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The U.S. Department of Energy headquarters in Washington, D.C. The DOE is moving forward with programs that could bolster the production of uranium that could be used for its existing nuclear fleet and for future reactors.

Photographer: Andrew Harrer/Bloomberg

Russian Uranium Dominance Leaves U.S. Scrambling to Catch Up

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The Biden administration is working to accelerate domestic uranium production despite environmental concerns, as the U.S. seeks to lessen reliance on Russia amid possible sanctions on the country's atomic energy company.

The Energy Department is moving forward with two programs established in 2020—the Strategic Uranium Reserve and HALEU Availability Program—that could bolster fuel supplies for the existing nuclear fleet and for future reactors, a senior DOE official told Bloomberg Law.

The DOE is preparing requests for proposals for both programs as quickly as possible, including purchasing uranium from U.S. producers for a national reserve and spurring more enrichment facilities.

Russia's invasion of Ukraine and Western countries' subsequent actions to impose economic pain on the energy-rich country have thrown a wrench into the nuclear fuel supply chain. That's putting pressure on the department to act quickly.

"This is incredibly important," Andrew Griffith, deputy assistant secretary for nuclear fuel cycle and supply chain, said in an interview. "If we don't get this right, it's going to slow down the really important deployment of this advanced reactor technology in the 2030s and 2040s."

The agency is trying to address a mismatch in supply and demand: No U.S. facilities produce the fuel because they would need firm commitments from advanced reactors. Advanced reactors will need a steady fuel supply to demonstrate their designs.

Fueling Advanced Reactors

Nearly half of all U.S. imports of uranium come from Russia and its allies, Kazakhstan and Uzbekistan. Russia was slated to supply a more energy-dense type of fuel, called high-assay low-enriched uranium, or HALEU, for DOE-funded next-generation reactors expected to begin operation before the end of the decade.

"If anything, the Russian invasion of Ukraine makes the importance of this long-term objective even clearer," said Alan Ahn, senior resident fellow for nuclear policy for the think tank Third Way. "Right now, we're trying to figure out alternative supply avenues."

DOE has touted its Advanced Reactor Demonstration Program, which currently funds 10 advanced reactor projects, as essential to achieving the administration's goal of net-zero greenhouse gas emissions by 2035. It plans to spend \$2.5 billion on two projects that will be ready to deploy by 2028: X-energy in Washington State and TerraPower in Wyoming.

This week, Congress [approved](#) \$45 million for the HALEU Availability Program for fiscal year 2022, an increase from DOE's budget request of \$33 million for the program.

The Build Back Better bill, Democrats' climate and social spending package that's stalled in the Senate, would allocate at least \$500 million over five years for the program. Nuclear advocates, including the Nuclear Energy Institute and Third Way, have pressed for \$200 million per fiscal year for the program.

This week's funding allocation is hopefully "just the starting point," Griffith said.

A Market Signal

Russia, prior to its invasion of Ukraine and subsequent sanctions, was expected to provide the specialized energy-dense fuel that most of the smaller advanced reactor designs would require.

The HALEU Availability Program, established by the Energy Act of 2020, could provide incentives for production by committing the DOE to buy some of the first batches of fuel. That would give producers the certainty to build plants while providing advanced reactors more time to become reality, said Adam Stein, associate director for nuclear innovation at the Breakthrough Institute, an environmental think tank.

"It's intended mostly to be a market signal and a guaranteed buyer before developers are ready," Stein said. If fuel producers begin to invest in facilities immediately, they would likely be online right as the first reactors are available, Stein said.

The department's program could also share costs of development of a new HALEU enrichment facility. The DOE's first HALEU demonstration project, run in partnership with Centrus Energy Corp., is finishing construction and heading toward operation this year.

Congressional support gives DOE a green light to pursue more facilities, said Jeremy Harrell, chief strategy officer for conservative clean-energy think tank ClearPath and chairman of the U.S. Nuclear Industry Council.

"It's really in a spot where it can be scaled up," Harrell said. "This bill was the key last step to get them to kick-start the program."

Environmental Concerns

The move forward on domestic supply will frustrate environmental advocates and tribes that have long stood in opposition to uranium mining and fuel development.

Last fall, a coalition of 12 advocacy groups including the Natural Resources Defense Council, Earthjustice, and Grand Canyon Trust, urged Energy Secretary Jennifer Granholm to pull back from the idea of a Strategic Uranium Reserve.

The department would have to rely on facilities like the White Mesa Uranium Mill in Utah or the Pinyon Plain Mine in Arizona, near Grand Canyon National Park, harming the White Mesa Ute community and the Havasupai Tribe, the groups argued.

"Uranium mining and processing in the U.S. continues to have tragic consequences, particularly for Indigenous communities in the Southwest," Amber Reimondo, energy director for the Grand Canyon Trust, said.

"Whatever policy direction the Biden administration takes with respect to Russia and Ukraine, we hope it will be nuanced enough not to subsidize environmental injustices" caused by those facilities, Reimondo said.

Democratic lawmakers have urged the department to reconsider the program and direct the funding to waste cleanup.

A uranium reserve "would almost certainly worsen environmental injustices," Sen. Ed Markey (D-Mass.) wrote in [a letter](#) last September with five other lawmakers.

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