URANIUM PRODUCERS OF AMERICA
141 EAST PALACE AVENUE, POST OFFICE Box 669, SANTA FE, NEW MEXICO 87504-0669
TELEPHONE (505) 982-4611; www.theupa.org

**STATEMENT OF SCOTT MELBYE**
*President, Uranium Producers of America*
*Executive Vice President, Uranium Energy Corp*

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**U.S. SENATE COMMITTEE ON ENERGY AND NATURAL RESOURCES**

**FULL COMMITTEE HEARING ON OPPORTUNITIES AND CHALLENGES FACING DOMESTIC CRITICAL MINERAL MINING, PROCESSING, REFINING, AND REPROCESSING**

## I. INTRODUCTION

My name is Scott Melbye and I am the Executive Vice President of Uranium Energy Corp (UEC) with operations in the states of Wyoming and Texas. As a second-generation American uranium miner, I am proud to serve as the President of the Uranium Producers of America (UPA), the trade association representing the domestic uranium mining and conversion industry. It is an honor to testify once again before the Senate Energy and Natural Resources Committee, today on an urgent subject with grave implications for our national and energy security – the U.S.'s current reliance on our strategic competitors for critical minerals like uranium.

I have been fortunate to have been involved in the nuclear industry for the past 37 years in every facet of the international fuel cycle from the production and global marketing of uranium to its use as clean-energy fuel in the three-unit Palo Verde Nuclear Station near Phoenix, Arizona.

Together, UPA's members have a deep and unparalleled understanding of the nuclear industry – it's complexities, its challenges, and its many opportunities to help the United States achieve an energy independent, climate resilient future. UPA members conduct uranium exploration, development and mining operations in Arizona, Colorado, Nebraska, New Mexico, Texas, Utah, and Wyoming. Our membership also includes the lone remaining conversion facility in the United States in Illinois and the last operating conventional uranium mill in the United States in Utah, which has recently innovated and invested to create a new domestic rare earth element supply chain. Our member enrichment company is based in North Carolina and Kentucky. We are committed to helping the United States further its energy and critical mineral goals, and to being responsible environmental stewards of the communities in which we live, work, and raise our families.

Nuclear power is an indispensable part of the American economy. The 93 commercial nuclear reactors currently in operation in the U.S. power 1 in 5 American homes and provide over 50 percent of our carbon-free power. The U.S. simply cannot meet President Biden's emissions reduction and electrification goals without nuclear power. As we integrate more and more variable sources of energy like wind and solar onto the grid, nuclear power represents crucial carbon-free baseload capacity that ensures that the lights always come on. The continued reliable operation of the U.S. nuclear fleet requires a secure supply of uranium and nuclear fuel.

Unfortunately, Russia and its allies have in recent years employed predatory market practices to cultivate America's dangerous reliance on the Kremlin and its allies for uranium and nuclear fuel. Almost none of the fuel needed to power America's nuclear fleet today comes from domestic producers, while U.S. nuclear utilities purchase nearly half of the of the uranium they consume from state-owned entities (SEO) in Russia, Kazakhstan, and Uzbekistan. We estimate that there is more than $1 billion in annual U.S. dollar purchases of nuclear fuel flowing to ROSATOM – the Russian State Atomic Energy Corporation – which is an extension of the Kremlin and the Russian Military. The situation is an urgent threat to our national security, something that Geraldine Richmond, the Department of Energy's (DOE) Undersecretary for Science and Innovation, emphasized in her testimony before this very committee earlier this month. The good news is that we still have the ability to reassert control over our nuclear energy future. Today I would like to offer a roadmap for ending U.S. reliance on Russia for nuclear fuel.

## II. IMPOSE A BAN ON RUSSIAN URANIUM IMPORTS

U.S. dollar uranium purchases are fueling Vladimir Putin's war machine, which threatens a generation of relative peace in Europe and is decimating the nation of Ukraine and its people through barbaric and horrifying acts of unprovoked violence. It is simply unconscionable that the U.S. continue to allow the Putin regime to benefit from our dependence on Russian uranium and nuclear fuel. Since the start of the war in Ukraine, this Congress has shown bipartisan support for economically isolating Vladimir Putin and Russia. To this end, Congress pushed the Administration to ban the import of Russian oil, natural gas, and coal with bipartisan legislative efforts in both chambers.

The UPA strongly supports legislation to impose a similar ban on Russian uranium imports. This legislation has been introduced in the Senate (S.3856) by Senators John Barrasso (R-WY), Cynthia Lummis (R-WY), Kevin Cramer (R-ND), and Roger Marshall (R-KS). The same legislation has been introduced in the House of Representatives (H.R. 7222) by Representatives Pete Stauber (R-MN), Vicente Gonzalez (D-TX), and Henry Cuellar (D-TX). The U.S. has ample uranium resources and the capacity to produce them at the highest environmental, safety, and health standards in the world. Together with free world uranium suppliers in Canada, Australia, and Europe, UPA's member companies stand ready to work with U.S. utilities, Congress, and the Administration to ensure every existing and planned domestic reactor will be able to maintain operations. Collectively, the U.S. nuclear fleet has significant inventory that can be drawn upon while Western producers of uranium in the mining, conversion, and enrichment sectors ramp up production and expand their capacity in response to increased demand.

