

U.S. Uranium Mining Industry in Crisis: A Dire National Security Threat

June 2018

As America's domestic uranium industry erodes, so does U.S. national security.

The Chinese and Russian Threat

“China and Russia challenge American power, influence, and interests, attempting to erode American security and prosperity.”

“China and Russia want to shape a world antithetical to U.S. values and interests.”

“China seeks to displace the United States in the Indo-Pacific region, expand the reaches of its state-driven economic model, and reorder the region in its favor. Russia seeks to restore its great power status and establish spheres of influence near its borders.”

“Russia aims to weaken U.S. influence in the world and divide us from our allies and partners.”

“China is a strategic competitor using predatory economics to intimidate its neighbors while militarizing features in the South China Sea. Russia has violated the borders of nearby nations and pursues veto power over the economic, diplomatic, and security decisions of its neighbors.”

“China and Russia are now undermining the international order from within the system by exploiting its benefits while simultaneously undercutting its principles and ‘rules of the road.’”

Our National Security is at Risk

The U.S. cannot be dependent on foreign sources – particularly Russia and its client states – for the uranium that provides the backbone of our nuclear deterrent, powers the ships and submarines of our nuclear Navy, and supplies 20 percent of our electricity.



As the world's largest consumer of uranium, the U.S. produces less than 2 percent of what our country needs — a large percentage comes from state-sponsored enterprises in autocracies.

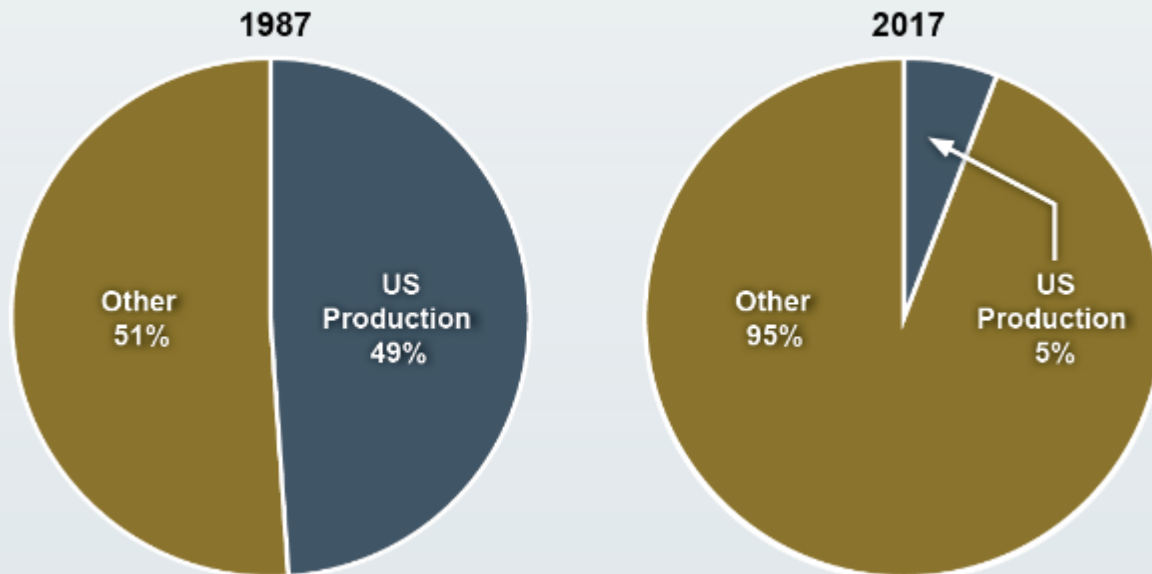
The U.S. is at Risk of Losing the Entire Front End of the Nuclear Fuel Cycle

- Petitioners are the two primary domestic producers still able to operate in the current market conditions.
- The sole domestic uranium conversion facility in the U.S. shut down in 2017.
- Westinghouse is in bankruptcy.
- The U.S. lacks any domestic uranium enrichment capability.
- We import nearly 40% of our uranium from Russia and Russian satellites, and more all the time. China is now targeting our market.

We are already perilously dependent on these nations for our uranium and nuclear fuel supply – and the situation is worsening.

