BEFORE THE
UNITED STATES DEPARTMENT OF COMMERCE

PETITION FOR RELIEF UNDER SECTION 232 OF THE TRADE EXPANSION ACT OF 1962 FROM IMPORTS OF URANIUM PRODUCTS THAT THREATEN NATIONAL SECURITY

Energy Fuels Resources (USA) Inc. and Ur-Energy USA Inc.

PETITIONERS

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Executive Summary

Uranium is a key element of U.S. national security. It is the source of our nuclear deterrent and powers the commercial reactors that produce 20% of the electricity for the U.S. electric grid. U.S.-sourced uranium is essential for national security:

- Fissionable material in U.S. nuclear weapons
- Tritium that boosts U.S. nuclear warheads
- Fuel to power U.S. Navy submarines and surface ships
- Nuclear power plants that are essential for a reliable power grid

Today we face a serious crisis because the domestic industry that produces this key ingredient for the nation's defense and critical infrastructure is threatened by imports from state-sponsored producers in Russia, Kazakhstan, Uzbekistan, and China. With no free market constraints, producers in these countries are destroying our uranium mining industry. They have already seized the majority of the U.S. market, and the few remaining U.S. miners now supply less than five percent of our domestic uranium needs.

Foreign State-Owned Companies Have Targeted the U.S.

As U.S. producers have closed mines and laid off workers, nations who do not share our democratic values and are not open markets have expanded their production facilities and strengthened their commercial positions. State actors from Russia, Kazakhstan, Uzbekistan, and China are targeting the U.S. market, throwing U.S. miners out of work, and jeopardizing the domestic nuclear fuel cycle, including the jobs of other U.S. workers throughout the fuel cycle. This is not a matter of foreign competition legitimately underpricing domestic producers. It is foreign, state-mandated production undermining U.S. companies that have the ability to compete on a level playing field.

Adding to the gravity of the miners' situation is the fact that the entire U.S. nuclear industry is in crisis. The sole uranium conversion facility in the U.S. has been struggling financially and recently announced it will idle production, lay off employees, and terminate

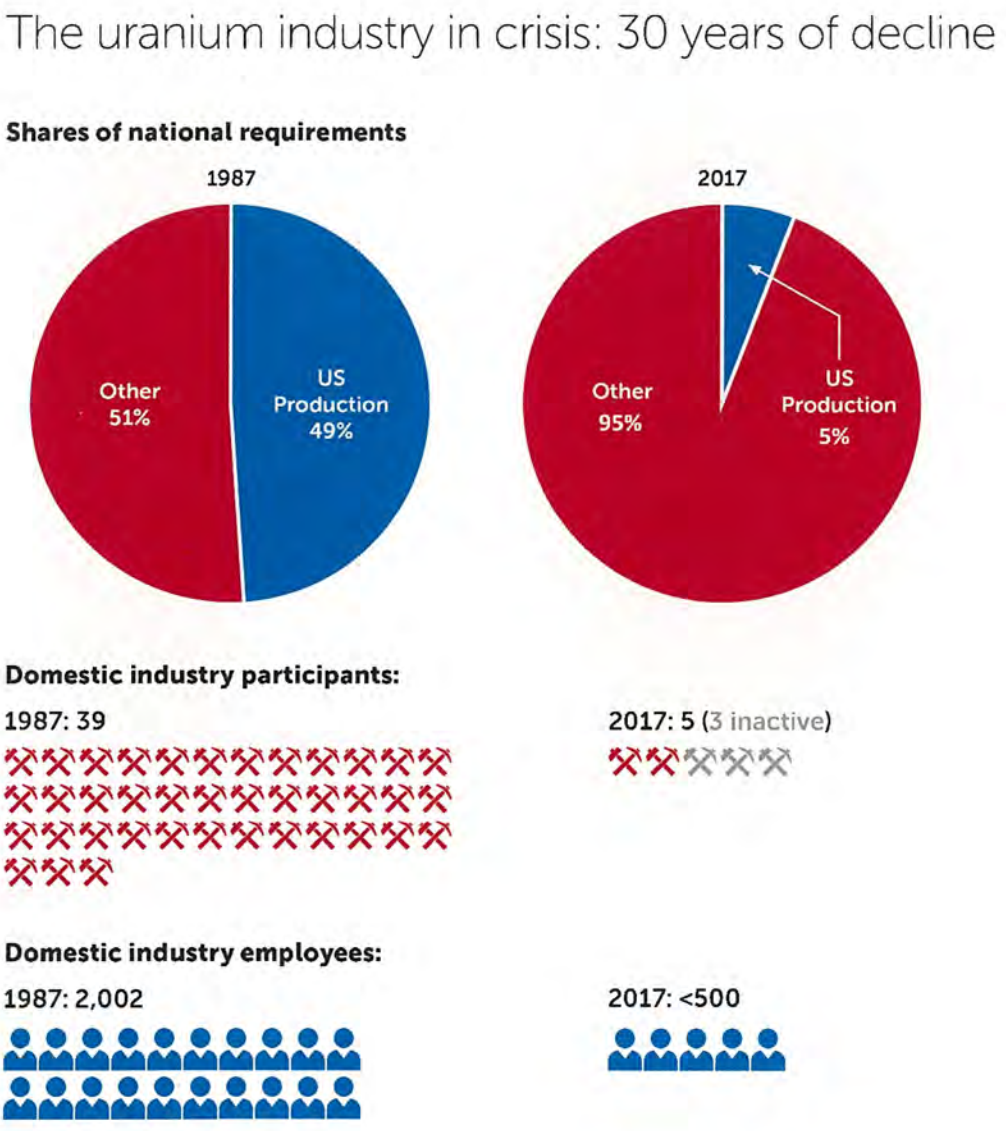
contractors. Our leading supplier of reactor technology is in bankruptcy. The nation no longer has any domestic capability to enrich uranium for defense purposes, and its aging nuclear stockpile needs renewal. Although the uranium mining industry is not the only part of the U.S. nuclear fuel cycle being unfairly challenged, it is the part that has been most directly targeted by foreign state actors. Unless the government acts promptly, these state-sponsored foreign companies will succeed in their objective of destroying any future for U.S. uranium mining operations.

The Threat Comes from Russia, Kazakhstan, and China

The U.S. uranium industry needs immediate relief from imports that have grown dramatically and captured almost 80% of annual U.S. uranium demand. Our country cannot afford to depend on foreign sources – particularly Russia, and those in its sphere of influence, and China – for the element that provides the backbone of our nuclear deterrent, powers the ships and submarines of America's nuclear Navy, and supplies 20% of the nation's electricity. The Department of Commerce and the President must act decisively to restore the long-term viability of the nation's uranium mines and related infrastructure. Otherwise, our commercial and military nuclear capabilities will be further diminished, and our country will become dependent on foreign governments that compete with the U.S. for geopolitical influence and commercial advantage.

The domestic uranium mining industry needs U.S. government assistance to survive the foreign onslaught – particularly from Russia and Kazakhstan – that has undermined the U.S. uranium industry while new players – particularly China – will soon make the situation worse. The Russian nuclear industry and its relationship with Kazakh and Uzbek uranium producers is driven by Russian geopolitical goals and is part of a broader effort to expand Russian influence around the globe. Such state-sponsored actions against the U.S. industry require a comparable response by our government. That is the precise reason Congress enacted Section 232 of the Trade Expansion Act of 1962 -- to protect essential national security industries whose survival is threatened by imports.

The two Petitioners – Energy Fuels and Ur-Energy – are the primary domestic producers still operating mines, and in 2017, they produced more than half of all the uranium mined in the U.S. However, their capacity utilization has shrunk to 9% and 13.5% respectively, they face increasing financial pressure, and during the last two years, they have laid off more than 50% of their workforce. Their current situation reflects years of industry decline, while imports have risen dramatically.



Confronted with a persistently low spot price and an oversupplied market, Petitioners have been relying on existing higher priced long-term contracts to survive. However, those contracts are coming to an end and cannot be replaced at a reasonable level of pricing in the current market.

State-supported producers in the Russian sphere of influence have led the assault that has caused this damage to the U.S. industry:

- Almost 40% of uranium delivered in the U.S. in 2016 and 2017 came from Russia, Kazakhstan, and Uzbekistan
- Kazakh imports have benefited from an 87% devaluation of the national currency in comparison to the U.S. dollar
- Uranium producers in these countries are state-owned and continue to produce at uneconomic levels despite a global uranium surplus

As difficult as the situation has been in recent years, U.S. uranium miners will face additional threats in the next few years because of Russia and China:

- The Russian industry has announced it intends to increase its share of the U.S. market when the Suspension Agreement between Russia and the U.S.[1] expires in less than three years
- China is in the process of becoming a major new supplier, investing in mines in Kazakhstan, Namibia, and elsewhere

Thus, today's bad economic situation is likely to become worse as both Russia and China target the U.S. market for additional sales at the same time that major commercial players (including Cameco, which is the largest producer that is not state-owned) have been forced to reduce production and close efficient mines because of low prices and reduced demand.

[1] The Suspension Agreement currently restricts Russian uranium imports and settled an antidumping dispute between the U.S. and Russia in which the Department found that Russian uranium imports were unfairly priced by a margin of over 100%.

The relief requested in this Petition is essential to stop the erosion of our nuclear national security and stem the tide of decline that threatens the entire U.S. nuclear industry.

U.S. Defense Needs Require U.S. Uranium

For each of the three primary defense requirements, U.S.-sourced uranium is essential because international treaties preclude the use of foreign uranium for defense purposes. First, the warheads in U.S. nuclear weapons are required by law and treaty to be manufactured from uranium produced from U.S. mines. Second, the tritium that is an essential component of such weapons is required to be produced in a U.S. reactor utilizing domestic uranium as a fuel source. Third, the uranium that is highly-enriched and fabricated into fuel for the nuclear Navy must be of U.S. origin; in fact, there is a direct correlation between the commercial nuclear and nuclear Navy supply chains. If the U.S. mining industry ceases to exist, the country will lose the ability to supply these essential national security requirements from domestic sources. *In the history of Section 232, no investigation has ever been more clearly linked to national security than this proceeding.*

Critical Infrastructure Requires a Secure Supply of Uranium

In addition to the direct threat that an absence of U.S.-mined uranium would pose to the nation's defense capabilities, there are significant negative implications for the security of the electrical grid, which relies on nuclear energy to produce 20% of the nation's electricity (and nearly 60% of the nation's carbon-free electricity). Until recently, the 99

commercial nuclear reactors in the U.S. have relied heavily on U.S.-mined uranium. There have been past concerns about the U.S. becoming too reliant on imports; indeed, in 1989 a Section 232 investigation of uranium imports was triggered because the share of imported uranium exceeded 37.5%. That 1989 investigation confirmed that domestic sources of uranium are vital to national security. Today, however, the import penetration is much higher, over twice the 1989 figure, at the direct expense of U.S. domestic producers. There is, moreover, a significant difference between imported uranium supplying a majority of U.S. reactor needs and having no domestic mining source at all. Unfortunately, unless this Petition is successful, that is the endpoint toward which the country is headed.

Foreign Nationalistic Interests Increase the National Security Threat

Dependency on imported uranium is dangerous in the abstract but even more troublesome because the growth in U.S. dependency has been accompanied by an increase in the share of the U.S. market supplied by state-sponsored producers in countries with a nationalistic agenda – Russia, Kazakhstan, and Uzbekistan. Given that Rosatom, the state-owned nuclear entity of the Russian state, has effective control or strong influence over the nuclear infrastructure in all three countries, dependency on imported uranium means reliance on uranium over which Russia has either direct control or significant influence. As evidenced by its cutoff of the supply of natural gas to the Ukraine in 2009 and 2014, Russia is willing to use its control of energy resources as an economic and political weapon. This sort of geopolitical risk should be unacceptable to U.S. nuclear utilities and their rate payers, who currently depend heavily on Russia and nations under Russia's influence to fuel their reactors. Indeed, it is conceivable to envision a supply disruption from those nations triggered by sanctions or other geopolitical developments. If the U.S. uranium mining

industry does not receive the relief it seeks in this Petition, that risk will increase, increasing the vulnerability of the U.S. commercial power infrastructure.

Both National Security and Nonproliferation Goals Are Threatened

The loss of our domestic uranium mining industry, combined with our current uranium dependency on Russia and countries within its sphere of influence, would have severe national security implications, both for our military capabilities and for the nation's critical infrastructure. This vulnerability is more profound because the military and commercial nuclear structures are interwoven and heavily dependent on each other -- a weakness in one sector weakens the other. This is a crisis of the first order and needs to be addressed in a pragmatic and effective manner that provides the mining industry immediate relief to ensure its survival, and long-term support so that it can fully recover and play its essential role in support of the country's national security interests.

It also deserves emphasis that a weakened U.S. nuclear fuel cycle and supply chain diminishes the ability of the U.S. to serve as an effective voice for nuclear nonproliferation. Without a robust domestic industry, it is not possible for the U.S. to continue to play a leadership role in shaping the development of nuclear energy in emerging nuclear states. If the U.S. is no longer a leading source of nuclear goods and technology, it will lose the ability to insist that nuclear energy be developed responsibly and to minimize the potential for further proliferation of nuclear weapons. The loss of the U.S. uranium mining industry because of excessive imports from Russia, Kazakhstan, and Uzbekistan plays into the hands of countries that do not share U.S. goals and democratic values.

The Proposed Relief Is Both Essential and Reasonable

Petitioners are proposing a form of relief designed to halt the decline of the industry and enhance its long-term viability. There are two components of this relief: (1) a quota that would reserve a limited portion of the U.S. market (25%) for U.S. uranium and (2) a Buy America policy for U.S. government agencies that utilize uranium. By implementing a flexible quota based on historical import shares, the U.S. can reserve a portion of its market

for U.S. producers to compete and provide the essential domestic sourced uranium that U.S. national security requires. The quota proposal in this Petition takes account of existing business relationships between U.S. utilities and their foreign suppliers, while setting reasonable limits on the amount of imported uranium so that U.S. producers have sufficient commercial opportunities to survive.

In addition, Petitioners propose that the federal government adopt a Buy American policy for federal agencies that is consistent with current government policy and requires the federal government to purchase domestic uranium for its own needs. This second component of the proposed relief is important because in recent years the government has contributed to the economic problems of U.S. miners by selling part of the government stockpile of uranium to raise money for the remediation of Department of Energy facilities. The Buy American component of the proposed remedy will help offset the financial harm to the U.S. mining industry that such government sales have caused.

The proposed form of relief considers the interests of all affected parties, while serving the broader national interest. It limits the potential for foreign parties to circumvent by recognizing the interrelationships between the different parts of the nuclear fuel cycle and the many different forms in which uranium is imported. The portion of the market that would effectively be reserved for U.S. uranium miners reflects the current capabilities of the U.S. industry to produce and the level of domestic production required to sustain the domestic industry. As we demonstrate later in this Petition, the potential financial impact of this proposal on U.S. consumers is negligible and a reasonable price to pay to ensure the survival of an industry that is essential for U.S. national security.

This Petition seeks protection against overwhelming imports in order to preserve and revitalize what remains of an imperiled uranium mining industry. To those who would suggest that this action is poorly timed or at odds with recently announced reductions in international production, it should be made clear: those announced reductions are, in fact, critical to restore a healthy international uranium market but are otherwise irrelevant to the

national security threats posed by the current state of our U.S. uranium industry. This Petition neither overreaches nor seeks relief that would harm the international uranium markets. It does not, for example, propose to subsidize the domestic industry in order to permit significant exports of uranium into the international market. The simple objective of this Petition is to obtain relief from the excessive levels of imports that threaten our national security by destroying the domestic uranium mining industry.

An Expedited Investigation is Necessary and Appropriate

Pursuant to 15 C.F.R. § 705.9, the Petitioners request that the Department expedite its investigation because of the serious implications of the current situation for U.S. national security and the risk that some nations will take steps to circumvent the proposed remedy and worsen the current situation while the Department of Commerce considers this Petition.

I. THE NATURE OF THE CRISIS

Ur-Energy USA Inc. ("Ur-Energy") and Energy Fuels Resources (USA) Inc. ("Energy Fuels") (collectively "Petitioners") file this Petition pursuant to Section 232 of the Trade Expansion Act of 1962, as amended (the "Act"), and 15 C.F.R. § 705.5. Petitioners also request that the Department of Commerce (the "Department") take emergency action pursuant to 15 C.F.R. § 705.9 to accelerate its investigation and impose expedited measures to counteract the flood of uranium imports that threatens to destroy what is left of the U.S. uranium mining industry. Absent the relief requested, Petitioners, the two most significant remaining U.S. uranium mining companies, will be unable to sustain their low cost, globally competitive, uranium recovery operations, and the U.S. industry will cease to exist. The loss of this vital industry would have a significant detrimental impact on the national, energy, and economic security of the U.S. and the ability of the country to sustain an independent nuclear fuel cycle.

