or treaty underpin this requirement?

---

[24]U.S. Department of Energy. Fiscal Year 2020 Budget Request. April 2019. Accessed at https://www.energy.gov/sites/prod/files/2019/04/f61/doe-fy2020-budget-volume-3-Part-2.pdf
[25]The Energy Policy Act of 2005. Public Law 109-58. August 8, 2005. Accessed at https://www.congress.gov/109/plaws/publ58/PLAW-109publ58.pdf

c. How does the Department define "U.S.-origin" as used in the Justification for Other than Full and Open Competition?
d. If the Centrus demonstration is intended to satisfy some requirement for HALEU at the Department of Defense, please direct us to that specific requirement or needs statement.
e. Has the Department examined the costs and benefits of other technologies to produce HALEU and the costs and benefits of other sources of HALEU? Has the Department examined the costs and benefits of potential HALEU sources that would not meet the U.S.-origin requirement? If so, please provide a summary of those assessments to the Committee.

4. Please confirm and provide documentation that the Centrus materials and technologies to be used for the HALEU demonstration are of U.S. origin as of May 31, 2019. Please provide documentation of any Centrus materials or technologies to be used for the HALEU demonstration that are not of U.S. origin as of May 31, 2019.

5. Please provide the year-by-year levels of cost share funding to be provided by a non-federal source for the HALEU Civil Nuclear Enrichment demonstration program. Please provide a copy of the required Secretarial determination and the basis for reducing the minimum requirement for the non-federal cost share in order for this activity to be in compliance with Section 988 of the Energy Policy Act of 2005.

6. The January 2019 award to Centrus was made at the expense of the NEUP program within the Office of Nuclear Energy.

    a. Did the Department identify the three NEUP Integrated Research Projects that were cancelled in the middle of the performance cycle as a result of this decision prior to making the decision to divert their funding to the Centrus award?
    b. Did the Department evaluate the opportunity cost to the taxpayer of NEUP projects being eliminated in the middle of the performance cycle?

7. Please provide any documentation the Department used to justify its rationale for requiring the demonstration of HALEU production by September 30, 2021, April 1, 2022 and/or June 2022.

8. Please provide any communications that Department personnel had with Centrus prior to the Department issuing a Notice of Intent regarding this award on January 7, 2019.

Pursuant to Rule X of the U.S. House of Representatives, the Committee on Science, Space, and Technology shall review and study on a continuing basis laws, programs, and Government activities relating to nonmilitary research and development.[26]

[26]U.S. House of Representatives. Rules of the House of Representatives. Rule X, Organization of Committees. Accessed here: https://www.govinfo.gov/content/pkg/HMAN-115/xml/HMAN-115-pg441.xml

Please produce two sets of the requested records in a searchable electronic format. One set should be delivered to the Majority Staff of the Science Committee in Room 2321 of the Rayburn House Office Building and one set should be delivered to the Minority Staff in Room 394 of the Ford House Office Building. We request that you provide the requested records no later than close of business on December 3, 2019.

Thank you for your attention to these matters. Please contact Ms. Janie Thompson at 202-225-6375 with any questions.

Sincerely,

MIKIE SHERRILL
Chairwoman
Subcommittee on Investigations & Oversight

RALPH NORMAN
Ranking Member
Subcommittee on Investigations & Oversight

CONOR LAMB
Chair
Subcommittee on Energy

RANDY WEBER
Ranking Member
Subcommittee on Energy

Cc:

EDDIE BERNICE JOHNSON
Chairwoman
Committee on Science, Space & Technology

FRANK LUCAS
Ranking Member
Committee on Science, Space & Technology