The Uranium Mining Industry: *30 Years of Decline*

Shares of national requirements



Domestic industry participants

1987: 39



2017: 5 (3 inactive)



Domestic industry employees

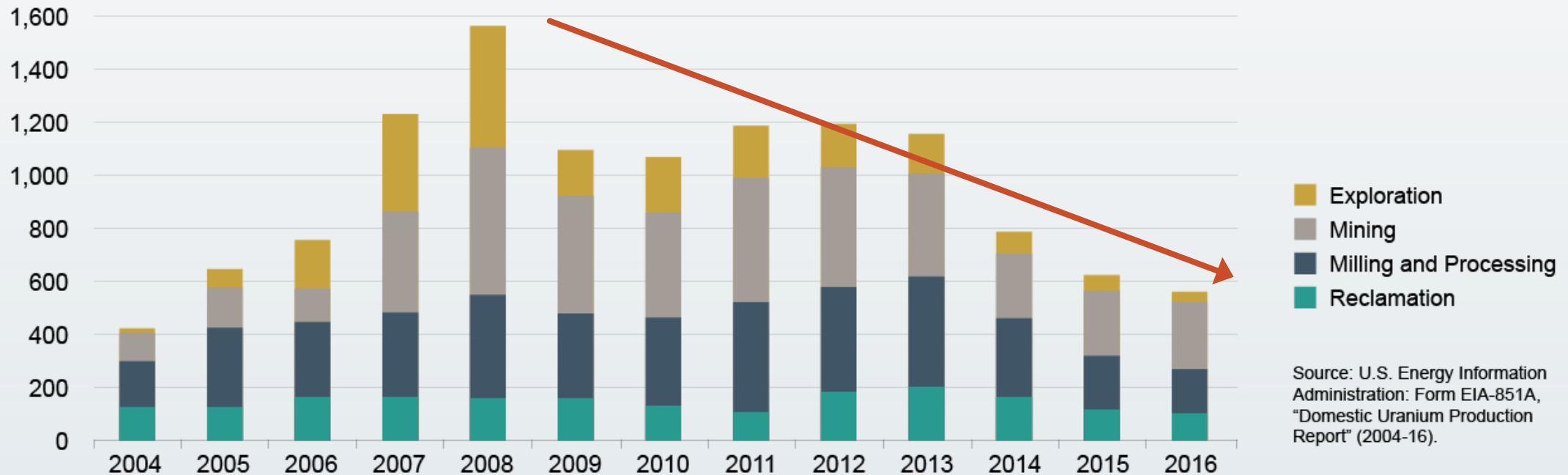
1987: 2,002



2017: <500



U.S. Uranium Jobs Have Declined by Almost 70%



U.S. mining jobs have effectively been outsourced to Russia, Kazakhstan, and Uzbekistan.



Since January 2017, the petitioners alone have been forced to reduce their combined workforce by over 40%. Other uranium mining companies have also announced major workforce reductions.



These terminations have included high paying and skilled jobs such as operators, engineers, geologists, laboratory technicians, and environmental technicians.



A continued reduced price environment will further erode the workforce expertise and experience.

The Danger is Imminent

The U.S. is **addicted to uranium from Russia, Kazakhstan, and Uzbekistan**, which have used low prices to lure U.S. utilities into dependency on their low-priced, imported uranium supply.

Russia has repeatedly proven to be an **unreliable energy supplier**.

Russia is **pursuing a global geopolitical strategy** through the activities of Rosatom, its integrated, state-owned nuclear enterprise.

The U.S. must defend its uranium mining industry and the rest of the domestic nuclear fuel cycle to ensure we can **meet our defense needs**.

The ability of the U.S. to export nuclear goods and technology and counter proliferation **will be crippled** if the U.S. loses its domestic fuel cycle.

Unless the Department and the President Act, the Commercial and Nonproliferation Interests of the U.S. Will Be Severely Damaged



A weakened U.S. nuclear fuel cycle and supply chain diminish the ability of the U.S. to remain a key player in the commercial nuclear market.



Additional U.S. jobs will be lost and the economy will suffer further.



If the U.S. loses its nuclear industrial base, it will be unable to compete in the growing export market for nuclear goods and technology.



If the U.S. is no longer a leading source of nuclear goods and technology, it will lose the ability to insist on responsible nuclear energy development and to minimize further nuclear weapon proliferation.