The U.S. uranium mining industry has been, and continues to be, materially harmed by excessive imports, particularly uranium and uranium products from Russia, Kazakhstan, and Uzbekistan. This state-sponsored, price-insensitive competition has led to the closure of numerous mines in the U.S. and dramatically reduced U.S. uranium production. For example, in 1980, the U.S. was the world's leading producer of uranium, supplying 43.7 million pounds of uranium concentrate ("U_3O_8") in that year[2] representing greater than 300% of U.S. uranium consumption of an estimated 14 million pounds and 60% of world uranium

[2] U.S. Energy Information Administration, "Annual Energy Review 2011," p. 275, Table 9.3 (September. 2012), https://www.eia.gov/totalenergy/data/annual/pdf/aer.pdf.

consumption of 73.3 million pounds.[3] By 2016, domestic uranium mine production dropped to only 2.5 million pounds of U_3O_8, its lowest level since 2003 and merely 1.5% of global uranium consumption of 164.8 million pounds for the year.[4] This represented a 32% decrease from 2015, a one-third decrease in a single year. Final statistics for 2017 are expected to confirm that U.S. uranium mine production declined even further to approximately 1.5 million pounds of U_3O_8,[5] or a further 40% drop from 2016's historically low levels, and approaching the 1.0 million pound U_3O_8 production rate of 1949, the dawn of the nuclear age.[6]

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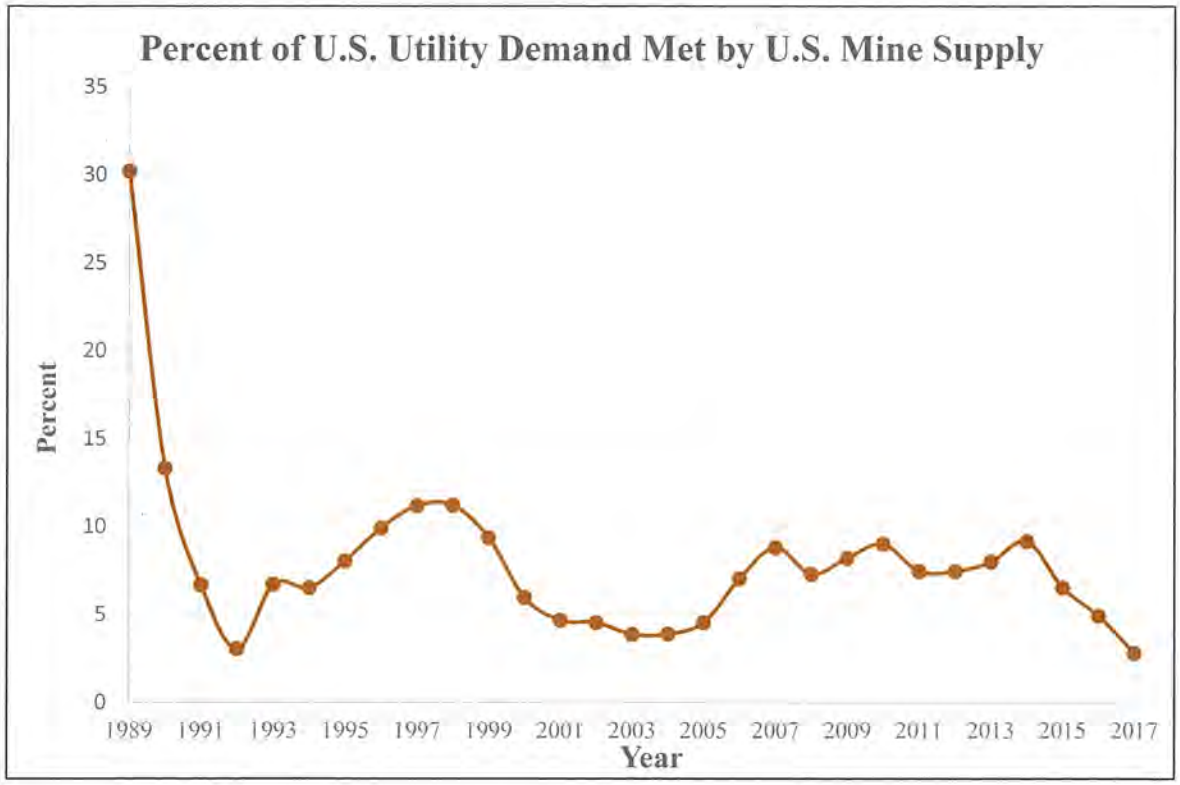
[3] International Atomic Energy Agency ("IAEA"), Technical Meeting on Optimization of ISL Uranium Mining Technology, "Uranium Supply, Demand & Prices," April 2013, Tom Pool, Vienna, Austria.

[4] See U.S. Energy Information Administration, "Uranium Marketing Annual Reports" (various years); see also World Nuclear Association, "World Nuclear Power Reactors and Uranium Requirements," January 2017, at http://www.world-nuclear.org/information-library/facts-and-figures/world-nuclear-power-reactors-archive/world-nuclear-power-reactors-and-uranium-requi-(4).aspx.

[5] This estimate is based on published company guidance from Ur-Energy, Energy Fuels, Cameco, Uranium One and Strata Energy. EIA numbers may be slightly higher since the Administration includes alternate feed materials in its surveys.

[6] U.S. Energy Information Administration, "Uranium Industry Annual 1993," Table 15, September 1994, accessed at https://www.eia.gov/uranium/marketing/archive/047893.pdf.

Figure 1



Source: EIA Uranium Marketing Annual Reports (1989-2016) with 2017 estimated.

These historically low production figures are the direct result of low-priced uranium imports that U.S. utilities have purchased to fill a growing percentage of their requirements, along with secondary supplies derived from the sale of excess uranium inventory held by the U.S. Department of Energy ("DOE"). Energy Information Administration ("EIA") statistics show that the owners and operators of nuclear power reactors in the U.S. purchased 57 million pounds of U_3O_8 in 2015.[7] Only six percent of that total was purchased from domestic producers; the remainder was imported from abroad or purchased in connection with DOE uranium transfers used to fund environmental cleanups of DOE facilities. Of those imports,

[7] U.S. Energy Information Administration, "2016 Uranium Marketing Annual Report," Table 2, June 2017, accessed at https://www.eia.gov/uranium/marketing/pdf/2016umar.pdf.

almost 40% of the uranium was produced in just three countries – Russia, Kazakhstan, and Uzbekistan – with the remainder mainly coming from Canada, Australia, Namibia, Niger, and South Africa.

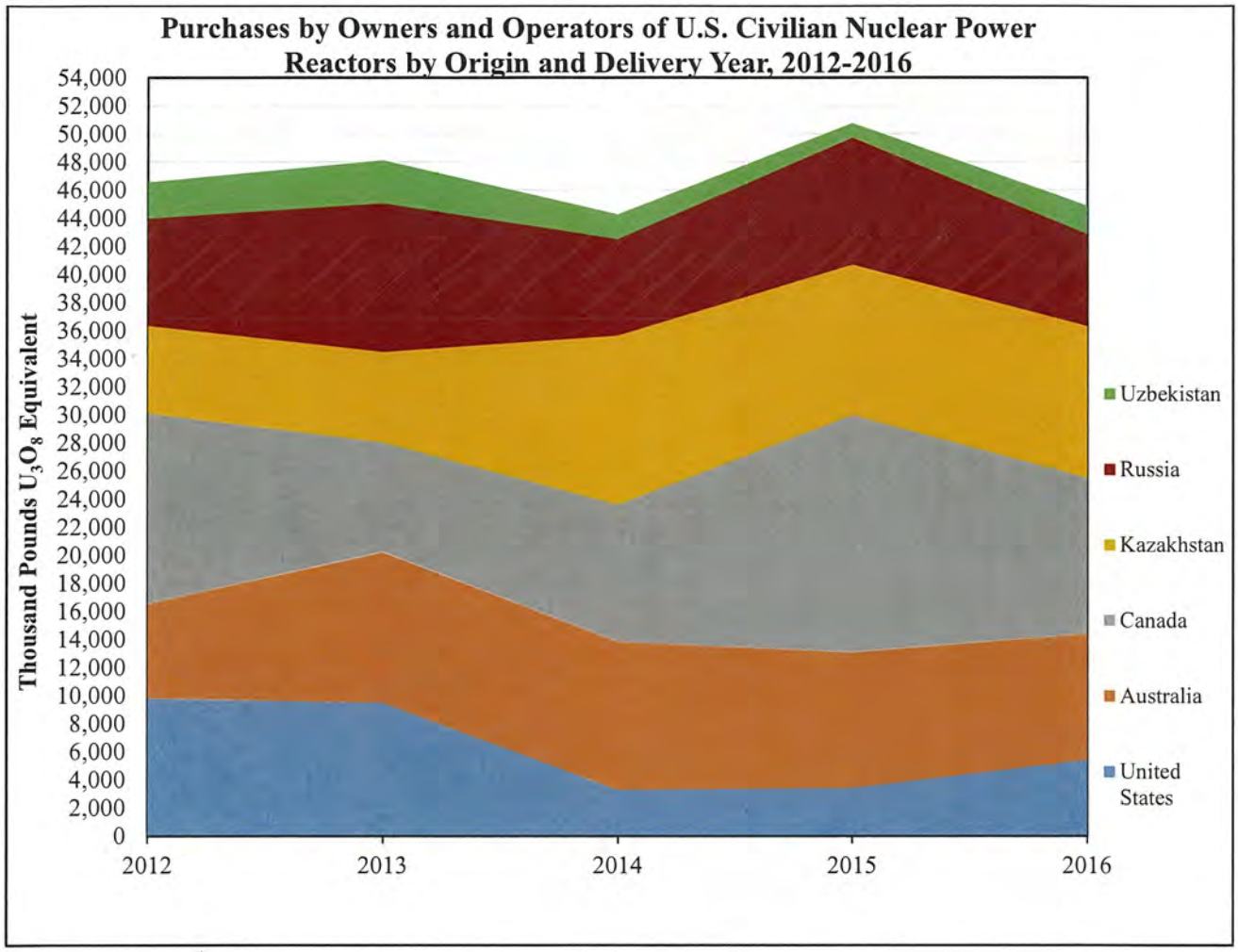
Kazakhstan's activities are of particular concern because of its recent staggering growth in mine production, which has benefitted heavily from Kazakh government support, currency devaluation, and health and environmental standards that would be considered inadequate in the U.S. Prior to 1999, Kazakhstan was a party to a suspension agreement with the U.S. and a limited supplier in the global uranium market. Within a decade of its suspension agreement being terminated, Kazakhstan became the dominant global uranium producer it is today.

Significant volumes of uranium also come from Russia in various forms and, with the Russian Suspension Agreement due to expire at the end of 2020, imports of enriched uranium, which competes with and displaces U.S.-mined uranium, are likely to increase dramatically. Indeed, executives of Rosatom, Russia's state-owned nuclear company, have boasted of their intent to capture more of the U.S. market after the Russian Suspension Agreement restrictions are lifted.[8] Uzbekistan, a close ally of Russia, is another source of uranium produced by a state-sponsored entity. As a result of imports from these three countries, and as shown below, there has been a sharp decline in purchases of U.S. uranium by U.S. utilities, and a significant disparity exists between the amount of uranium U.S. utilities purchase from U.S. miners compared to foreign uranium miners. Finally, China continues to increase its presence in the uranium mining market as well as the nuclear

[8] InvestorIntel, "Russia plans to increase US uranium market presence from 25-35% by 2020" June 22, 2017, https://investorintel.com/sectors/uranium-energy/uranium-energy-intel/russia-plans-increase-us-uranium-market-presence-25-35-2020/.

industry more generally, and through its investments in African uranium mines, is already becoming a factor in the global uranium market.

Figure 2



Source: EIA 2016 Uranium Annual Marketing Report.

The disparity between the purchases by U.S. utilities and the declining production from U.S. mines is significant because maintaining a domestic uranium industry is of critical importance to the national security of the U.S. As Secretary of Energy Rick Perry stated at a recent House of Representatives hearing, "if we lose our supply chain, if we lose our intellectual chain of supply of bright scientists because we basically pushed the nuclear

industry back, then we're going to lose our role as a leader when it comes to nuclear energy in the world."[9] Likewise, the CEO of the Nuclear Energy Institute ("NEI") has observed, "The health of our nation's nuclear energy program has a nexus to America's safety and security."[10] As emphasized recently in a prominent report issued by the Energy Future Initiative, "[a] vibrant domestic nuclear energy industry . . . . is essential for the achievement of U.S. national security objectives."[11] Despite its recognized importance, the domestic uranium mining industry finds itself at a critical point in time in which, absent relief from imports, it may very soon completely halt production.

In its 1989 Section 232 determination, the Department described the important role uranium plays for national defense and the civilian power sector:

> Uranium is essential to the operation of the Navy's nuclear-powered fleet, for nuclear weapon capability and for civilian nuclear energy generation. As the essential fuel for the Navy's nuclear-powered vessels, including 150 nuclear submarines and surface ships, a guaranteed supply of uranium is vital for the activities of the Navy. In addition, enriched uranium is a key component of the nation's nuclear weapons arsenal.
>
> In the essential civilian sector, nuclear power plants currently supply almost 20 percent of U.S. electricity requirements. The uranium used each day for electricity generation replaces 2.2 million barrels of imported oil. In this respect, uranium plays a critical role in the energy independence and security of the United States. ...[12]

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[9] See U.S. News, "U.S. Energy Head: Nuclear Power Rescue Helps National Security," (October 12, 2017) https://www.usnews.com/news/us/articles/2017-10-12/us-energy-head-nuclear-power-rescue-helps-national-security.

[10] The full text of NEI Chief Executive Officer, Maria Korsnick's May 23, 2017 speech, "Nuclear's Role in America's Future," can be found here: https://www.nei.org/News-Media/Speeches/Nuclear-s-Role-in-America-s-Future,-Maria-Korsnick.

[11] Energy Futures Initiative, "The U.S. Nuclear Energy Enterprise: A Key National Security Enabler" ("EFI Report"), p. 15 (2017). A copy of this report is being provided as Exhibit 10.

[12] U.S. Department of Commerce, "The Effect of Imports of Uranium on the National Security," p. I-5 (September 1989).

The U.S. uranium mining industry mines uranium in a cost-effective and environmentally responsible manner and can compete with uranium producers around the globe on equal terms. But, the domestic uranium mining industry cannot compete effectively with uranium and other uranium products imported from countries such as Russia, Kazakhstan, Uzbekistan, and recently China, particularly given the recent steep decline in uranium prices due in part to these nations' price-insensitive and anti-competitive practices. Unless the U.S. acts now, the country will lose a 70-year-old domestic industry that is vital to America's national, economic, and energy security.

The harm imports have caused to the uranium mining industry is part of the overall threat to the entire domestic nuclear fuel cycle that is essential to the fundamental national security interests of the U.S. Russia views the nuclear fuel cycle as a tool of geopolitical influence, and for many years has systematically sought to degrade key elements of the U.S. industry. This has been recognized by national security specialists at such respected institutions as the Center for Strategic and International Studies ("CSIS").[13] Russia, Kazakhstan, and China are subsidizing current production because they view their nuclear industries as potentially profitable long-term businesses and a means to expand their global influence. Imports from these countries and their state-owned enterprises threaten the existence of not only the U.S. uranium mining industry but the entire domestic nuclear fuel industry. Without a stable and robust domestic nuclear fuel cycle, the national security of

[13] See Robert E. Ebel, "The Geopolitics of Russian Energy" (2009), which offered an in-depth analysis of Russia's use of its energy resources, generally, as a geopolitical tool. See also The World Post, "Russia: A Global Energy Powerhouse That's Much More Than a Petro-State" (available at https://www.huffingtonpost.com/the-conversation-us/russia-a-global-energy-po_b_9693032.html), which discusses Russia's ability to compete in a large share of the global nuclear market, and in particular Russia's influence in the nuclear market of developing countries; Stratfor, "Moscow's Nuclear Energy Advantage," available at https://worldview.stratfor.com/article/moscows-nuclear-energy-advantage.

the U.S. is at risk. This Section 232 action is therefore a matter of national urgency, a wake-up call to protect vital U.S. interests before it is too late.

II. PETITIONERS

The Petitioners are two of the five remaining producing uranium miners in the U.S. and interested parties as specified in 15 C.F.R. § 705.3. While there are five remaining producing uranium miners in the U.S., all but two have halted development work. In 2017, Petitioners' combined production from only two relatively small mines and a single mill will likely constitute greater than 50% of the U.S. domestic uranium production.

