

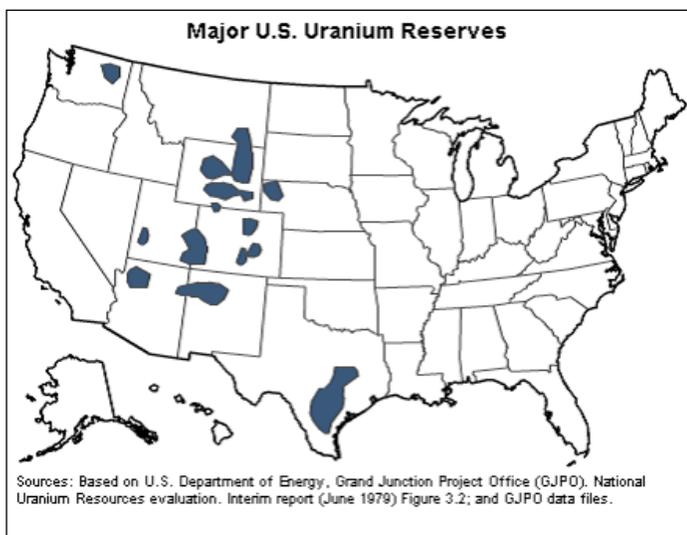
U.S. URANIUM: HELPING MEET AMERICA'S BASELOAD POWER NEEDS



The United States has the world's largest fleet of nuclear power plants operating in 29 states and supplying 20 percent of the nation's electricity. Having once led the world in the production of uranium—the energy resource used in nuclear plants—the U.S. now imports nearly 90 percent of the uranium needed to fuel its nuclear fleet of 97 licensed reactors. Instead of utilizing domestic resources to decrease our reliance on foreign sources of energy, the U.S. imports approximately 48 million pounds of uranium each year. A large portion of our uranium is imported from Kazakhstan, which produces over 40 percent of the world's uranium.

Uranium Production

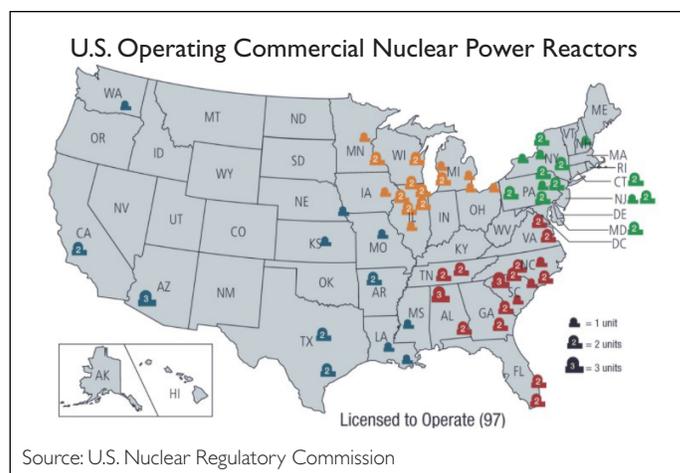
As with other hardrock minerals, millions of dollars are spent on exploration activities to find elusive and economically recoverable deposits. Nonetheless, the discovery potential for domestic uranium remains vast, especially as exploration technologies advance. Uranium miners share the concerns of other U.S. interests regarding access to the mineral rich federal lands that are critical to maintain a strong domestic supply of the minerals needed to propel our economy.



There are several methods for extraction of uranium, including underground uranium mining, open pit mining and in situ recovery (ISR). The type of mining undertaken depends on a number of factors including the nature of the deposit and ore grade. The majority of uranium currently mined in the U.S. is through ISR. Modern techniques for ISR uranium make it a controlled, safe, and occupationally and environmentally sound method of uranium recovery that preclude any significant adverse impacts to workers, lands or water, including underground sources of drinking water.

Regulation of U.S. Uranium Production

Uranium mining occurs on state, private and public lands and is regulated by a comprehensive set of federal, state, and local environmental laws and regulations governing mineral exploration, development, operation, closure and reclamation to ensure operations are fully protective of public health and safety, the environment, and wildlife. Applicable environmental laws include the National Environmental Policy Act; Clean Air Act; Clean Water Act; Solid Waste Disposal Act; Resource Conservation and Recovery Act; Safe Drinking Water Act and Toxic Substances Control Act.



Once mined, uranium requires significant processing prior to having a marketable product. Upon initial extraction, uranium has no real economic value – considerable upfront investment and ongoing operating expense must be incurred to turn it into a marketable product. Processing or “milling” of uranium is also subject to rigorous oversight to ensure protection of the environment and human health. Uranium processing is governed by a comprehensive federal program established under the Atomic Energy Act and the Uranium Mill Tailings Radiation Control Act (UMTRCA). UMTRCA grants the Nuclear Regulatory Commission explicit authority to directly regulate uranium mill tailings and related wastes, but the jurisdictional scheme also provides roles for the Environmental Protection Agency and the Department of Energy.