Existing Government Stocks of Uranium are Not Adequate for Long-term Defense Needs

The Department of Energy's inventory of excess uranium is

**NOT
ADEQUATE**

to cover long-term U.S. defense needs.

Downblending existing stocks of HEU for other defense needs is an

**UNECONOMIC,
POOR USE**

of the nation's existing assets, and still leaves the U.S. without a complete nuclear fuel cycle for the future.

The U.S. is blessed with

**ABUNDANT
URANIUM
RESOURCES**

and can supply both our defense and commercial needs for decades.

- *According to public reports, approximately 1.1 billion pounds of known U_3O_8 resources exist in the U.S.*

It is dangerous to depend on
Russia and its allies – Vladimir
Putin cares neither about
American prosperity nor our
national security.

Russia is an Unreliable Energy Supplier

Russia **cut off gas supplies** to Ukraine in 2006, 2008, 2009, 2014 and 2018.

Russia has attempted to **disrupt other countries' energy markets** as well.

Congress recently documented Russian efforts to disrupt U.S. energy markets:

- “Russia exploited American social media as part of its concerted effort to disrupt U.S. energy markets and influence domestic energy policy.”
- “Based upon the findings detailed above, it is clear that Russian agents are using social media to influence and impact U.S. energy markets.”

*Source: U.S. House of Representatives
Committee on Science, Space and Technology report,
“Russian Efforts to Influence U.S. Domestic Energy
Markets by Exploiting Social Media” (March 1, 2018)*

Russian, Kazakh, and Uzbek Practices Reflect State Priorities, Not Commercial Realities

- Despite the persistent global surplus, uranium production in Kazakhstan and Uzbekistan has increased.
- Kazakh imports have benefited from an 87% currency devaluation compared to the U.S. dollar.
- Almost 40% of uranium delivered in the U.S. in 2016 and 2017 came from Russia, Kazakhstan, and Uzbekistan, and will increase beyond 2020.
- According to NEI, “[a]lthough U.S. nuclear technology suppliers still have the most advanced, most innovative and safest technologies, they start at a disadvantage, competing against sovereign entities around the world.”
- Kazatomprom, Rosatom, and the China National Nuclear Corporation operate as arms of their respective governments.
- Russian imports under the Suspension Agreement, which terminates in 2020, are significant and have displaced U.S. primary uranium production.

Every sunset review of the Suspension Agreement concluded that Russia would resume dumping of uranium if the agreement was not in place.

Russia and Kazakhstan Caused the Crisis – the Chinese Will Soon Make It Worse

- Putin boasts about Russia's government nuclear enterprises while the U.S. struggles to maintain a domestic nuclear industry.
- The Russian nuclear industry is driven by Russian geopolitical goals and is part of a broader effort to expand Russian global political influence.
 - Russia's relationship with Kazakh and Uzbek uranium producers expands Russian influence on the U.S. uranium market.
 - The primary goal of the Uranium One acquisition was to increase Russian control over Kazakh production and the acquisition made Rosatom the largest uranium supplier in the world.
- Russia has proven itself to be an unreliable supplier in the past.
- China is moving aggressively to expand its role in the global uranium mining market, as well as in other parts of the nuclear fuel cycle.

China is Following the Russian Model

State-owned Chinese nuclear companies are **entering the global market** in numerous segments of the industry.

China plans to **export its own reactor designs** and to **provide full fuel cycle support** for those reactors.

China is **increasing non-economic mine production** at a large uranium mine in Africa.

It has been reported that a state-owned Chinese company recently won a contract to **supply enriched uranium to a major U.S. utility**.

Despite a global oversupply of enrichment, China is **increasing its enrichment capacity** well beyond its domestic needs.

Russia, Kazakhstan, and China Do Not Respond to Commercial Market Conditions



While global market conditions continue to deteriorate, Kazakhstan had a record-breaking year for uranium production in 2016.



Russia is involved in all phases of the nuclear fuel cycle and has the ability to import uranium in many different forms or products.



Despite low demand, Kazakhstan has not reduced its production.



“One of the key targets of Tenex’s business strategy is to seize around one-fourth of [the Enriched Uranium Product (“EUP”) market] by the end of the next decade.” Liudmila Zalimskaya, General Director of Tenex



The McArthur River mine in Canada – the most productive and highest-grade mine in the world – has suspended production because of unfavorable market conditions caused primarily by Kazakhstan, and only one Canadian mine remains in production.