Ur-Energy engages in uranium mining and recovery operations, including the acquisition, exploration, development, and operation of uranium mineral properties. The company's project pipeline is supported by an extensive exploration database and intensive analysis programs, providing for significant exploration and development potential. Ur-Energy operates the Lost Creek in-situ recovery ("ISR")[14] uranium facility in south-central Wyoming, which has a physical design capacity of two million pounds of U_3O_8 per year. Since production commenced at Lost Creek in August 2013, over two million pounds of U_3O_8 have been produced, drummed, and shipped. As of September 2015, the Lost Creek Property is reported to host 13.3 million pounds of U_3O_8 in recognized measured and indicated resource categories, with an additional 6.4 million pounds of U_3O_8 in the inferred resource category.[15] Ur-Energy acquired the historic conventional Shirley Basin Mine in

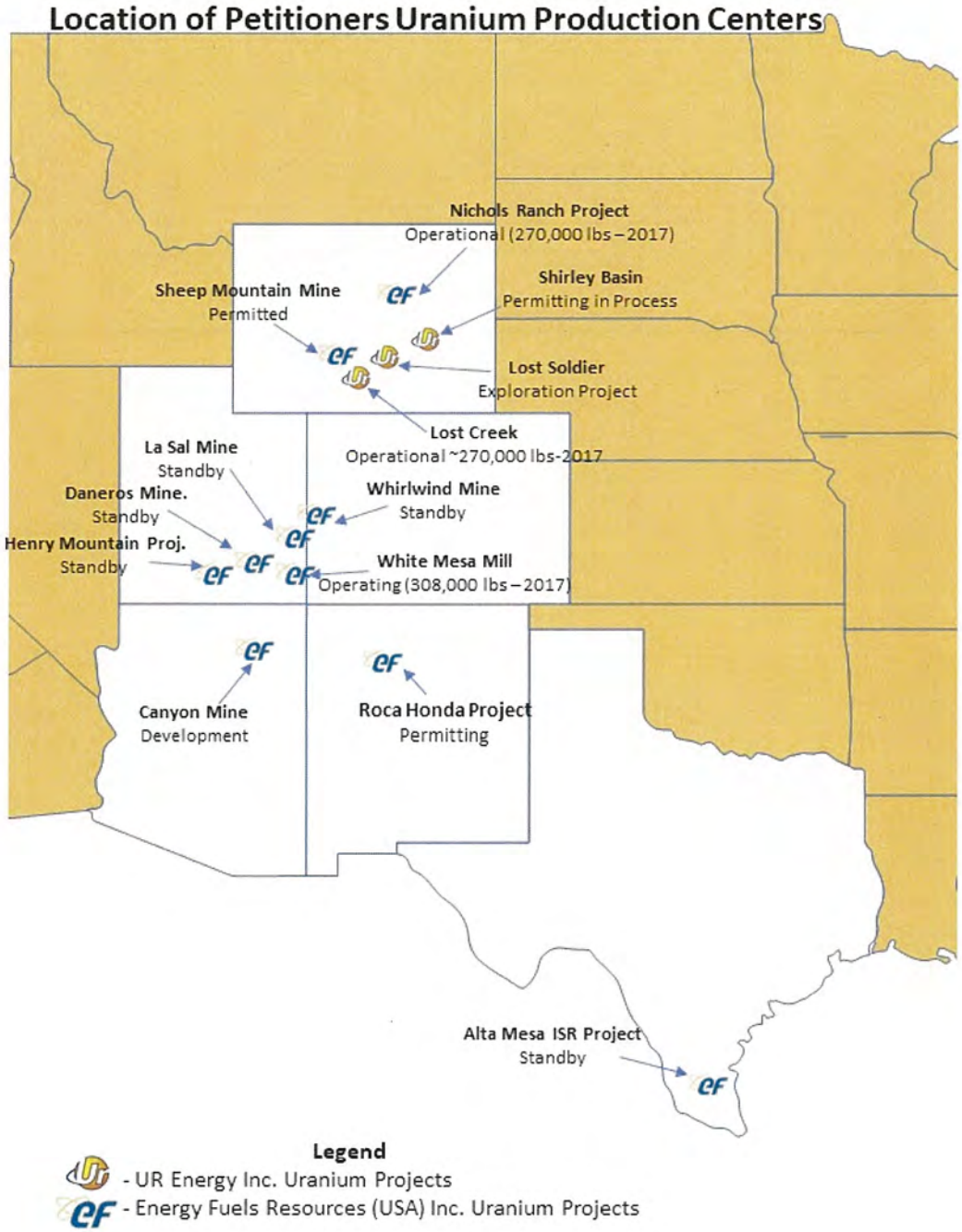
[14] The ISR process mines uranium by dissolving the uranium in underground porous rock formations and pumping it to the surface as a liquid solution. This is different from conventional mines, where ore is extracted as a solid and crushed before treatment with an acid or alkaline solution to remove the uranium. See section III.B, below, for a further discussion of the uranium and nuclear fuel cycle.

[15] Mineral resource estimates are prepared by mining companies for public reporting and operational planning purposes. Mineral resource categories reflect the standards of the Canadian Institute of Mining, Metallurgy and Petroleum ("CIM"). Classifications (inferred, measured and indicated) of resources signify the level of geologic confidence based upon the author's professional experience and judgment.

2013 and is currently working to permit the mine as an ISR facility. As of July 2014, the Shirley Basin Project is estimated to have 8.8 million pounds of U_3O_8 of measured and indicated mineral resources.

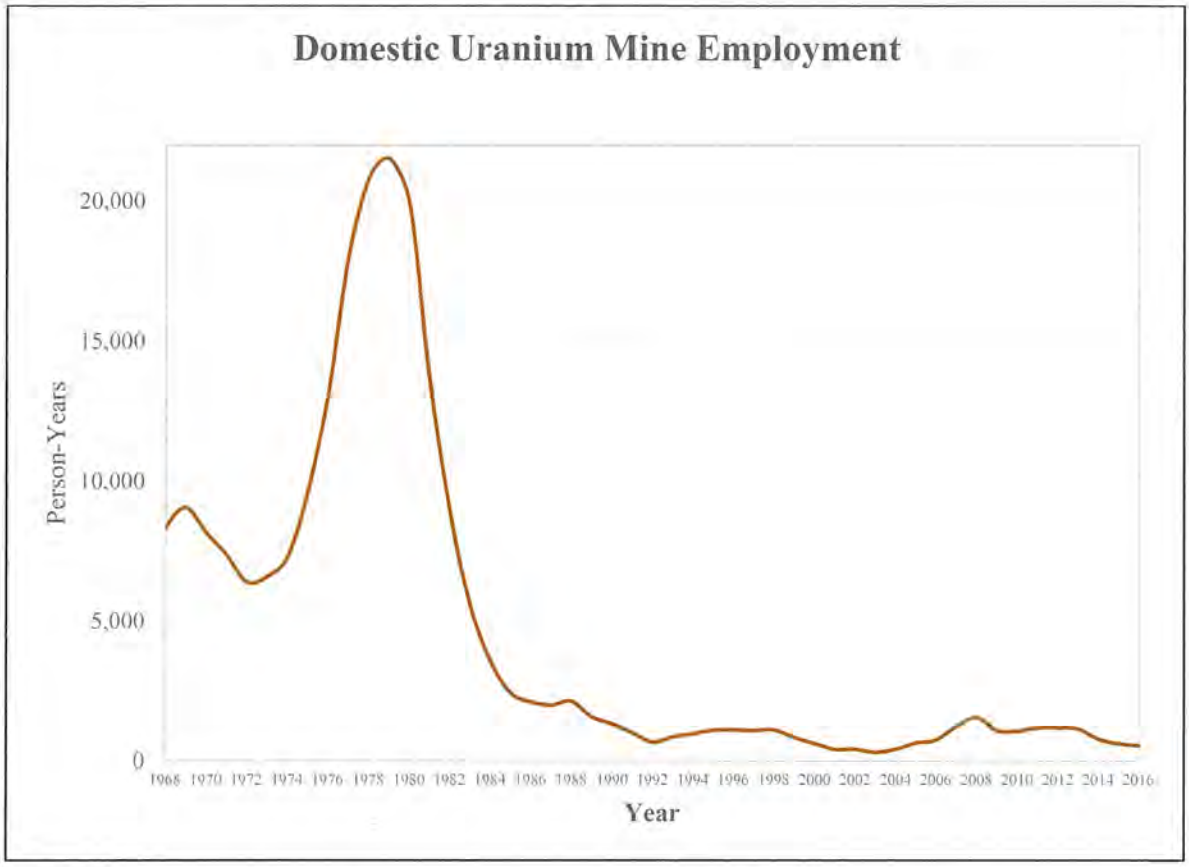
Energy Fuels operates both conventional and ISR uranium production facilities in the U.S. Its primary projects include the only remaining operable conventional uranium mill, the White Mesa Mill in Utah, and two ISR facilities, the Nichols Ranch ISR Project in northeast Wyoming and the Alta Mesa ISR Project in south Texas. Combined, these three facilities represent 11.5 million pounds of U_3O_8 annual licensed uranium production capacity. Energy Fuels has produced more than six million pounds U_3O_8 of conventional uranium since 2010 at its White Mesa Mill. Energy Fuels' Nichols Ranch Project is a significant ISR operation, which, as of September 2017, had produced over one million pounds of uranium, and the company's Alta Mesa ISR Project produced over 4.6 million pounds of uranium between 2005 and 2012. Alta Mesa is currently on standby awaiting improved market conditions. Energy Fuels has also completed pre-production development at its Canyon Mine, a high-grade conventional uranium and copper mine in Arizona, and it owns a number of other permitted and developed conventional mines in Arizona, Utah, Colorado, and Wyoming that are on standby awaiting improved market conditions. Energy Fuels holds the largest uranium resource base of any company in the U.S., with 85.41 million (measured plus indicated) and 49.9 million (inferred) pounds of U_3O_8. In addition, Energy Fuels is permitting three large uranium mines for future production if market conditions improve: the Roca Honda Project (New Mexico), the Henry Mountains Project (Utah), and the Sheep Mountain Project (Wyoming). Exhibits 4 and 5 provide additional information about Petitioners.

Figure 3


Location of Petitioners Uranium Production Centers
Nichols Ranch Project
Operational (270,000 lbs – 2017)
Shirley Basin
Permitting in Process
Sheep Mountain Mine
Permitted
Lost Soldier
Exploration Project
Lost Creek
Operational ~270,000 lbs-2017
La Sal Mine
Standby
Daneros Mine.
Standby
Whirlwind Mine
Standby
Henry Mountain Proj.
Standby
White Mesa Mill
Operating (308,000 lbs – 2017)
Canyon Mine
Development
Roca Honda Project
Permitting
Alta Mesa ISR Project
Standby
Legend
- UR Energy Inc. Uranium Projects
- Energy Fuels Resources (USA) Inc. Uranium Projects

The ISR technology used by both Energy Fuels and Ur-Energy is a highly efficient, cost-effective, environmentally responsible, and low impact mining method for the recovery of uranium from sandstone-hosted ore bodies. The significant conventional mining infrastructure in existence, owned by Energy Fuels and others, and the relatively high grades of U.S. conventional ores compared to most other countries, makes U.S. conventional production cost effective. Petitioners' modern and efficient ISR operations and existing conventional mining infrastructure allow Petitioners to be among the most cost-competitive producers of uranium in the world. However, given the influence of non-market factors and state-sponsored competition, Petitioners are struggling to remain viable despite their technical skills and low-cost operations. Indeed, collectively, Petitioners laid off more than 71 people in 2016 and an additional 30 people in 2017. Petitioners are not the only entities in the uranium production industry that have faced workforce reductions. As the following chart indicates, industry employment has been in a steady decline in recent years.

Figure 4



Source: Data in Figure 4 based on data provided in Table 6 of the EIA 2016 Domestic Uranium Production Report.

The uranium mining industry has also been disadvantaged by U.S. government actions that have made the industry more vulnerable to imports. Since 2009, DOE has sold significant quantities of uranium from its stockpile to support the cost of environmental cleanup at certain DOE sites.[16] The practical effect of DOE's actions has been to further decrease the price of uranium by adding even more price insensitive supply to an already

[16] The remaining DOE excess inventory that is unallocated and does not require significant processing is estimated to be ~13.6 million pounds of U_3O_8, enough uranium to supply the U.S. commercial fleet for three months. This estimate excludes off-specification and DUF_6 inventories which both require significant processing. Off-specification uranium is defined as uranium, in any form, that does not meet the specification for commercial material, as defined by the standard of the American Society for Testing and Materials or other accepted industry standards.

oversaturated market. In short, the problems confronting the U.S. industry have been exacerbated by U.S. government policy.

It should be noted that the decline of the industry has had a direct impact on state and local governments in states in which uranium miners were producing or are now producing at greatly diminished production rates. Revenues in the forms of severance and/or ad valorem taxes, payroll and sales taxes, etc., are being lost with each reduction in operations. In Wyoming alone, with reduced production of approximately two million pounds in 2016, the estimated value of these state and local taxes was in excess of $33 million. (See Exhibit 12). In Nebraska, severance taxes alone showed a decline from approximately $1 million ten years ago to only $1,000 in 2016.

III. THE URANIUM INDUSTRY

A. Uranium Market and Pricing

1. Pricing and Market Structure

Uranium is a global commodity. It is generally traded through privately negotiated spot and term contracts, and the market is therefore relatively opaque. Because uranium is part of the supply chain for the nuclear fuel cycle, the price of uranium is impacted by shifts in the markets for the other elements of the fuel cycle supply chain, including uranium conversion and enrichment. The price of uranium is also impacted by new reactor construction, reactor closures, existing and new mine supply, mine depletion, and secondary supplies.

Until relatively recently, the U.S. was a leader in nuclear energy and innovation. As noted in the EFI Report, the U.S. has historically had "a robust, highly-integrated supply chain of people, businesses, and facilities across the country, providing critical research, technical services, and equipment to customers spanning the commercial nuclear power

sector to the nuclear Navy."[17] This formerly robust domestic industry and supply chain, however, has suffered "erosion" because of the changing economic realities of the nuclear industry.[18]

According to the World Nuclear Association ("WNA"), uranium mines worldwide produced approximately 161.3 million pounds of U_3O_8 in 2016, enough uranium to meet nearly all utilities' annual requirements.[19] Despite an existing surplus of uranium available in the market, this figure represented an increase of approximately 26.44 million pounds ofU_3O_8 from 2015. The remainder of the supply necessary to meet 2016 demand was provided from secondary sources, including stockpiled uranium from government inventories.[20] The increase in global production, in the face of an existing market surplus and the difficult economic conditions facing the entire nuclear supply chain after the 2011 Fukushima incident, has led to a significant decline in the price of uranium. It deserves emphasis that virtually all of the production increase observed since 2011 has been state-owned production from Kazakhstan.[21]

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[17] EFI Report, p. 25; see also CSIS, "Ensuring Landmarks in Nuclear Energy: A National Security Imperative" (2013).

[18] EFI Report, p. 25.

[19] See WNA, Uranium Markets (update July 2017), available at http://www.world-nuclear.org/information-library/nuclear-fuel-cycle/uranium-resources/uranium-markets.aspx.

[20] Id.

[21] The Nuclear Review, A TradeTech Publication, "Economics of ISR Mining Technology," (October 2016).

Figure 5

Source: Price information included in this chart was compiled by Ux Consulting.

In 2007, when there was a perception of "imminent scarcity," the spot price for uncontracted sales of U_3O_8 skyrocketed to over $130 per pound.[22] In contrast, the spot price remained between $20 and $26 throughout 2017.[23] Although most uranium is supplied under long-term contracts, and average contract prices exceed the spot prices, long-term contract

[22] See WNA, Uranium Markets (update July 2017), available at http://www.world-nuclear.org/information-library/nuclear-fuel-cycle/uranium-resources/uranium-markets.aspx. According to the WNA, UxC reported the long-term price to be approximately $32 per pound through June 2017.

[23] See WNA, Uranium Markets (update July 2017), available at http://www.world-nuclear.org/information-library/nuclear-fuel-cycle/uranium-resources/uranium-markets.aspx. There was a slight uptick in price in early 2017 to approximately $23 per pound, but this increase was not sustained throughout the remainder of the year. See http://www.uraniumparticipation.com/s/Uranium_Market.asp.

prices have dropped precipitously as well.[24] According to data from industry analyst TradeTech LLC ("TradeTech"), the long-term contract price of uranium was $95 per pound of U_3O_8 in 2007 and early 2008. Today, the long-term contract price of uranium is $30 per pound of U_3O_8, a 68% decline. Long-term contracts are essential to sustain long-term production. They are also necessary to stimulate new production or the re-start of production on standby, which typically requires the investment of capital and an associated need for contracted price security prior to making an investment.