U.S. Uranium 2016 - 2019

Year	Mine Production*	Number of Mines	Employment
2016	2,545	9	560
2017	1,150	7	424
2018	721	7	372
2019	174	8	265

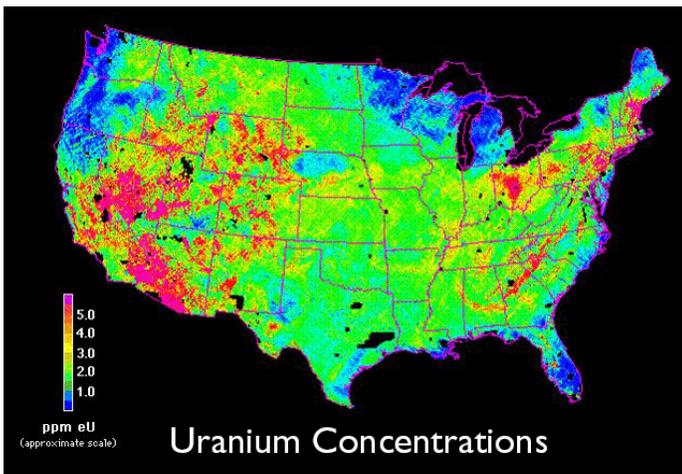
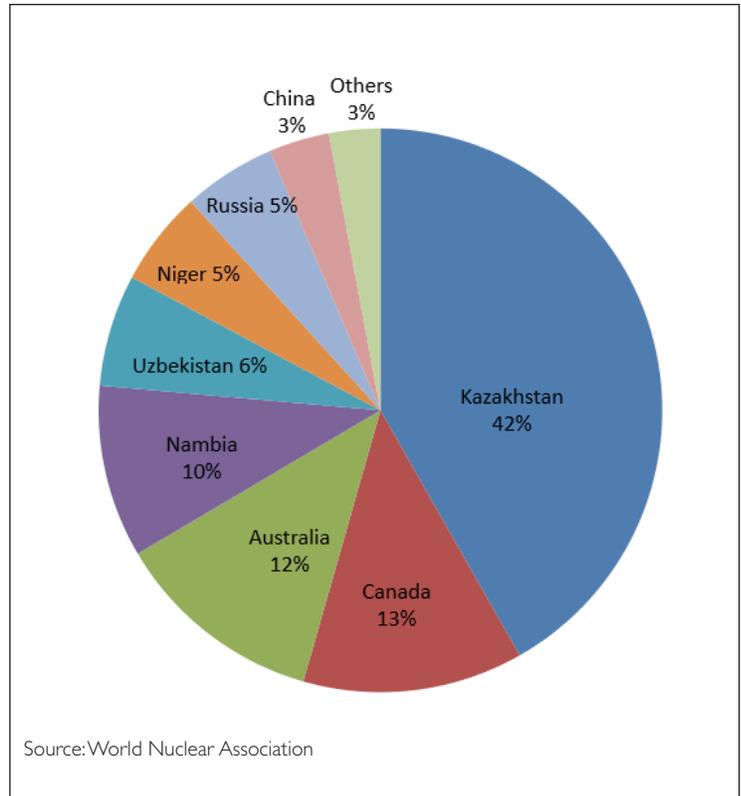
Production Lagging Demand

With about 50 nuclear plants in construction and hundreds more proposed around the globe, there is an opportunity for the U.S. to increase uranium production for domestic use and to supply new reactors elsewhere. The World Nuclear Association data indicates there is a gap between supply and demand as these new plants come on-line. In fact, current world production lags behind world demand and the stockpiles of uranium and uranium from weapons dismantlement that fill that gap are stagnant. As such, the long-term uranium market fundamentals are favorable.

Public Policy Needs

Despite these fundamentals, new U.S. production is still lagging, in part because of uncertainty over the regulatory environment for new domestic production. Uranium mining and processing is hindered by the permitting quagmire that exists for all hardrock minerals. The five to 10 years involved in obtaining the necessary permits to operate is, in part, caused by a process that requires redundant reviews at federal and state levels, often by multiple agencies. Since mining is a capital-intensive process that often takes years of development before minerals are produced, claimants need to have certainty they will be able to bring a project to fruition. Additional uncertainty causing investors to reevaluate involvement in domestic uranium projects are threats to impose unreasonable royalties or to convert uranium mining to a less predictable leasing system. The United States needs a coherent minerals policy that includes an efficient permitting process and a consistent, rigorous and sound regulatory framework to encourage development of domestic uranium mining projects.

World Uranium Production 2019



Source: U.S. Geological Survey