China is increasing non-economic mine production through its activities in Africa despite the global oversupply of uranium.

Free Market Uranium Production is Collapsing Around the World

Rio Tinto is shutting down the Ranger mine in Australia in 2021 and the Rossing mine in Namibia in 2025 (if not sooner).

Paladin's (Australia) Kayelekera mine in Malawi is shut down, and its Langer-Heinrich mine in Namibia is operating at reduced levels. Paladin is 25% owned by a Chinese state-owned entity.

It is very likely that the only long-term, free market source of uranium production will be BHP's Olympic Dam mine in Australia.

Small- and micro-cap companies increasingly support free market uranium production. These small companies are much more sensitive to lower prices.

The U.S. will not be able to rely on allies like Canada and Australia for its long-term uranium supply. State-owned enterprises in Russia, Kazakhstan, and China are filling the vacuum.

Compelling evidence merits investigation; the law requires one.

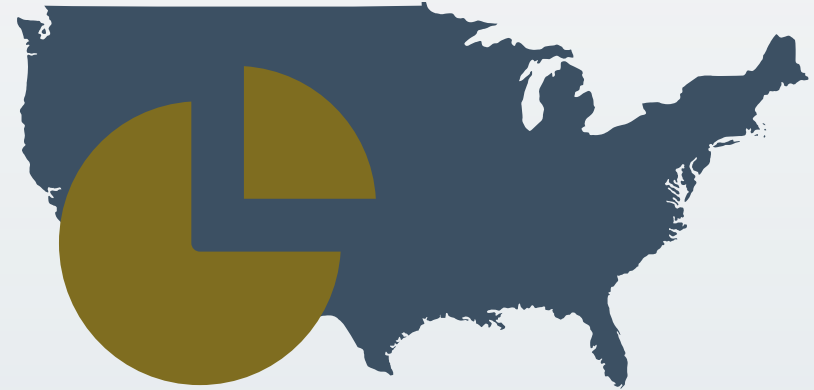
Section 232 Exists to Address Situations Like This

- Section 232 of the Trade Expansion Act of 1962 requires the department to initiate an investigation to determine the effect of imports on national security “upon the application of an interested party.”
- Petitioners have established a prima facie case of the threat to U.S. national security and, therefore, an investigation should be initiated.

This is precisely the type of circumstance for which Congress enacted Section 232 of the Trade Expansion Act of 1962 – to conduct an investigation when the survival of an essential national security industry is threatened by imports.

We Seek to Ensure a Viable Industry While Minimizing Costs to U.S. Utilities, Consumers

- ✓ A quota system will encourage term contracting that will revitalize demand for domestic uranium production, creating new jobs.
- ✓ The U.S. uranium mining industry is capable of producing at a level to meet 25 percent of domestic demand.
- ✓ According to the 2016 EIA Domestic Uranium Production Report, at the end of 2016, operating facilities had a combined capacity of 14.2 million pounds U_3O_8 per year, and additional facilities are on standby or planned in numerous states, including Wyoming, Utah, New Mexico, South Dakota, Texas, and Nebraska.
- ✓ Canada and Australia cannot meet key U.S. requirements because domestic uranium is required for U.S. defense purposes.
- ✓ Petitioners' proposal allows utilities to maintain foreign supply relationships.



The Proposed Remedies Balance the Interests of Stakeholders and are in the National Interest

- Petitioners recognize that the entire U.S. nuclear industry is struggling to compete internationally and domestically.
- A Section 232 investigation allows for a flexible approach in which the impact of a proposed remedy can be managed.
- Potential cost impact of proposed remedies to utilities is limited to \$218 - \$334 million annually for all utilities, spread across 99 U.S. reactors.
- **If passed on to consumers, it would result in a less than 0.2% increase in electricity rates.**

The appropriate time to discuss potential remedies is in the context of the investigation.

Immediate Action is Essential to Defend the U.S. Industry



The domestic uranium industry is capable of producing at a level to meet the demands of the proposed quota.



The crisis threatens the entire domestic fuel cycle. Prompt government action is required to protect U.S. national security interests.