There is no centralized long-term futures or spot market for uranium. Contracting takes place between a producer and utilities or through a trader or broker. The reported exchange value is only a rough index of what the spot price would be if there were a centralized market. The exchange value, as defined, is simply an estimate of the price at which transactions for immediate delivery could have been concluded as of the last day of the month. In one such method of procurement, contract price procurement, the prices and any associated escalation factors are specified when the contract is signed. Alternatively, when a market price contract is utilized, prices are typically determined after the contract is signed, but before delivery, and based on prevailing market prices. Some market contracts include a specified floor price and, in addition, there are various other types of supply arrangements, including procurement by certain international utilities from uranium properties that they directly control.

[24] See WNA, Uranium Markets (update July 2017), available at http://www.world-nuclear.org/information-library/nuclear-fuel-cycle/uranium-resources/uranium-markets.aspx.

2. Long-Term Contracts

U.S. uranium producers have historically relied upon long-term (*i.e.*, greater than three years) uranium sales agreements with nuclear utilities to support mine development and financing. Mining operations require significant upfront capital and financing before the first ton of ore is mined or the first pound of product is produced. Establishing long-term uranium sales agreements with utilities provides a uranium producer well-defined revenue that is insulated from the volatility of the spot market. The agreements also provide a basis for project financing. In the absence of long-term contracts, the investment uncertainty makes it difficult to obtain the financing necessary to develop and operate mines. State-owned entities, such as those in Russia, Kazakhstan, and Uzbekistan, are insulated from these concerns due to direct government investment and subsidization.

Foreign government owned uranium producers are not exposed to financing risk because they receive guaranteed financing and other valuable benefits from their government. For example, the following excerpt describes the Russian approach:

> There is high-level concern about the development of new uranium deposits, and a Federal Council meeting in April 2015 agreed to continue the federal financing of exploration and estimation works in Vitimsky Uranium Region in Buryatia. It also agreed to financing construction of the engineering infrastructure of Mine No. 6 of Priargunsky Industrial Mining and Chemical Union (PIMCU). The following month the Council approved key support measures including the introduction of a zero rate for mining tax and property tax; simplification of the system of granting subsoil use rights; inclusion of the *Economic Development of the Far East and Trans-Baikal up to 2018* policy in the Federal Target Program; and the development of infrastructure in Krasnokamensk.[25]

[25] World Nuclear Association, "Russia's Nuclear Fuel Cycle," Updated October 2017, accessed on January 5, 2018 at http://www.world-nuclear.org/information-library/country-profiles/countries-o-s/russia-nuclear-fuel-cycle.aspx.

Until relatively recently, the uranium market was characterized as approximately 90% long-term supply transactions and 10% spot supply transactions. Today, however, the uranium market is oversupplied due to various factors, including secondary supplies and price insensitive production. The spot price and the long-term price have been impacted significantly by this oversupply, resulting in what is characterized as mid-term contracting with agreements for delivery stretching one to three years. The circumstances have been described by a leading industry consultant as follows:

> A major difference now versus earlier periods of inventory disposition has been the development of mid-term contracting and the associated forward price curve. Instead of sinking to very low levels as it did early last decade, spot demand has remained relatively high as it has become economic to buy and hold uranium for future use. Traders and other intermediaries can buy spot and, due to relatively low interest rates, can carry the material for future delivery under a mid-term contract. Utilities have also purchased spot material into inventory for future use.[26]

Mid-term contracting is more accurately characterized as essentially receiving today's spot price, and then paying interest and storage charges to hold the spot price until the actual purchase is made some time in the future. Traders, other intermediaries, and some utilities act as inventory sellers, and aided by low interest rates, can offer uranium for delivery in years beyond 2020 that compete for demand that has in the past typically been covered by long-term supply agreements.[27] This has created a market that is increasingly driven by the spot price, whether as part of spot sales agreements or mid-term agreements, and resulted in fewer long-term uranium supply agreements being executed.

As subsidiaries of publicly-traded companies, the Petitioners are required to disclose the general terms of their long-term uranium supply agreements with respect to their financial

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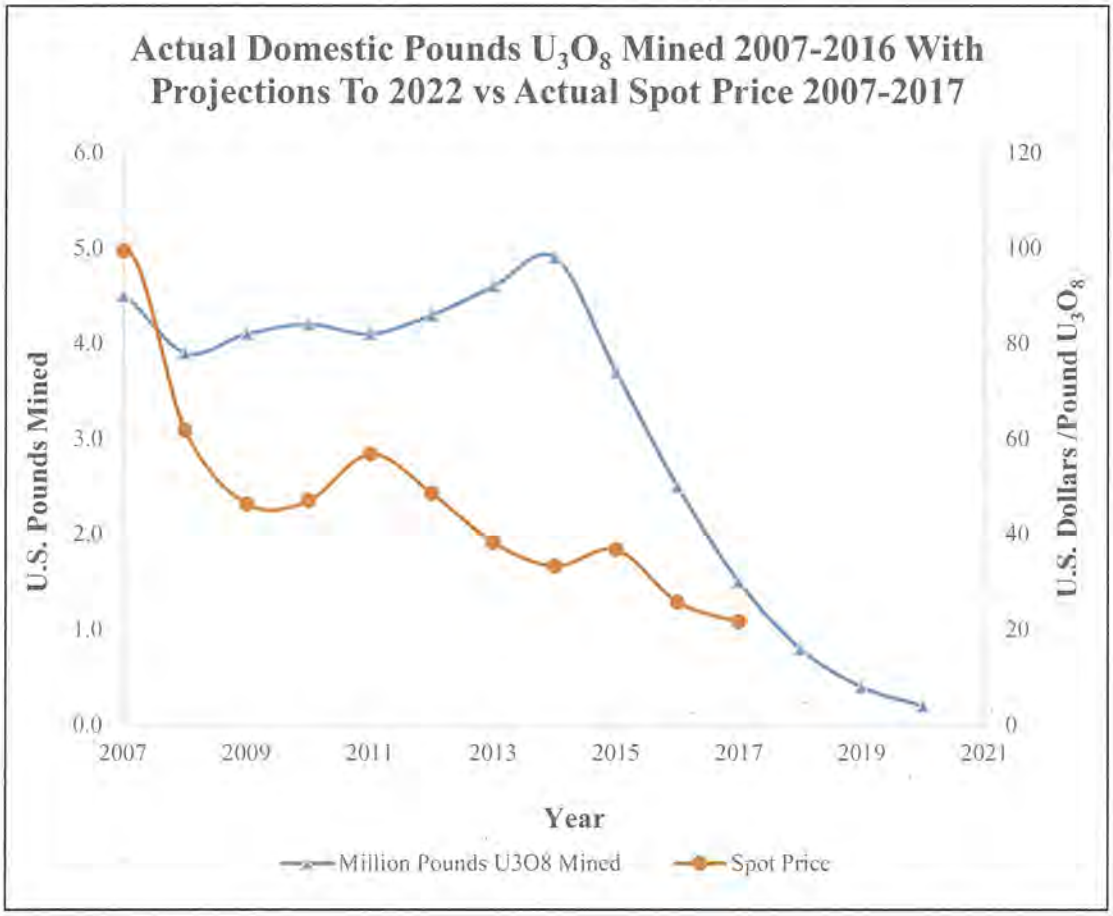
[26] UxWeekly, "Prices in an Inventory-Driven Market," Vol. 29 No. 46 (November 16, 2015).

[27] Id.

statements and guidance. Those disclosures make it evident that these long-term uranium supply agreements are beginning to expire without replacement due to the prevailing market conditions described above. The low uranium spot price is now a significant driver in the term price for new long-term uranium supply agreements and is insufficient to support future development of current and planned uranium mines. As these long-term agreements expire, U.S. producers, including the Petitioners, will be financially challenged as they become even more exposed to spot market related pricing.[28]

Figure 6



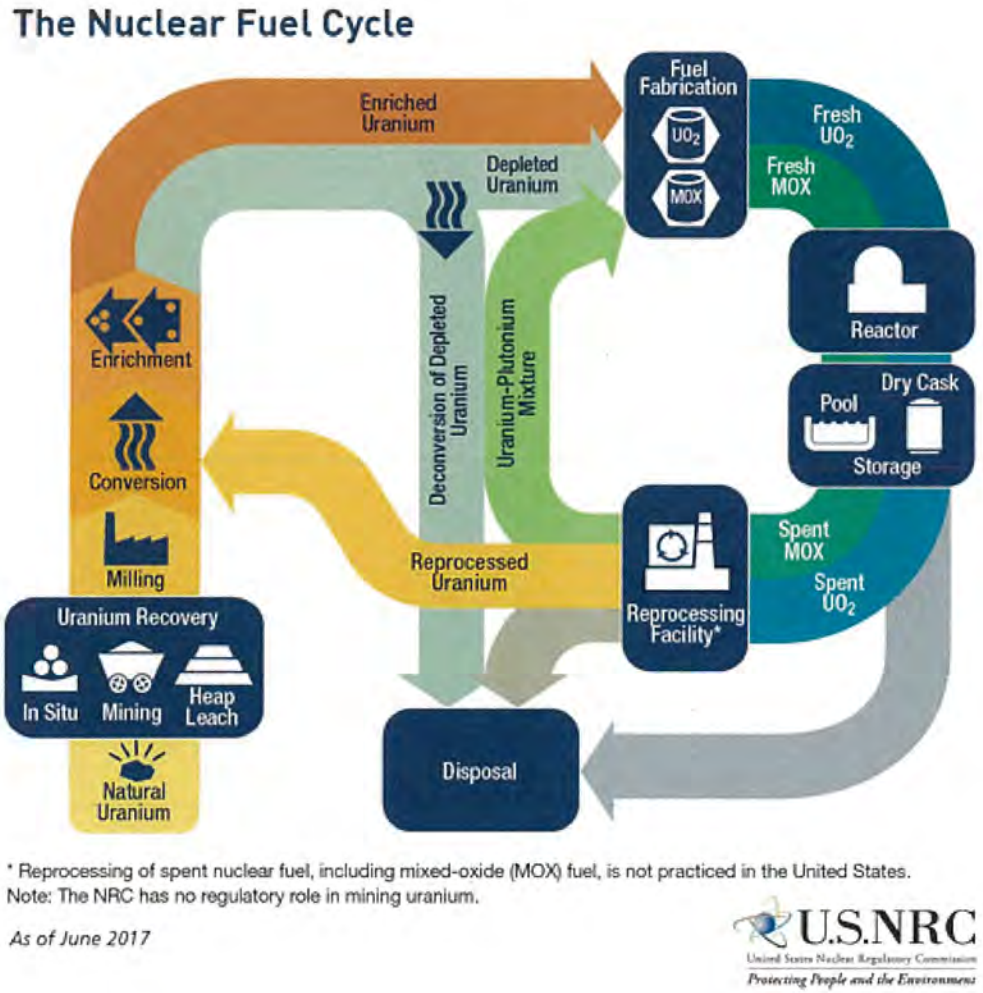
Source: Spot price information provided by Ux Consulting, domestic pounds mined is from EIA Uranium Market Annual Reports for years 1990-2016. The EIA reports can be found at https://www.eia.gov/uranium/marketing/

[28] UxWeekly, "Striking a New Balance," Vol. 30 No. 20 (May 16, 2016).

B. Uranium and the Nuclear Fuel Cycle

This Petition covers imports of uranium in all forms. This is necessary to assure that any remedy adopted to sustain the domestic mining industry cannot be circumvented. To understand how these different forms of uranium are interrelated, it is important to review the different stages of the nuclear fuel cycle.

Figure 7



Source: Figure from the Nuclear Regulatory Commission, https://www.nrc.gov/materials/fuel-cycle-fac/stages-fuel-cycle.html

Mining is the first step in the cycle, and the primary focus of this Petition. Uranium is mined by (1) conventional underground or open pit methods, or (2) by the ISR process.

When uranium is mined conventionally, the ore is first crushed and ground up. Next, the ore is treated with an acid or alkaline solution to dissolve the uranium, which is recovered from solution. With the ISR process, uranium is dissolved in place from a porous underground ore body and pumped to the surface as a liquid. The product of the mining and milling stages, or of ISR production, is uranium concentrate, or U_3O_8, commonly referred to as "yellowcake." The uranium in U_3O_8 is composed of three isotopes; 99.284% is U-238, 0.711% is U-235 and trace amounts are U-234 by weight. U-235 is the fissile fraction that can be used as nuclear reactor fuel and in weapons. U_3O_8 is the form in which most natural (unenriched) uranium is traded and sold.

Before uranium can be used to generate electricity in a reactor, it must undergo a series of processes to transform natural uranium into nuclear fuel. For most of the world's reactors, the next step in producing nuclear fuel is the conversion of the U_3O_8 into a gas, uranium hexafluoride ("UF_6"), which enables the U-235 isotope to be enriched by either the centrifuge or gaseous diffusion process. In the U.S., U_3O_8 is chemically converted by a private company, ConverDyn. The product of conversion, UF_6, is the feed material for the enrichment plants. Enrichment is necessary for uranium to be used as fuel because the amount of fissile U-235 in natural uranium is too low to sustain a nuclear chain reaction in light-water reactors. In November 2017, ConverDyn, the only U.S. converter, announced it was suspending operations because of the "significant challenges" faced by the nuclear industry.[29] ConverDyn noted that, because of the business outlook, it would temporarily idle production at its Metropolis, Illinois site, but would maintain minimal operations to support

[29] Statement from Honeywell, available at http://www.honeywell-metropolisworks.com/?press_release=statement-from-honeywell. See also World Nuclear News, "US Conversion Plant Suspends UF6 Production" (November 21, 2017) available at http://www.world-nuclear-news.org/UF-US-conversion-plant-suspends-UF6-production-2111177.html.

a future restart should business conditions improve.[30]

Uranium enriched to greater than 20% U-235 is "highly-enriched uranium" or "HEU," and is used in naval reactors as well as in weapons. For propulsion applications, the use of HEU permits greater technical efficiency in reactor design and operation, and it allows the use of ordinary water as a moderator. Uranium enriched to less than 20% U-235 is "low enriched uranium" or "LEU." LEU is typically used in light water commercial nuclear reactors for the generation of electricity. Most of today's commercial reactors require uranium to be enriched to three to five percent U-235.

After enrichment, the UF_6 gas is converted to uranium dioxide ("UO_2"), which is then formed into fuel pellets by a fuel fabricator. The fuel pellets are then placed inside thin metal tubes, called fuel rods, which are assembled into bundles to become the fuel elements or fuel assemblies for insertion into the core of a reactor. A typical commercial power reactor might contain as many as 51,000 fuel rods with over 18 million uranium pellets.[31]

Petitioners produce uranium in the form of yellowcake, often described as U_3O_8, the end-product of the mining and milling stages, or of the ISR process. However, as detailed later, to ensure that the proposed remedy cannot be easily circumvented, the relief measures called for in this Petition must cover uranium content regardless of the form in which it is imported. Otherwise, it would be possible for foreign uranium producers to ship material to a facility based outside the U.S. for conversion or enrichment (or both) and import natural uranium that has been incorporated into a finished product at a more advanced stage of the

[30] Statement from Honeywell, available at http://www.honeywell-metropolisworks.com/?press_release=statement-from-honeywell.

[31] The source for the foregoing description of uranium is the WNA's uranium overview. WNA, "What is Uranium? How Does it Work?" http://www.world-nuclear.org/information-library/nuclear-fuel-cycle/introduction/what-is-uranium-how-does-it-work.aspx (last visited January 16, 2018).

fuel cycle. These forms could include, for example, LEU, UF_6, off-specification uranium, and uranium contained in fuel rods and assemblies. To prevent uranium in the different parts of the nuclear fuel cycle from bypassing the relief measures, the uranium content should be utilized to measure and limit the volume of imports regardless of the form in which the uranium is imported. A detailed definition of the covered uranium products that are the subject of this Petition is discussed below at page 96-98.[32] The effect of this definition is to administer the proposed quota by reference to the U_3O_8 equivalent amount of uranium in the imported material.

C. U.S. Uranium Resources and Mining Processes

1. U.S. Uranium Resources

The EIA's "2016 Domestic Uranium Production Report," includes the following estimates of total U.S. uranium resources recoverable at different price levels:

Maximum forward cost of up to $30/pound	60 million pounds U_3O_8
Maximum forward cost of up to $50/pound	160 million pounds U_3O_8
Maximum forward cost of up to $100/pound	339 million pounds U_3O_8

These resource estimates have been dramatically reduced from previously reported estimates. For example, in the maximum forward cost ("MFC") category of up to $100/pound, the 2016 resource estimate of 339 million pounds of U_3O_8 represents a 362% reduction from the same category reported by the EIA in the U.S. Uranium Reserves Estimates in July 2010. This reduction reflects a re-evaluation by the EIA of historical estimates used in earlier EIA and the DOE National Uranium Resource Evaluation

[32] This definition is consistent with the product covered by the Russian Suspension Agreement. See Exhibit 15, p. 49235.