Russia's war against Ukraine has already cast a shroud of uncertainty over nuclear markets. U.S. utilities losing access to artificially low-priced Russian uranium may cause some short-term financial pain. UPA strongly supports the $6 billion Civilian Nuclear Credit Program that was fully funded in the bipartisan infrastructure law to provide financial relief to economically distressed nuclear reactors. We call on DOE to accelerate its implementation of this program in light of the Russian invasion. Russia's aggression is a wake-up call that the reliance on Russia for nuclear fuel comes with its own steep costs. The sooner we decouple our nuclear industry from Russia, the sooner Western nuclear markets can get to work to fill the gap. A robust domestic supply chain for nuclear fuel has never been more important for our nuclear fleet, which we hope to not just sustain but also significantly expand into the future.

## III. IMMEDIATELY ESTABLISH AND EXPAND THE STRATEGIC URANIUM RESERVE

I have testified in front of this committee on this issue before, and the urgency to establish the Strategic Uranium Reserve (the "Reserve") has only increased with Russia's aggression. The Reserve is the result of multiple federal investigations and studies, including the Department of Commerce's (DOC) Section 232 investigation of uranium imports, which in July 2019 determined that the U.S.'s reliance on uranium imports threatens national security.[1] As a result of the DOC's Section 232 determination, the DOE participated with numerous other

[1] *The Effect of Imports of Uranium on The National Security: An Investigation Conducted Under Section 232 of the Trade Expansion Act of 1962, As Amended* (Department of Commerce, April 14, 2019) (released July 30, 2021).

cabinet agencies in the federal interagency Nuclear Fuel Working Group (NFWG), which reported in April 2020 that the domestic mining and conversion industries are at the most immediate risk due to our over-reliance on imported uranium.[2] This is why the NFWG recommended creating the Reserve, under which DOE will make direct purchases of domestically mined and converted uranium. This will shore up our domestic nuclear fuel supply chain against foreign state actors like Russia that have a track record of weaponizing their energy resources.

Currently, there is almost no uranium being mined in the United States. The sole U.S. converter, ConverDyn, has been on standby for several years. ConverDyn announced it will restart its operations in 2023 due in part to the promise of the commencement of the Reserve. Domestic mining operators are also ready to ramp up subject to prices reflecting the cost of production. The licenses, permits, facilities, and storage capacity needed to start this program are in place and ready to be activated.

Congress funded the Reserve at $75 million for Fiscal Year (FY) 2021, yet fifteen months later the DOE has not yet stood up the program. DOE must stop delaying and move forward on this program immediately. In the meantime, Congress must continue its support of the Reserve and provide the funding it needs to do be effective. The DOE's initial request for the uranium reserve was $150 million annually and the NFWG recommended the program span ten years. To be clear, this recommendation was to maintain a minimal industrial base and the NFWG recognized the potential need to expand the Reserve if warranted.

We urge Congress to at minimum provide the full funding initially requested by DOE. DOE should also increase its budget request for this program for FY 2023 and beyond considering Russia's military aggression and the Western economic decoupling with Russia. Long-term contracts aided by budget certainty is the most effective tool at DOE's disposal to stimulate the production needed to eliminate our reliance on Russia.

## IV. DEVELOP ALTERNATIVES TO RUSSIAN SOURCES OF HALEU

The next generation of advanced nuclear power will run on High-Assay Low-Enriched Uranium (HALEU). In November of last year, DOE announced a historic $2 billion commitment to a new HALEU-powered reactor in Wyoming planned to come online in 2028. More projects will follow and advanced nuclear is going to be key to achieving clean energy goals. The bad news is the only current source of commercial HALEU is Russia. Without swift action to develop alternatives, the next generation of advanced nuclear power, backed by significant taxpayer support, may be entirely dependent on Russian-supplied fuel. Given Russia's aggression in Ukraine, this situation has never been more clearly unacceptable. The DOE must move with greater urgency to establish domestic HALEU production capabilities, including issuing a request for proposals, that along with revitalized domestic uranium mining and conversion capabilities will form a more stable HALEU supply chain. Congress can also support the development of a domestic source of HALEU through appropriating more funds to incentivize U.S. production and the development of next generation enrichment technologies.

[2] *Restoring America's Competitive Nuclear Energy Advantage: A Strategy to Assure U.S. National Security* (Department of Energy, April 23, 2020).

In the meantime, Congress and DOE should leverage NNSA's inventories of highly enriched uranium (HEU) alongside existing domestic mining and conversion capacity to meet initial commercial HALEU requirements. Through the down-blending of existing HEU inventories, DOE could quickly create a domestic source of HALEU for advanced reactors as an alternative to HALEU provided by Russian SOEs until domestic HALEU capabilities can be established. The NNSA's inventories to meet defense requirements are finite and down-blending for HALEU would require the replenishment of material sooner than currently planned. But the domestic uranium mining and conversion industries have ample capacity that could, in partnership with DOE and NNSA, be used to produce the unobligated, U.S.-origin $U_3O_8$ and $UF_6$ equivalent to replenish the down-blended material.