("NURE") program and the fact that there are now fewer reporting entities. Although the current EIA-851A survey covers a much smaller group of properties, the EIA believes that this new data provides more reliable estimates of recoverable uranium at the specified MFC. Relying on this revised EIA data, the joint report published by the Nuclear Energy Agency ("NEA") and the IAEA, "Uranium 2016: Resources, Production and Demand," reports similarly reduced U.S. resources.

From an industry perspective, there is another practical approach that can be used to estimate U.S. uranium resources. This approach is based on resource data reported on uranium exploration/production company web sites, supplemented with the application of industry-specific knowledge. Generally, resource estimates conform with the CIM standards or the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Resources (the "JORC Code"), which classify resources as measured, indicated, or inferred. The measured and indicated resources fall into the international resource category of Reasonably Assured Resources ("RAR"). Internationally, most countries report both RAR resources, and inferred resources; however, the U.S. EIA reports only its equivalent of RAR resources and its figures do not include inferred resources.

A review of industry data and web sites from 14 major uranium exploration/production companies reveals a total RAR uranium resource in the U.S. of 836 million pounds of U_3O_8 and an inferred uranium resource total of 353 million pounds of U_3O_8. These resources, whether they are held in inventory or are currently being developed, represent the uranium industry's estimate of this country's known resources. The 836 million pounds of RAR resources would be included in the MFC category of up to $100/pound and is more than double the U.S. uranium resources currently estimated by the EIA.

The following table shows the RAR estimated from an evaluation of resource data of 14 major uranium exploration/production companies. These RAR resources are identified by states of origin. There is insufficient economic analysis published on these resources to group them into detailed forward cost categories.

Figure 8

U.S. Reasonably Assured Resources by State As of November 2017	
State	Total (millions of pounds U_3O_8)
Wyoming	467
New Mexico	148
Virginia	133
Nebraska	19
Utah	19
Arizona	19
Texas	11
Colorado	11
South Dakota	9
TOTAL	**836***

* Does not include any byproduct material

2. U.S. Uranium Deposits

In the western states of Wyoming, Nebraska, Texas, New Mexico, South Dakota, Utah, Arizona, and Colorado, most uranium resources are located within sedimentary host rocks. Many attractive exploration targets have been discovered within this region's sedimentary environment over the past 60 years, and additional exploration and development drilling will continue to provide a supply of economic uranium deposits in the future. The one notable exception to western sedimentary deposits is the large Coles Hill deposit in Virginia. This deposit exists in a crystalline environment, with uranium mineralization found in granitic-type rocks, and is similar to large deposits/mines in southern Africa.

In considering the impact of imports on the domestic uranium mining industry, it is critical to keep in mind that it takes a significant amount of time to bring the uranium deposits in the U.S. into production. Accounting for each of the steps from exploration through construction, it generally takes over ten years to bring a uranium deposit into production. Thus, despite the relatively large number of known U.S. uranium deposits, if the domestic uranium mining industry vanishes, further development and extraction of these resources would be difficult without a multi-year investment to restart production.

3. Mining

As noted above, uranium miners in the U.S. utilize two extraction methods – conventional mining, in which uranium ore is removed from underground or open pit mines, and ISR, in which the uranium ore is dissolved underground before being pumped to the surface for processing.

Underground, or conventional mining, is used to extract uranium that is below the surface and too deep to extract through open pit mining. In conventional uranium mining, the ore is drilled, then blasted to create broken rock containing uranium, which is transported to a mill for processing. Milling is the process that removes the uranium from the broken rock and concentrates the uranium product. In the milling process, the rock is crushed and pulverized into fine fragments and water is added to create a slurry. This slurry is then mixed with sulfuric acid or an alkaline solution to release the uranium from the host rock. Typically, it is possible to extract 95 to 98% of the uranium from the host rock. Uranium oxide or yellowcake is precipitated from this acid or alkaline solution. The yellowcake is dried and packaged for delivery to a uranium conversion facility. After a conventional mine is depleted, the land is reclaimed to pre-mining conditions so it can be made available for the land's pre-mining uses.

ISR is another common approach to mining uranium in the U.S. and involves injecting water, containing an oxidant and bicarbonate, into the mineralized formation via water wells. As the solution moves through the rock, it oxidizes the uranium in porous rocks, causing it to go into solution. The uranium-enriched solution is then pumped to the surface. These wells recover more fluid than was placed originally into the rock formation to create a hydrologic "cone of depression" that minimizes the possibility of off-site migration of uranium- and mineral-enriched waters. Uranium is removed from the solution using an ion exchange process after which the water is refreshed with oxidant and carbonates (if needed) and recycled for further recovery operations. After the uranium in a given rock formation has been depleted to its economic limits, ISR operations in the U.S. must be restored to prescribed standards to ensure that underground sources of water are not impacted.

IV. STATE OF THE DOMESTIC INDUSTRY

A. The U.S. Uranium Market in Historical Perspective

1. 1989 Section 232 Investigation

In 1989, the Department conducted a Section 232 investigation on the effect of imports of uranium on national security. That Section 232 action was initiated by the request of the Secretary of Energy, pursuant to the Atomic Energy Act of 1954.[33] The impetus for the 1989 investigation was an increase in imports that resulted in the share of uranium imported by utilities exceeding 37.5% of purchases for two consecutive years: 43.8% of the utilities' requirements in 1986 and 51.1% in 1987. The Secretary of Energy therefore requested an investigation to determine if the increasing level of imports could have a

[33] 42 U.S.C. § 2210b.

negative impact on national security. Although the Department concluded in 1989 that no action was necessary, in the intervening 30 years, conditions have deteriorated dramatically.

The contrast is stark. In 1989, U.S. uranium producers supplied nearly 66% of the U.S. utilities' uranium requirements. In 2016, domestic uranium producers supplied a fraction of that figure, just six percent.[34] As U.S. uranium producers, including the Petitioners, further reduced production in response to low prices, the domestic supply percentage for 2017 is expected to drop to less than five percent. Employment figures also confirm how times have changed. When the Department undertook the earlier Section 232 investigation in 1989, the domestic uranium industry employed approximately 1,583 persons, down from the peak figure of 21,521 employees in 1979. The U.S. uranium industry was reported in 2016 to have only approximately 500 employees, less than one-third the number in 1989, and that number continues to decline.[35]

[34] The 1989 report indicates that in 1986, U.S. utilities imported 43.8% of their uranium requirements, and in 1987, U.S. utilities imported 51.1% of their uranium requirements.

[35] Data is from various Energy Information Administration Uranium Marketing Annual Reports which can be found at https://www.eia.gov/uranium/marketing/html/summarytable1b.php.

Figure 9

The State of the Uranium Market – 1989 and Today		
	1989[36]	2017
Approximate percentage of U.S. utilities' uranium requirement supplied by domestic production	66%	5%
Employment	1,583	500
Industry Participants	39	5 (*3 inactive*)

2. Russian Suspension Agreement

The Russian Suspension Agreement was signed in October 1992 to settle an antidumping investigation that had resulted in a preliminary determination that Russian uranium was being sold at unfairly low prices and should be subject to an antidumping duty in excess of 100%.[37] The Russian Suspension Agreement is a complex arrangement that was originally intended to serve several primary goals. First and foremost, it was designed to protect U.S. miners by establishing a flexible quota tied to a computed average of the spot market price and long-term contract prices. At a low price, no Russian uranium imports were to be allowed. As the computed average price increased, imports would be permitted in increasing quantities. Second, the Russian Suspension Agreement allowed the Russian nuclear enterprises to fulfill certain pre-existing long-term contracts with U.S. utilities and

[36] The figures included in this table are the figures reported in the 1989 Section 232 investigation of imports of uranium and in the 1993 EIA Uranium Industry Annual Report. Some of the figures are approximate and several were reported in 1989 but represent values from 1986 and 1987.

[37] 57 Fed. Reg. 23380 (June 3, 1992) (Commerce's affirmative preliminary determination in the investigation concerning the newly independent, formerly U.S.S.R. countries); 57 Fed. Reg. 49220 (October 30, 1992) (Notice of the Russian Suspension Agreement).

thereby continue to earn hard currency in a critical period of transition following the demise of the U.S.S.R. Third, the Agreement included detailed and robust language to prevent circumvention of the terms agreed to by the U.S. and Russia, including a provision subjecting Russian-origin uranium inventories then held in U.S. to the import limitations of the Agreement.

The Russian Suspension Agreement has been amended many times in the 25 years it has been in effect, but for present purposes it is relevant to focus on the most recent amendment, which was adopted in 2008 and includes key provisions that currently govern trade in uranium products between the U.S. and Russia. The 2008 amendment allowed a significant increase in the annual export limits under the Agreement beginning in 2014, the year after the High Enriched Uranium Agreement between Russia and the U.S. expired. It also reconfirmed and clarified that all uranium products, regardless of form, count against the import limits established by the Agreement. Finally, it conclusively established that the Russian Suspension Agreement will terminate on December 31, 2020. Russian officials have already stated that Russia intends to significantly increase its uranium exports to the U.S. once the limits of the Suspension Agreement are removed.[38]

The Russian Suspension Agreement has been subject to sunset reviews by the U.S. International Trade Commission ("ITC") every five years, and those proceedings have consistently demonstrated the decline of the U.S. industry. EIA data, as summarized by the ITC in its third sunset review of the Russian Suspension Agreement in 2012, showed that U.S. uranium production peaked from 1996 to 1998 and then declined steadily from 1999 to

[38] InvestorIntel, "Russia plans to increase US uranium market presence from 25-35% by 2020" June 22, 2017, https://investorintel.com/sectors/uranium-energy/uranium-energy-intel/russia-plans-increase-us-uranium-market-presence-25-35-2020//.

2003.[39] Uranium concentrate production, shipments, and employment in the U.S. uranium production industry during that period show a similar downward trend. The ITC also concluded during its 2005-2006 Sunset Review of the Russian Suspension Agreement that the U.S. uranium mining and milling industry had experienced significant closures and output cutbacks.[40] According to the ITC, key factors that had caused prices to decline and domestic facilities to be shut down prior to 2004 included continued large-volume purchases of lower-cost uranium from Canada, Australia, and the former U.S.S.R (*i.e.*, from Russia, Kazakhstan, and Uzbekistan).[41]

Most recently, the ITC confirmed in its 2017 sunset review that the domestic uranium market has experienced a significant decline, and it concluded that Russian dumping of uranium at unfairly low prices was likely to resume if the Russian Suspension Agreement were terminated. The ITC also highlighted the increased presence of Kazakhstan in the uranium market, noting specifically that Kazakhstan "has emerged since its second five-year review" as a "major producer" of uranium.[42] Although Kazakhstan was initially subject to the same investigation that resulted in the Russian Suspension Agreement,[43] the Department terminated the suspension agreement that covered Kazakhstan in July 1999.[44] However, after the suspension agreement with Kazakhstan was terminated, it took less than a decade

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[39] See ITC Determination in Third Sunset Review, p. I-39 (February 2012).

[40] Id.

[41] Id.

[42] Id., p. I-42.

[43] See, e.g., Agreement Suspending the Antidumping Investigation on Uranium from Russia (October 16, 1992), 57 Fed. Reg. 49220 (October 30, 1992).

[44] See, e.g., Uranium from Kazakhstan, 64 Fed. Reg. 10317 (March 3, 1999) (notice of continuation of review); Uranium from the Republic of Kazakhstan, 64 Fed. Reg. 31179 (June 10, 1999); Uranium from Kazakhstan, Inv. No. 731-TA-539A (Final), USITC Pub. 3213 (July 1999).

for the Kazakhs, with significant government aid, to became a dominant global uranium producer and an ever-increasing importer of uranium to the U.S. Uzbekistan was also previously covered under a suspension agreement which was also terminated after the first review by the ITC of the suspension agreements.[45]

All three of these former Soviet republics – Russia, Kazakhstan, and Uzbekistan – were subject to the original finding of dumping issued by the Department in 1992 and all three, as significant uranium importers, remain a threat to the U.S. industry today.

B. The Uranium Market Today

The U.S. uranium mining industry has faced its greatest challenges during the past five years. As previously noted, U.S. utilities now only purchase less than five percent of their uranium requirements from domestic miners. At the current low spot price of approximately $23.75 per pound, U.S. production is simply not economic, and it is not profitable for domestic producers to enter new sales agreements at such a low price. Therefore, the amount of domestic uranium purchased by U.S. utilities from U.S. uranium producers must increase to enable the domestic uranium industry to survive.

In 2016, the most recent full year for which statistics are available, uranium mine production in the U.S. continued to fall, dropping to just 2.5 million pounds of U_3O_8 from 3.7 million pounds of U_3O_8 in 2015, a 32% decrease in just a single year.[46] Current

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[45] See Uranium from Russia, Ukraine, and Uzbekistan, Inv. Nos. 731-TA-539C, E, and F (Review), USITC Pub. 3344 (August 2000). According to the ITC's latest sunset review, "the [ITC]'s negative determination with respect to uranium from Uzbekistan was appealed to the U.S. Court of International Trade, which affirmed the [ITC]. Ad Hoc Committee of Domestic Uranium Producers v. United States, 162 F. Supp. 2d 649 (Ct. Int'l Trade 2001). The [ITC]'s affirmative determination with respect to subject imports from Russia was not challenged. No review of the order on imports from Kyrgyzstan was conducted by the [ITC] because the Department revoked that order due to a lack of a response to the notice of institution by domestic interested parties." See ITC Determination in the Fourth Sunset Review, p. 4.

[46] See U.S. Energy Information Administration, "2016 Uranium Marketing Annual Report," June 2017, available at https://www.eia.gov/uranium/marketing/pdf/2016umar.pdf.

projections for 2017 indicate that this trend of declining domestic production is continuing and accelerating. Numerous mines have closed, been placed on standby, or dramatically curtailed production. Even Cameco Corporation, the world's largest publicly traded uranium mining company, ceased all new development, reduced production, and laid off over half of its workforce at its U.S. mining operations in 2016.[47]

Ur-Energy and Energy Fuels produced more than half of all uranium produced in the U.S. in 2017, with Ur-Energy producing about 270,000 pounds of U_3O_8 and Energy Fuels producing about 650,000 pounds of U_3O_8. Petitioners utilize efficient modern mining methods and have world-class production capabilities. Nevertheless, they have laid off significant numbers of workers and face a grim future without Section 232 relief from imports. The layoffs and reduction in production at the U.S. industry's facilities are also notable because the cost efficiency of ISR recovery increases with higher production rates. Accordingly, if the members of the U.S. industry are provided with relief that allows them to increase production, the cost per pound of uranium recovered will decline and make U.S. producers even more competitive.

In addition to cost saving measures such as layoffs (see pp. 20, *supra*), Petitioners are currently sustaining their businesses through existing long-term contracts with utilities that require the utility counterparties to purchase specified quantities of uranium from Petitioners through 2020 or 2021. However, once these contracts expire, Petitioners' current operations will be unprofitable unless there is a significant change in market conditions or the U.S. industry is granted the requested relief. If Petitioners were forced to shut down their

[47] The Casper Star Tribune reported that there would be 85 workers laid off between Smith Ranch in Wyoming and Crow Butte in Nebraska. Casper Star Tribune "Uranium Miner Cameco to cut 85 jobs in Wyoming and Nebraska" (April 21, 2016) available at http://trib.com/business/energy/uranium-miner-cameco-to-cut-jobs-in-wyoming-and-nebraska/article_05bb6741-0930-56ce-a814-e5c53dbc1285.html.

operations, the U.S. will have no remaining reliable domestic source of uranium production and the additional industry job losses will have a significant economic impact on uranium-mining communities in the West.

The economic impact is even more acute because the domestic uranium industry has been suffering from a steady decline in jobs, falling 53% percent since 2012.[48] These job losses include geologists, chemists, engineers, plant operators, drillers, miners, and technicians whose skills and experience are not easily duplicated. If the U.S. industry ceases operations, these highly-skilled workers would be forced to find work elsewhere and could not easily be recalled to the industry. Not only would this job loss have a significant impact on families and their local communities and the economy, it would remove the U.S. from the front end of the nuclear fuel cycle and weaken the position of other domestic participants such as ConverDyn, the country's sole uranium conversion facility. As noted above, ConverDyn has suspended operations at its Metropolis, Illinois plant, leaving the U.S. without an operating conversion facility.[49]

Petitioners and other members of the domestic industry are not facing these difficulties because they have inefficient business practices or high costs of operations. The domestic uranium industry has made significant investment in ensuring that its mining techniques are cost efficient and environmentally responsible. In fact, the domestic industry could compete effectively with foreign producers such as Kazakhstan on a level playing field. However, because imports of uranium from Kazakhstan and elsewhere are priced at uneconomically low levels and benefit from substantial state aid and favorable currency

[48] EIA Domestic Uranium Production Reports at https://www.eia.gov/uranium/production/quarterly/.

[49] Statement from Honeywell, available at http://www.honeywell-metropolisworks.com/?press_release=statement-from-honeywell.

exchange rate policies (including significant recent currency devaluations), additional investment and innovation are not enough to enable U.S. industry to compete with the artificially low prices of this imported uranium.

Major producing countries such as Kazakhstan and Russia have different, less costly environmental, health and safety standards than the U.S., which allow foreign uranium mining operations to recover uranium at a lower cost. The ISR mining methods utilized in Kazakhstan can be compared to those in the U.S. to determine if operational differences explain why mining costs in Kazakhstan are generally lower than in the U.S. In fact, most of the noted differences are the result of country specific environmental practices based on regulation or industry acceptance. Petitioners applied the noted differences to the Preliminary Economic Assessment ("PEA") for the Lost Creek Property (February 2016) in an effort to quantify the financial advantages that Kazakh ISR mines enjoy. The results are shown in Figure 10.

The biggest difference in ISR mining methods is that sulfuric acid is used in Kazakhstan, whereas in the U.S. this approach is not currently accepted as a best practice due to the heavy metals it brings into solution. U.S. regulations require active groundwater restoration to remove heavy metals, so miners attempt to minimize the dissolution of these metals by using gentle bicarbonate solutions (lixiviant). In contrast to the U.S. requirements, in Kazakhstan, groundwater can be restored using passive natural attenuation, *i.e.,* allowing the contaminants in the groundwater to precipitate or dilute under natural processes with no active efforts to restore the water quality. Natural attenuation requires little energy or manpower and is therefore inexpensive. Another cost advantage of using sulfuric acid is that the solution headgrades in Kazakhstan are commonly 100% higher than those at ISR mines

in the U.S. This dramatically shortens the time to recover the uranium in the orebody, which in turn reduces the operating cost and allows production to respond quickly to improvements in the market.

Other less significant but notable differences between U.S. and Kazakh production practices include the absence of a Kazakh requirement (1) to cement the annulus between the well casing and the host rock, or (2) to perform mechanical integrity testing of mining wells. Each of these activities is a critical element of U.S. environmental regulations and best practice to prevent migration of mining solution into non-mining aquifers. These key steps must be completed in the U.S. regardless of how remote the facility is or how poor the surrounding water quality.

The noted differences in mining practices (use of sulfuric acid, use of natural attenuation to restore groundwater, no cementing of wells and no mechanical integrity testing), and their impacts were applied to the February 2016 Lost Creek PEA. No other changes were made to the PEA model. Likewise, no consideration was given for quicker permitting, energy subsidies, currency valuation, absence of certain taxes, land holding cost, or differences in labor costs in the PEA comparative model. The Lost Creek PEA calculated a pre-income tax Internal Rate of Return ("IRR") for Lost Creek in 2016 to be 53.7%. However, if the differences noted above are taken into account, the IRR would have been 151%. Likewise, the total cost per pound would have declined from $29.29 per pound U_3O_8 to only $20.01 per pound U_3O_8. The Life of Mine Operating Expenses ("OPEX") would have declined from $14.58 per pound U_3O_8 to $8.97 per pound U_3O_8. Clearly, the more aggressive mining techniques that are acceptable in Kazakhstan give them a significant competitive advantage over U.S. miners.

If the differences in currency valuation were normalized, the cost of production at Lost Creek would be an additional ~50% less, resulting in a lower cost of mining than nearly every Kazakh ISR mine.[50] Currency valuation enhances profitability not only for Kazakhstan, but also for several other nations, as shown in the Yellowcake Index generated by TradeTech Consulting (see Exhibit 16).

[50] Based on mining costs reported by Uranium One available at http://www.uranium1.com/upload/iblock/9ed/9ed33fe3c658c83cb20b37e72ed51d94.pdf and data provided by the World Nuclear Association available at http://www.world-nuclear.org/information-library/country-profiles/countries-g-n/kazakhstan.aspx.

Figure 10

Summary of Economic – Environmental Regulations

		Pre-Income Tax		Post-Income Tax	
Economic Parameter	**Units**	**Lost Creek Assuming Kazakh Regulations**	**Lost Creek Assuming U.S. Regulations**	**Lost Creek Assuming Kazakh Regulations**	**Lost Creek Assuming U.S. Regulations**
Initial CAPEX [1]	US$ 000s	$ -	$ -	$ -	$ -
Sustaining CAPEX	US$ 000s	$ 3,932.61	$ 3,639.46	$ 3,932.61	$ 3,639.46
LoM OPEX	$ / Lb	$ 8.97	$ 14.58	$ 8.97	$ 14.58
Income Taxes	$ / Lb	$ -	$ -	$ 8.37	$ 7.32
Total Cost per Pound	$ / Lb	$ 20.01	$ 29.29	$ 28.38	$ 36.61
Production	Lb 000s	13,799	13,793	13,799	13,793
Net Cash Flow	US$ 000s	$ 580,008	$ 510,549	$ 463,426	$ 408,680
NPV 8%	US$ 000s	$ 391,466	$ 250,276	$ 312,781	$ 207,403
IRR (adjusted for Undepreciated Initial Capital) [2]	%	151.0%	53.7%	124.3%	50.9%

Note 1: Initial capital costs of $46.5 million were incurred and expended prior to the starting date (September 30, 2015) of this economic analyses. Because there are no additional cash expenditures required for initial capital, they are therefore excluded from the cash flow and NPV calculations.

Note 2: As of September 30, 2015, Lost Creek had $41.0 million of undepreciated, initial capital assets that will be charged against operations over time. By including the undepreciated, initial capital assets, an IRR can be calculated. Without these costs, an IRR cannot be calculated.

C. Other Domestic Uranium Mining, Exploration, and Development Companies

In addition to Petitioners, there are three other producing uranium mining companies in the U.S., including Strata Energy (Lance/Ross ISR Project, Wyoming), Cameco (Smith Ranch-Highland, Wyoming and Crow Butte, Nebraska) and Uranium One Americas Inc. (Willow Creek, Wyoming). Like Petitioners, each of these producers has exploration and

development projects in addition to their operations sites. Petitioners are the only two companies among these producers who remain purely domestic plays. Strata's affiliates hold a project in South Africa; Cameco or its affiliates have projects in Canada, Australia, and Kazakhstan. The holdings of Uranium One and its affiliates and Russian parent are discussed below at pages 51-55.

Additionally, Anfield Energy, Azarga Uranium, enCore Energy Corporation, Kennecott Uranium/Rio Tinto, Laramide Resources, Uranium Energy Corporation, URZ Energy, Virginia Uranium, Western Uranium, and Westwater Resources (formerly, Uranium Resources) have projects at various stages of exploration, development or stand-by operation located in several states: Wyoming, Utah, Arizona, Colorado, Texas, South Dakota, and Virginia. Exhibit 19 is included to provide company summaries and greater detail of the design capacity of existing or licensed mines, reported uranium resources and exploration projects, and employee base of these additional domestic uranium companies.

D. The Industry Has Been Proactive in Seeking Solutions to the Current Crisis

The domestic uranium mining industry is continually looking for ways to improve efficiency so it can remain cost competitive. For example, ISR facilities currently operating in the U.S. have been automated to improve efficiency and are commonly operated by only two employees during the night shift and on weekends. Improvements have also been made in waste water management systems, such as the recent approval of an Underground Injection Control ("UIC") Class V water management system at the Lost Creek Project that has the potential to dramatically reduce water consumption. Other recent technical improvements include changes to ion exchange vessel manifolds, pipe joining methods, flow metering, and groundwater restoration techniques.

On the regulatory front, uranium miners in Wyoming have successfully worked with elected officials in the state in order for Wyoming to become an "Agreement State," which means the state will take over the role of the U.S. Nuclear Regulatory Commission ("NRC") to regulate uranium mining as allowed for in the Atomic Energy Act. Wyoming's uranium producers estimate the initial licensing fees under the Agreement State Program will be reduced from around $3.5M to $1.8M and the time required to receive an initial license will also be cut in half. The state anticipates taking over the program from the NRC in the third quarter of 2018.

The foregoing steps have proven insufficient to address declining market conditions, and so the domestic uranium industry has also made other efforts to adjust to today's challenging market conditions. Members of the domestic industry have sharply reduced production, and made corresponding reductions in employees and investments, in response to market signals and the declining market price, relying on long-term contracts to fund operations. Unlike Kazakhstan and Uzbekistan, which continue to produce at high levels despite the global surplus, the domestic industry has responded appropriately to market conditions, and companies have made difficult decisions to close operations and to lay off workers. The industry has also taken issue with DOE's excess uranium program, which increased the amount of uranium in the U.S. market and was a contributing factor to depressed uranium prices. The April 2017 DOE Secretarial Determination, which reduced uranium transfers by one-third, was a positive development toward mitigating the negative impact of DOE's program on the mining industry. Likewise, Petitioners and their industry have actively participated in the sunset reviews of the Russian Suspension Agreement,

working to ensure that its protections were maintained and that the U.S. market continues to be at least somewhat protected from unfairly traded Russian uranium.

These proactive efforts by Petitioners and the domestic industry, while helpful, cannot address the unfair advantages or subsidized foreign state actors, and the uranium market continues to decline. This Section 232 Petition is being filed at a critical time for the domestic industry as a last resort - only after numerous other efforts to improve the industry's situation by other means have not been successful.

V. INTERNATIONAL MARKETS – THE CONSOLIDATION OF THE URANIUM INDUSTRY

The uranium industry has recently been characterized by a number of transactions that have led to significant consolidation, including acquisitions by the Petitioners, Ur-Energy[51] and Energy Fuels.[52] Consolidation is occurring in the domestic uranium industry in response to low commodity prices and cost cutting requirements. The business objective has been to build a stronger company in weak times and streamline corporate costs.

In contrast, some non-U.S. companies have used mergers and acquisitions as a means to enter markets where access is limited in order to gain market share. In the case of Rosatom, the Russian state-owned company, these transactions not only provide access to new markets, but also support Russia's foreign policy objectives.[53] Rosatom is effectively

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[51] Ur-Energy press release dated December 23, 2013, "Ur-Energy Concludes Acquisition of Pathfinder Mines and Closes Private Placement and Loan Facility Redraw."

[52] Energy Fuels press release dated June 18, 2015, "Energy Fuels Closes Acquisition of Uranerz Energy."

[53] According to a report from The Hill, "Campbell's undercover work helped FBI counterintelligence chronicle a Russian uranium strategy modeled after Moscow's success in creating natural gas monopolies in eastern Europe that strengthened Russia's economy and geopolitical standing after the Cold War, the officials said." The Hill, "FBI Informant gathered years of evidence on Russian push for U.S. nuclear fuel deals, including Uranium One, memos show," (November 20, 2017) available at http://thehill.com/homenews/administration/361276-fbi-informant-gathered-years-of-evidence-on-russian-push-for-us.

the Russian nuclear industry. In the fourth (and most recent) Sunset Review of the Russian Suspension Agreement, "Uranium from Russia, Investigation No. 731-TA-539-C (Fourth Review)," the ITC described Rosatom as follows:

> The main organization in the Russian nuclear industry is Rosatom. As described by the WNA, "The State Corporation (SC) Rosatom is a vertically-integrated holding company which took over Russia's nuclear industry in 2007, from the Federal Atomic Energy Agency (FAEA, also known as Rosatom). This had been formed from the Ministry for Atomic Energy (Minatom) in 2004, which had succeeded a Soviet ministry in 1992. The civil parts of the industry, with a history of over 60 years, are consolidated under JSC AtomEnergoProm (AEP).
>
> Rosatom holds all of the shares of AEP, which is a single vertically-integrated state holding company for the country's nuclear power sector (separately from the military complex). It incorporates more than 80 enterprises operating across the nuclear fuel cycle. Among its entities include ARMZ (a uranium mining firm); Tenex (exporting arm of Rosatom and executive agent for the Russian government for the HEU agreement, and which also has a North American subsidiary called TENAM); Uranium One Group (based in Canada and focused on uranium mining in non-Russian markets); and TVEL (conversion, enrichment, and nuclear fuel fabrication). Many of these firms operate as joint stock companies.[54]

The most visible example of the Russian strategy was the acquisition of Uranium One by Rosatom. Uranium One was formed in 2005 as a Canadian public company. In 2007, Uranium One acquired UrAsia Energy Ltd. and a 70% stake in the Akdala and South Inkai uranium mines and a 30% stake in the Kyzylkum uranium mine in Kazakhstan.[55] Also in 2007, Uranium One acquired Energy Metals Corporation and uranium assets held by US Energy Corporation ("USEC") that included significant U.S. uranium resources, including the Shootaring Canyon uranium mill located in Utah.[56]

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[54] "Uranium from Russia, Investigation No. 731-TA-539-C (Fourth Review)," Publication 4727, ITC, September 2017.

[55] Uranium One press release dated February 12, 2007. See Exhibit 21.

[56] Uranium One press release dated February 23, 2007 and July 31, 2007. See Exhibit 21.

In May 2009, Uranium One announced that the government of Kazakhstan was investigating the validity of their subsoil licenses for their majority-owned uranium projects in Kazakhstan.[57] The investigation ended favorably following a complicated transaction with AtomRedMetZolo ("ARMZ") (a wholly-owned subsidiary of Rosatom). In that transaction, Uranium One acquired a 50% interest in the Karatau uranium mine located in Kazakhstan, and ARMZ received shares in Uranium One that resulted in Rosatom gaining a 16.6% ownership stake in the company.[58]

Also in 2009, Uranium One acquired the Christensen Ranch and Irigaray uranium projects in Wyoming from the EDF and Areva joint venture, MALCO.[59]

On December 15, 2009, Uranium One announced the increase in ARMZ's ownership stake to 19.9% through the purchase of 50% of the Karatau uranium mine from ARMZ.[60] In June 2010, Uranium One and ARMZ announced that ARMZ would increase its ownership of the company to 51.4% through the sale of its 50% ownership of the Akbastau uranium mine and 49.7% of the Zarechnoye uranium mines located in Kazakhstan, along with a cash payment of US$610 million.[61] The Russian ownership interest in these projects has given Russia ownership of approximately 40% of the uranium operations in Kazakhstan. This progression to majority ownership has received considerable scrutiny because it effectively resulted in the sale of U.S. uranium mines to a Russian company. Most recently, Senator John Barrasso (R-Wyoming) initiated a probe into the sale of these projects due to concerns

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[57] Uranium One press release dated May 27, 2009 See Exhibit 21.

[58] UxWeekly, "Uranium One acquires 50% interest in Karatau mine from ARMZ, concludes offtake agreement with ARMZ," Vol. 23 No. 24 (June 15, 2009).

[59] Uranium One press release dated August 10, 2009. See Exhibit 21.

[60] Uranium One press release dated December 15, 2009. See Exhibit 21.

[61] World Nuclear News "ARMZ takes hold of Uranium One," (June 9, 2010).

that uranium from the acquired U.S. project was exported outside the U.S. despite promises to the contrary from at least one government agency.[62]

In January 2013, ARMZ announced that it would acquire 100% of the remaining, outstanding shares of Uranium One with an intention to take the company private. The transaction was to take place through a cash payment estimated at US$1.32 billion.[63] In a letter dated September 14, 2016, Uranium One notified the U.S. Nuclear Regulatory Commission that the ownership of Uranium One had transferred to U1 Group, a wholly-owned subsidiary of Rosatom, from ARMZ.[64] The result of this transaction is all of ARMZ uranium production from Kazakhstan has been consolidated into Uranium One directly under Rosatom.

As noted earlier, Techsnabexport ("Tenex"), is the principal exporter of uranium products and uranium enrichment services under its parent company Rosatom. Tenex was the executive agent for the Russian Government under the HEU Agreement[65] and established a U.S. subsidiary, TENAM Corporation ("TENAM"), which markets directly to U.S. customers. In 2011, USEC (now Centrus Energy Corporation) and Tenex entered into a supply agreement under which Tenex would supply USEC with LEU to fill its long-term

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[62] Washington Examiner, "John Barrasso Probes Uranium Exports by US Firm Owned by Russia," December 12, 2017, available at http://www.washingtonexaminer.com/john-barrasso-probes-uranium-exports-by-us-firm-owned-by-russia/article/2643184. See also discussion, *infra,* at pp. 63-64.