## V. URANIUM AS A CRITICAL MINERAL

Uranium is essential to maintaining U.S. critical infrastructure sectors, including the nation's 93 reactors for nuclear power generation and national defense requirements. As noted by DOC in its Section 232 report, domestic uranium is required by law to satisfy the Department of Defense (DOD) requirements for maintaining effective military capabilities. A vibrant domestic nuclear fuel supply chain is required to support future U.S. national security missions that can only use unobligated U.S.-origin supply. The distinct stages of the U.S. nuclear fuel cycle extract uranium from the ground and ultimately transform it into fuel suitable for civilian nuclear power. The same stages of the U.S. nuclear fuel cycle are needed to fulfill national defense requirements for uranium to support the nuclear Navy and tritium production. The DOC Section 232 Report also specifically noted "the supply of U.S.-mined uranium will be critical as a feedstock for producing LEU and HEU in an enrichment facility that is planned to serve national defense needs."[3]

Uranium's importance for DOD has only grown in a rapidly changing threat environment where Russia is openly belligerent towards the U.S. and the West. With Russia actively engaged in a destructive and deadly land war in Europe and DOD's ongoing strategic concerns in the Pacific, defense capabilities must be at peak readiness. Russia's aggression is even more concerning given its dominance as a global uranium supplier, especially to the U.S. nuclear fleet, which is the largest nuclear fuel consumer in the world.

Uranium could not be more critical, which makes the U.S. Geological Survey's (USGS) recent decision to remove the uranium from the federal critical minerals list both puzzling and dangerous. The USGS removed uranium because the Energy Act of 2020 excludes "fuel minerals" from the definition of "critical mineral." The term "fuel mineral" is not further defined in the Energy Act, and the USGS conducted no analysis of the critical non-fuel uses of uranium that led the USGS to place uranium on the list in 2018. USGS's 2018 list of critical minerals was developed pursuant to Executive Order 13817 (82 FR 60835, December 26, 2017), Section 2 of which similarly defined "critical mineral" as "a non-fuel mineral or mineral material essential to the economic and national security of the United States." On June 25, 2019, Dr. Steven Fortier, Director of the USGS National Minerals Information Center, testified before the House Natural Resources Subcommittee on Energy and Minerals Resources regarding uranium's non-fuel uses

[3] See DOC Section 232 Investigation Report, page 86.

important to economic and national security, including "radiation shields, counterweights, and armor piercing kinetic energy penetrators, as well as medical applications such as medical isotope production."

The USGS has failed to adequately explain the reversal of its position. The removal of uranium sends a dangerous message to our adversaries at the worst time considering the USGS published its final list of critical minerals mere days after Russia invaded Ukraine. The similarities of the uranium industry's challenges with Russia to our rare earth and critical mineral dependence on China is startling. The USGS's decision will now have real and damaging consequences. As we work to eliminate our dependence on Russian uranium, the federal government's coordinated effort to promote the development of critical minerals no longer includes uranium. For example, Section 40206 of the bipartisan infrastructure law contained improvements to the quality and timeliness of federal permitting and review processes with respect to critical mineral production on Federal land. This includes establishing and adhering to timelines and schedules that will help create regulatory certainty for critical mineral projects. Because USGS has now removed uranium from the federal critical mineral list, uranium will no longer benefit from these common-sense permitting improvements available to federally recognized critical minerals.

## VI. THE DOMESTIC URANIUM INDUSTRY CAN MEET THE CHALLENGE

America's uranium producers are cost-competitive globally but for the price undercutting tactics of state-owned companies. Given a level global playing field, the domestic uranium industry has the capacity to produce significant quantities of cost-competitive uranium. According to the Energy Information Administration (EIA), currently licensed/partially licensed operating and standby in situ recovery production capacity is about 22 million pounds of uranium concentrate production per year. Licensed conventional mill capacity equates to approximately 24 million pounds of uranium concentrate production per year. This annual capacity of 46 million pounds is almost the same as the average amount of uranium loaded into U.S. reactors from 2010-2019 (46.6 million pounds).[4]

There are also significant uranium resources for the future. The USGS reports that the U.S. holds approximately 1.2 billion pounds of known, reasonably assured, and inferred resources, and that it has more than three times that amount in prognosticated undiscovered resources.[5] With swift action to decouple the U.S. nuclear industry from Russia and bolster the free market supply chain in the form of policies like the Strategic Uranium Reserve, we can take control of our clean energy future and ensure a domestic source of uranium to meet critical national defense needs.

[4] EIA Uranium Marketing Annual Reports - Table 18.

[5] *Critical Analysis of World Uranium Resources* (U.S. Dept. of Interior, U.S. Geological Survey, Susan Hall and Margaret Coleman, 2012).