[63] Ux Weekly, "ARMZ to purchase remaining shares of Uranium One," Vol. 27 No. 2, (January 14, 2012).

[64] Letter dated September 14, 2016 from Greg Kruse, Uranium One Americas, Inc. to Andrew Persinko and Roberto Torres, U.S. Nuclear Regulatory Commission.

[65] The "Agreement between the Government of the Russian Federation and the Government of the United States of America Concerning the Disposition of Highly-Enriched Uranium Extracted from Nuclear Weapons" ("HEU Agreement") was an agreement pursuant to which the U.S. and Russia agreed to commercially implement a 20-year program to convert 500 metric tons of HEU taken from Soviet era warheads into LEU and sold to the US for use as fuel in American nuclear power plants. The program was initiated in 1993 and completed on schedule in December 2013.

contracts. Starting in 2013, coincident with the conclusion of the HEU Agreement, Tenex agreed to supply USEC with up to half of the volume of LEU that USEC received under the HEU Agreement for a period of 10 years. As USEC no longer has the ability to enrich uranium on its own behalf,[66] this agreement effectively established USEC, a U.S. company that formerly enriched uranium for U.S. commercial reactors, as a marketing agent for Russian LEU.

As described earlier, the Russian Suspension Agreement, as amended, limits uranium in all forms of Russian origin for use in the U.S. to 20% of projected demand, or between 8 and 10 million pounds of U_3O_8 per year. In 2016, EIA reported that 6.54 million pounds of U_3O_8 equivalent of Russian origin was purchased by owners and operators of U.S. civilian nuclear power reactors.[67] Those same owners and operators also purchased 10.81 million pounds of U_3O_8 equivalent of Kazakhstan origin in the same period. In 2016, Uranium One sold 13.5 million pounds of U_3O_8,[68] and it is a reasonable expectation, based on prior announcements from Uranium One, that a significant quantity of uranium of Kazakhstan origin purchased in the U.S. was owned by Uranium One.

Rosatom, with its current control of Russian exports to the U.S. and its ownership of Uranium One, has the ability not only to import Russian-origin uranium, subject to the Russian Suspension Agreement, but also import Kazakhstan-origin uranium, not subject to the Suspension Agreement. This means Rosatom supplies more of the U.S. uranium market

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[66] Businesswire, "USEC's Supply Agreement with TENEX Takes Effect" (December 21, 2011).

[67] EIA, "2016 Uranium Marketing Annual Report" (June 2017).

[68] Uranium One press release, "Uranium One Announces 2016 Production of 12.7 million pounds at an Average Cash Cost of $9 per Pound Sold" (March 10, 2017), available at http://www.uranium1.com/upload/iblock/9ed/9ed33fe3c658c83cb20b37e72ed51d94.pdf. See also Exhibit 21.

than anticipated in the amended Russian Suspension Agreement. As the ITC concluded in its most recent Sunset Review of the Russian Suspension Agreement:

> Because the subject imports and the domestic like product are fungible, and the uranium market is price sensitive, subject producers are likely to offer low prices in the U.S. market as a means of increasing their market penetration. Indeed, the Russian industry has touted its ability to undersell the U.S. industry: [Rosatom] has claimed that it is able to undercut global nuclear fuel and service prices, including U.S. prices, by 30 percent. Faced with likely underselling, domestic producers will be forced to choose between cutting prices or losing sales.
>
> For the foregoing reasons, we find that termination of the suspended investigation would likely lead to significant underselling of the domestic like product by subject imports, as well as likely significant price depression or suppression, within a reasonably foreseeable time.[69]

The ITC found that Rosatom's current activities threaten the U.S. market, a threat that will only increase as the expiration of the Suspension Agreement approaches.

VI. IMPORTS HAVE OVERWHELMED THE DOMESTIC INDUSTRY

Despite low prices for uranium and a global uranium surplus, foreign producers such as Kazatomprom, the state-owned Kazakh producer, have continued to flood the U.S. market with low-priced uranium, either directly or through its joint venture partners, such as Uranium One, wholly owned by ARMZ. While the global demand for uranium has not materially increased, in recent years Kazakhstan has significantly expanded its production and shipments to the U.S. Moreover, Kazakhstan has a national policy that requires Kazakh uranium to be sold on the spot market, which means the Kazakh producers always sell material at the lowest market price. While this may seem to be a questionable business strategy, "[a] strategy of rapid production increases and spot sales enabled the company to

[69] U.S. International Trade Commission, "Uranium from Russia, Investigation No. 731-TA-539-C (Fourth Review)," Publication 4727 (September 2017).

make tremendous market share gains, but at the expense of prices globally that have suffered due to oversupply."[70] Additionally, countries such as Russia, Uzbekistan, and China are poised to expand their presence in the U.S. uranium market through their own state-owned uranium mining, conversion, and enrichment enterprises. Given these factors, today's highly challenging environment for U.S. uranium producers is likely to deteriorate even further.

A. Import Statistics Confirm the Key Roles of Kazakhstan and Russia

According to the EIA, foreign-origin uranium accounted for 89% of the U_3O_8 delivered to U.S. customers in 2016. Of a total of 50.6 million pounds of U_3O_8 -delivered in 2016, 38% originated in Russia, Kazakhstan, and Uzbekistan. U.S. allies and trade partners Australia and Canada accounted for 40% of the delivered U_3O_8, with the remaining uranium imports coming from countries such as Brazil, Bulgaria, China, Czech Republic, Germany, Malawi, Namibia, Niger, South Africa, and Ukraine.[71]

Kazakhstan, a former Soviet Republic with continued significant economic and strategic ties to Russia, became the global leader in uranium production in 2009 after adopting a national policy to increase uranium production and exports. Over time, its production has generally continued to increase, despite the global downturn in the uranium market. Kazakhstan has 12% of the world's uranium resources, but, as shown below, its share of the U.S. market has exceeded that figure and increased significantly over the last decade.[72]

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[70] KazWorld.info, "Uranium Prices Tipped to Soar After Kazakh Strategy Shift," November 23, 2016 available at http://kazworld.info/?p=59080.

[71] See U.S. Energy Information Administration, "2016 Uranium Marketing Annual Report," Table 3, June 2017, available at https://www.eia.gov/uranium/marketing/pdf/2016umar.pdf.

[72] WNA, "Uranium and Nuclear Power in Kazakhstan," updated August 2017, available at http://www.world-nuclear.org/information-library/country-profiles/countries-g-n/kazakhstan.aspx

Figure 11

Source: EIA Uranium Annual Marketing Reports

The figures in the graph below reflect another factor relevant to the current uranium market -- the dramatic effects of a significant Kazakh currency devaluation. The Kazakh tenge was devalued by as much as 87% by late 2015 in comparison to the U.S. dollar, according to data from the NAC International's Uranium Supply Analysis System.[73] This has had the effect of making Kazakh uranium 87% cheaper in the U.S. market. The chart in Figure 12 illustrates the dramatic decline in the value of the Kazakh tenge that has provided Kazakh producers with a significant price advantage to the detriment of U.S. miners.

[73] See presentation given during the October 2016 NEI International Uranium Fuel Seminar attached to this Petition as Exhibit 13 and Ux Consulting's Yellowcake Index, also in Exhibit 16.

Figure 12

Source: Currency devaluation data from https://tradingeconomics.com/kazakhstan/currency.

In addition to Kazakhstan, the other actor of greatest concern is Russia. Russia has, of course, been limited in the amount of uranium products it can legally import into the U.S. because of the Russian Suspension Agreement. However, the Suspension Agreement expires at the end of 2020, and Russian officials have already stated an intent to significantly increase its uranium exports to the U.S. once the limits of that agreement are removed.[74] Liudmila Zalimskaya, General Director of Tenex, confirmed in June 2017 that Rosatom's strategy extends beyond acquiring new U.S. market share, but that "[o]ne of the key targets of Tenex's

[74] InvestorIntel, "Russia plans to increase US uranium market presence from 25-35% by 2020" June 22, 2017, available at https://investorintel.com/sectors/uranium-energy/uranium-energy-intel/russia-plans-increase-us-uranium-market-presence-25-35-2020/.

business strategy is to seize around one fourth of [the Enriched Uranium Product ("EUP") market] by the end of the next decade."[75] Russian imports are particularly problematic because Rosatom is involved in all phases of the nuclear fuel cycle and therefore has the ability to import uranium in many different forms or products.

Regardless of form, such imports displace primary U.S. production of uranium. For example, in 2016, it is estimated that secondary supplies constituted 20% of the uranium market and over half of those supplies[76] resulted from underfeeding by enrichers. Enricher underfeeding reflects the relative difference between the contracted tails assay specified by a nuclear utility customer and the operational tails assay that are determined by plant operator's economics. It is best described as follows:

> The utilities which buy uranium from the mines need a fixed quantity of enriched uranium in order to fabricate the fuel to be loaded into their reactors. The quantity of uranium they must supply to the enrichment company is determined by the enrichment level required (% U-235) and the tails assay (also % U-235). This is the contracted or transactional tails assay, and determines how much natural uranium must be supplied to create a quantity of Enriched Uranium Product (EUP) – a lower tails assay means that more enrichment services (notably energy) are to be applied. The enricher, however, has some flexibility in respect to the operational tails assay at the plant. If the operational tails assay is lower than the contracted/transactional assay, the enricher can set aside some surplus natural uranium, which it is free to sell (either as natural uranium or as EUP) on its own account.[77]

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[75] Indian Energy News, "Interview of Liudmila Zalimskaya, General Director of TENEX, with the industry Publication 'Vestnik Atomproma'Atomproma'" (June 15, 2017).

[76] Excess Uranium Management: Secretarial Determination of No Adverse Impact on the Domestic Uranium Mining, Milling, Conversion and Enrichment Industries, "Nature of Uranium Supply" FR Doc No.: 2017-09243; Federal Register/Vol. 82, No, 88/Tuesday (May 9, 2017).

[77] WNA, "Uranium Enrichment" (May 2017) available at http://www.world-nuclear.org/information-library/nuclear-fuel-cycle/conversion-enrichment-and-fabrication/uranium-enrichment.aspx

With respect to the overall uranium market, the enrichment services segment is considered to be the most inelastic source of supply.[78] Because the largest portion of global enrichment capacity is based on centrifuge technology, there are operational constraints to the ability to cycle up and down the centrifuges. As a result, centrifuges are typically run on a continuous basis, even when the price for Separative Work Units ("SWU") falls. By taking advantage of the operational efficiency of the centrifuge technology, an enricher can utilize its excess SWU capacity to underfeed while using the additional uranium to financially support the operations. The vast majority of enriched product is derived from government owned and subsidized entities: Tenex (Russia), China National Nuclear Company ("CNNC") (China), Areva (France), and Urenco (Germany, Netherlands, UK).[79]

In addition, U.S. producers also now face the prospect of a new source of competition, the state-owned Chinese nuclear industry. Following in the footsteps of Russia, China has recently expressed an intent to increase its exports of uranium products to the U.S. More generally, China has made a major investment in the construction of all parts of the nuclear fuel cycle, from uranium mining through conversion and enrichment to the nuclear generating plants and technology. As noted below, China is ramping up production at the Husab mine despite poor economic conditions in the global uranium market and the high cost of production associated with operating that mine. It is apparent that China intends to

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[78] UxWeekly, "Inelasticity and Its Implications for Nuclear Fuel (and Other) Markets," Vol. 30 No. 28 (July 18, 2016).

[79] World Nuclear Association, "Uranium Enrichment," May 2017, at http://www.world-nuclear.org/information-library/nuclear-fuel-cycle/conversion-enrichment-and-fabrication/uranium-enrichment.aspx

enter the U.S. market in a substantial way and that entry will put additional pressure on U.S. uranium producers.[80]

B. Numerous Exporting Countries Have Contributed to the Problem

As the world's leading supplier of uranium, Kazakhstan produced 63.9 million pounds of U_3O_8, accounting for nearly 40% of global uranium supply in 2016.[81] While Kazakhstan initially announced its intention to decrease production in 2017 through 2020,[82] it has since been reported that Kazakhstan is expected to produce approximately 59.8 million pounds of U_3O_8 in 2017, and it expects to produce a similar level in 2018.[83] At the same time, other countries with significant uranium deposits have also played a role in the threat to the U.S. industry.

1. Canada and Australia

Canada and Australia together accounted for 40% of uranium deliveries in the U.S. in 2016.[84] Canada was responsible for 22% of global uranium output in 2016, making it the second largest producer after Kazakhstan.[85] In 2016, Canada produced 36.5 million pounds

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[80] See, e.g., Forbes, "Nuclear Energy In American Is Teetering On A Cusp," November 2, 2017, available at https://www.forbes.com/sites/jamesconca/2017/11/02/nuclear-energy-in-america-is-teetering-on-a-cusp/#7d2ccb776867.

[81] See WNA, "Uranium and Nuclear Power in Kazakhstan," (updated August 2017) available at http://www.world-nuclear.org/information-library/country-profiles/countries-g-n/kazakhstan.aspx.

[82] See id. ("In January 2017 Kazatomprom said that production would be reduced by about 10%, due to low prices.").

[83] Ux Weekly, "Kazakhstan Expected to Yield ~23,000 tU in 2017, Similar Volume for 2018," Vol. 32 No. 1, (January 1, 2018).

[84] U.S. Energy Information Administration, "2016 Uranium Marketing Annual Report," June 2017, available at https://www.eia.gov/uranium/marketing/pdf/2016umar.pdf.

[85] Uranium Investing News, "Uranium Production in the World by Country," May 24, 2017, available at https://investingnews.com/daily/resource-investing/energy-investing/uranium-investing/uranium-producing-countries/. See also WNA, "Uranium in Canada," updated July 2017, available at http://www.world-nuclear.org/information-library/country-profiles/countries-a-f/canada-uranium.aspx

of U_3O_8, an increase from the 34.6 million pounds of U_3O_8 it produced in 2015.[86] Cigar Lake and McArthur River, the world's largest uranium mines, are located in the Canadian Province of Saskatchewan.[87] Australia's uranium production rose from 14.7 million pounds of U_3O_8 in 2015 to 16.4 million pounds of U_3O_8 in 2016,[88] and that country holds 29% of the world's known recoverable uranium resources.[89]

On November 8, 2017, Cameco announced a temporary shutdown of its McArthur River mine in northern Saskatchewan in response to market conditions.[90] The shutdown will take effect in January 2018 and is expected to last at least ten months.[91] This announcement is notable given that McArthur River is the most productive mine in the world, with over 18 million pounds of U_3O_8 production in 2016, and also has one of the highest ore grades at 9.6%. The full cost of production for McArthur River is estimated to be approximately $31 per pound of U_3O_8.[92] Once McArthur River shuts down, the only operating Canadian uranium mine will be Cameco's Cigar Lake mine. Cameco's decision to shutter such an

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[86] WNA, "Uranium in Canada," updated July 2017, available at http://www.world-nuclear.org/information-library/country-profiles/countries-a-f/canada-uranium.aspx.

[87] Id.

[88] WNA, "Australia's Uranium," updated July 2017, available at http://www.world-nuclear.org/information-library/country-profiles/countries-a-f/australia.aspx

[89] Uranium Investing News, "Uranium Production in the World by Country," May 24, 2017, available at https://investingnews.com/daily/resource-investing/energy-investing/uranium-investing/uranium-producing-countries/.

[90] See, e.g., World Nuclear News, "Cameco to Suspend McArthur River and Key Lake" (November 9, 2017) available at http://www.world-nuclear-news.org/UF-Cameco-to-suspend-McArthur-River-and-Key-Lake-09111701.html.

[91] Id.

[92] See SRK Consulting, "Global Operating Cost Curve for Primary Uranium Production, Section 232 Investigation of Uranium Imports," provided as Exhibit 3.

efficient mine demonstrates the depth of the problem created by overproduction from countries such as Kazakhstan.

2. Russia, Kazakhstan, and Uzbekistan

In 2016, Russia's production was 7.8 million pounds of U_3O_8, and Russia plans to increase its production in the coming years. ARMZ Uranium Holding, a Rosatom subsidiary, owns the operating Priargunsky underground mine, and is working on developing the Vershinnoye deposit in Southern Siberia through its subsidiary, JSC Khiagda.[93] ISR production at Vershinnoye is expected to start in 2018.[94] As stated above, Uranium One also owns joint venture interests in at least five Kazakh mines.

In 2016, Uzbekistan produced an estimated 6.3 million pounds of U_3O_8, a slight increase from 2015's 6.2 million pounds of U_3O_8.[95] Although Uzbekistan currently ranks seventh in terms of annual uranium output, it is expanding production through its relationship with Japanese and Chinese joint ventures. In 2013, Uzbek exports to China doubled.[96] Navoi Mining & Metallurgy Combinat is part of state holding company Kyzylkumredmetzoloto, and handles all Uzbek uranium-mining activities.[97]

Those countries that have the most significant influence on the uranium market, Russia, Kazakhstan, and Uzbekistan, are effectively allied for purposes of the nuclear fuel

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[93] Uranium Investing News, "Uranium Production in the World by Country," May 24, 2017, available at https://investingnews.com/daily/resource-investing/energy-investing/uranium-investing/uranium-producing-countries/.

[94] Id.

[95] WNA, "Uranium in Uzbekistan," (updated May 2017) available at http://www.world-nuclear.org/information-library/country-profiles/countries-t-z/uzbekistan.aspx.

[96] Uranium Investing News, "Uranium Production in the World by Country," May 24, 2017, available at https://investingnews.com/daily/resource-investing/energy-investing/uranium-investing/uranium-producing-countries/. See also WNA, "Uranium in Uzbekistan," (updated May 2017) available at http://www.world-nuclear.org/information-library/country-profiles/countries-t-z/uzbekistan.aspx.

[97] WNA, "Uranium in Uzbekistan," (updated May 2017) available at http://www.world-nuclear.org/information-library/country-profiles/countries-t-z/uzbekistan.aspx.

cycle. At the same time, political instability in Kazakhstan and Uzbekistan may lead to increased Russian influence over those countries' nuclear operations. Even without such a development, the instability of those countries makes them unreliable suppliers of uranium for the U.S.

For example, there has been recent reporting regarding the influence of ISIS in Uzbekistan. Often seen as a "stand-in for anti-authoritarianism and discontent," Islamic extremist groups have seen significant success in recruiting members of Uzbek descent. It has been reported that the existence and influence of ISIS in Uzbekistan serves to undermine the stability of the country and is an additional example of the far-reaching national security implications that exist for the U.S. by becoming dependent on uranium from Uzbekistan.

Likewise, the government of Kazakhstan is in a tenuous position. Its 77 year old President, Nursultan Nazarbayev, has no heir apparent and the country faces increasing Islamic terrorism, domestic opposition to land reforms, a declining economy, and potential meddling by Russia. Concerns regarding Russian intervention began growing after Russia's military intrusion in Ukraine along with comments from Russian President Vladimir Putin questioning the validity of the Kazakh nation.[98] Given that a significant portion of the Kazakh population is of Russian descent and speaks Russian, Russia's asserted justifications for its intervention in Ukraine could also be applied to Kazakhstan.

3. China

In contrast to the situation in the U.S. and Canada, uranium production in other significant producing countries is holding steady or increasing. For example, the new Husab

[98] European Council on Foreign Relations, "Kazakhstan's Triple Crisis: A Perfect Storm in the Making," July 15, 2016, http://www.ecfr.eu/article/commentary_kazakhstans_triple_crisis_a_perfect_storm_in_the_making.

mine in Namibia, owned by China General Nuclear Power Company, a state-owned Chinese utility, is expected to significantly increase production in 2017, despite having all-in costs of just below $50 per pound, or double today's spot price.[99] While Husab is an extremely large mine, the ore grade at Husab is only 0.046% U_3O_8, over 200 times less than at McArthur River. In fact, the full cost of production at Husab is estimated to be $19/pound higher than that of McArthur River.[100] Despite the cost of production at Husab being significantly higher than either spot or term market prices, the Chinese government has continued to ramp up mine production. This new price-insensitive Namibian/Chinese production will offset reductions from other international sources[101] and add to the pressure on U.S. miners.

4. Additional Foreign Uranium Producers

Other major producers include Niger,[102] Namibia,[103] and Ukraine.[104] Ukraine, in particular, is heavily dependent on nuclear power, and the country has 15 reactors that meet about half of the country's electricity requirements. Most of its uranium is supplied by Russia. In 2016, Ukraine's minister for coal and energy reached an agreement with

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[99] See SRK Consulting, "Global Operating Cost Curve for Primary Uranium Production, Section 232 Investigation of Uranium Imports," provided as Exhibit 3.

[100] See Ux Consulting, "Uranium Production Cost Study," Appendix A – Worldwide Production Costs (Ranked) by Project, September 2017.

[101] UxWeekly, "2016 U_3O_8 Production," Vol. 31, No. 17 (April 24, 2017).

[102] Niger's 9.1 million pounds account for 7.5% of global uranium production. See WNA, "Uranium in Niger," available at http://www.world-nuclear.org/information-library/country-profiles/countries-g-n/niger.aspx.

[103] Namibia's uranium production rose from 7.8 million pounds in 2015 to 9.5 million pounds in 2016. Last year was the first year the country's production had risen since 2013. See WNA, "Uranium in Namibia," updated October 2017, http://www.world-nuclear.org/information-library/country-profiles/countries-g-n/namibia.aspx. See also Uranium Investing News, "Uranium Production in the World by Country," May 24, 2017, available at https://investingnews.com/daily/resource-investing/energy-investing/uranium-investing/uranium-producing-countries/.

[104] See WNA, "Uranium in Ukraine" updated September 2017, available at http://www.world-nuclear.org/information-library/country-profiles/countries-t-z/ukraine.aspx.

Kazatomprom to establish a uranium joint venture.[105] According to Uranium Investing News, "Ukraine holds just 2% of the world's known recoverable resources of uranium. In comparison, Russia holds 9% of known uranium reserves."[106]

Other entities, such as Areva, majority owned by the French government, use their excess enrichment capacity to re-enrich tails, the material that remains after enrichment, back up to a natural enrichment level. This underfeeding process, provides an additional source of uranium, which enters the market to the detriment of the uranium mining and conversion industries.

As this overview of global production demonstrates, the challenge confronting Petitioners and the rest of the U.S. industry is broad-based and pervasive. In order to provide the U.S. mining industry with the ability to recover and be successful in the future, the Administration must adopt a big picture approach that is not limited to imports from Russia, Kazakhstan, and Uzbekistan, or other countries will have an incentive to utilize their significant uranium resources to replace any reduction in U.S. imports from those three countries.

C. The Global Surplus Puts Tremendous Pressure on U.S. Producers

There has been a global surplus of uranium since the 2011 nuclear incident at Fukushima. Ux Consulting anticipates that the 2017 uranium surplus was approximately 13 to 15 million pounds of U_3O_8.[107] Despite this persistent global surplus, uranium production in Kazakhstan and Uzbekistan has generally continued to increase, and Kazakh uranium in

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[105] Id.

[106] See https://investingnews.com/daily/resource-investing/energy-investing/uranium-investing/uranium-producing-countries/.

[107] See UxWeekly, "2016 U_3O_8 Production Review," Vol. 31 No. 17 (April 24, 2017). See https://www.uxc.com/p/corp/uxc_background.aspx.

particular has flooded the world market at low prices and caused significant financial harm to the U.S. uranium industry. In addition, there is significant production from Kazakhstan with costs well above today's spot price. For example, in 2016, Kazakhstan had a record-breaking year for uranium production, accounting for nearly 64 million pounds of U_3O_8, approximately 40% of the world's total.[108]

Petitioners recognize that over the course of the last year, Kazakhstan has twice announced its intention to reduce production, but the announcements are, at best, misleading and must be placed in the context of recent Kazakh activities. First, Kazakhstan announced its intent to reduce production in 2017 by 10%, but that reduction likely will only reduce their production to slightly less than 2016 levels – approximately four percent less. Second, more recently, Kazatomprom announced that it intends to reduce production of U_3O_8 by 20% over the next three years beginning in January 2018, but, in fact, Kazakh production rates are likely to remain significantly above pre-Fukushima levels. More recently, it is being reported that these "cuts" in production will not reduce the level of production, but rather will only maintain Kazakh production levels steady with 2016-2017 production rates.[109] At most, these alleged "production cuts" are only indicative of the depressed state of the global market. They are not sufficient to allow the U.S. market to rebound in a way that will make domestic production sustainable.

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[108] UxWeekly, "2016 U_3O_8 Production" Vol. 31, No. 17 (April 24, 2017).

[109] UxWeekly, "Kazakhstan expected to yield ~23,000 tU in 2017, similar volume for 2018," Vol. 32 No. 01 (January 1, 2018).

D. Low Market Prices Persist

The current spot price for uranium is approximately $23.75 per pound, below virtually all global uranium producers' cost of production.[110] At this low pricing level, even lowest-cost U.S. producers, such as the Petitioners, are at a disadvantage competing against state-owned entities unconstrained by low prices because they do not need to make a profit. State actors in Russia, Kazakhstan, Uzbekistan, and China have continued to produce uranium in quantities that are unreasonable under current market conditions.

E. Russian, Kazakh, Uzbek, and Chinese Industries Receive Government Support

With the exception of Canada, major foreign uranium industries benefit significantly from state assistance and, in some cases, outright subsidies. The most significant source of imports, Kazakhstan, has a documented history of subsidizing its domestic industries. According to data prepared by the International Energy Agency, in 2011, Kazakhstan provided fossil fuel consumer subsidies at a rate of approximately 32.6%, approximately 3.3% of GDP and, as recently as 2015, Kazakhstan was providing electricity subsidies of approximately $603 billion (USD).[111] Similarly, in 2011, fossil fuel subsidies totaled approximately $40 billion (USD) (about 2% of GDP).[112] In Uzbekistan, in 2011, there was

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[110] See S&P Global Platts, "US Uranium Producers Plagued by Low Prices, Scant Utility Purchasing" (October 17, 2017) available at https://www.platts.com/videos/2017/october/us-nuclear-uranium-production-prices-101717.

[111] See International Energy Agency, "World Energy Outlook 2016" available at http://www.worldenergyoutlook.org/weo2016/. See also Organisation for Economic Co-operation and Development, "Energy Subsidies and Climate Change in Kazakhstan" p. 28 (2014) available at https://www.oecd.org/env/outreach/Energy%20subsidies%20and%20climate%20change%20in%20Kazakhstan.pdf.

[112] See Organisation for Economic Co-operation and Development, "Energy Subsidies and Climate Change in Kazakhstan" p. 28 (2014) available at https://www.oecd.org/env/outreach/Energy%20subsidies%20and%20climate%20change%20in%20Kazakhstan.pdf.

an average subsidization rate for fossil fuels of 60%, which is approximately 28.1% of GDP, and in 2016, the amount of subsidies provided for electricity in Uzbekistan was approximately $854.6 million USD.[113]

In addition, entities such as Kazatomprom, Rosatom, and CNNC operate as an arm of their respective governments. This allows them to produce at above-market costs and sell at below-market prices and still sustain operations. State aid to the Russian nuclear industry has been documented, including in the 2016 National Trade Estimate ("NTE") report, prepared by the United States Trade Representative ("USTR"), in which it is noted that government subsidies to Russia's uranium enrichment industry "have allowed Rosatom, a state-owned enterprise, to expand its production capacity in the face of a global surplus."[114] Although the NTE was focused on a different part of the nuclear fuel cycle than mining, the point is the same: Petitioners and other U.S. uranium mining companies must compete with companies that are state-owned and government-funded. As NEI has noted, "[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."[115]

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[113] See International Energy Agency, "World Energy Outlook 2016" available at http://www.worldenergyoutlook.org/weo2016/. See also Organisation for Economic Co-operation and Development, "Energy Subsidies and Climate Change in Kazakhstan" p. 28 (2014) available at https://www.oecd.org/env/outreach/Energy%20subsidies%20and%20climate%20change%20in%20Kazakhstan.pdf

[114] USTR, 2016 National Trade Estimate Report on Foreign Trade Barriers, p. 374. The NTE is prepared annually and summarizes the barriers to trade that U.S. exporters face worldwide.

[115] Maria Korsnick Remarks, Nuclear Power is Critical Infrastructure speech at NEI's 2017 Wall Street Briefing (February 9, 2017), available at https://www.nei.org/CorporateSite/media/filefolder/Policy/Wall%20Street/Wall-Street-Briefing-2017.pdf?ext=.pdf.

F. Russia's Growing Influence and Questionable Market Practices

As discussed above, Russia has a long history of attempting to influence the nuclear fuel supply chain, and utilizes its activities in international nuclear markets for political gain. In the same manner, Russia attempts both to profit from and disrupt the U.S. market.

On December 23, 1991, the ITC determined that there was a reasonable indication that industry in the U.S. was being materially harmed by imports of uranium from the U.S.S.R. that were being sold at less than fair value.[116] Shortly thereafter, the U.S.S.R. dissolved, and the Department proceeded with investigations of uranium imports from the former Soviet republics and concluded that uranium from Russia and other Commonwealth of Independent States ("CIS") had been sold at dumped prices. In October 1992, the Department entered into a suspension agreement with six of the CIS countries (Kazakhstan, Kyrgyzstan, Russia, Tajikistan, Ukraine, and Uzbekistan) that produce uranium ("Suspension Agreement").[117] The Department has since terminated the Suspension Agreements that were in place with all countries but Russia.[118]

As recently as June 2017, the Department determined that termination of the Russian Suspension Agreement would likely "lead to continuation or recurrence of dumping."[119] The ITC made a similar determination in September 2017 in connection with the fourth sunset

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[116] Uranium from U.S.S.R., Inv. No. 731-TA-539 (Preliminary) USITC Pub. 2471 (December 1991).

[117] See, e.g., Agreement Suspending the Antidumping Investigation on Uranium from Russia (October 16, 1992), 57. Fed. Reg. 49220 (October 30, 1992). The Department subsequently terminated the investigations against the remaining countries that did not produce uranium on the grounds that there were no LTFV sales from those countries. 57 Fed. Reg. 48505 (October 26, 1992).

[118] As noted previously in the Petition, the Suspension Agreement with Kazakhstan was terminated while it was still a minor producer.

[119] 82 Fed. Reg. 26776 (June 9, 2017).

review of the Russian Suspension Agreement.[120] Yet after the Russian Suspension Agreement expires in December 2020, the U.S. market will be wide open for the Russian nuclear enterprise to target and expand imports of all Russian uranium products. If one takes Russian officials at their word, that is precisely what will take place. Rosatom officials have boasted that after the Russian Suspension Agreement expires, Russia intends to increase significantly its exports to the U.S.[121] Such a development will only further harm an already unstable and challenged U.S. industry.

Through Rosatom, Russia operates a government-owned nuclear complex constructed during the Cold War to support the U.S.S.R. nuclear weapons program. Rosatom's presence in every stage of the nuclear fuel cycle has been used to provide commercial advantages to Russia. This strategy is facilitated by the fact that Rosatom effectively operates as an arm of the Russian state and benefits from numerous government subsidies. According to news reports, Russia's draft 2017-2019 budget allocated approximately 68.7 billion rubles (U.S.$1.1 billion) to Rosatom over those three years, and state subsidies are estimated to cover between 30 - 40% of Rosatom's capital expenditures.[122]

In addition, key nuclear fuel cycle inputs are provided to Rosatom's nuclear complex at non-market prices, and Rosatom's uranium enrichment operations benefit from subsidized electricity.[123] Utilizing this Russian state support, Rosatom has won contracts in Europe by offering below-cost prices and tying the sale of different products in the nuclear fuel cycle

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[120] USITC Makes Determination in Five-Year (Sunset) Review Concerning Uranium from Russia, Bulletin 17-054, Inv. No. 731-TA-539-C (Fourth Review) (issued September 7, 2017).

[121] See, e.g., Indian Energy News, "Interview of Liudmila Zalimskaya, General Director of TENEX, with the industry Publication 'Vestnik Atompromа'" (June 15, 2017).

[122] See Newsbase, "Rosatom Secures New State Funding," October 20, 2016, https://newsbase.com/topstories/rosatom-secures-new-state-funding.

[123] See Bellona Report 2011, "The Economics of the Russian Nuclear Power Industry," Leonid Andreev, p. 26.

in an effort to prevent its competitors from securing business. After the expiration of the Suspension Agreement, there will no limitations on the ability of Rosatom to use its massive enrichment enterprise to attack the U.S. market.

The Russian enrichment enterprise is the world's largest and has enormous capacity. Russia can utilize this capability to undercut U.S. uranium producers and converters. Benefitting from low cost electricity and other forms of state support, Rosatom has the ability to re-enrich tails[124] from the Russian government stockpile and effectively create the equivalent of a large uranium mine. In recent years, Rosatom has engaged in significant re-enrichment of tails, and the output of that activity needs to be added to the new production from Russian mines to calculate the true volume of natural uranium equivalent products produced by Russia. This re-enriched uranium can be sold directly in the market as natural UF_6 or can be further enriched to create EUP for the fabrication of nuclear fuel. Regardless of how far this material is processed in the nuclear fuel cycle by Rosatom, the result is the same – it displaces natural uranium that would otherwise be mined and sold by miners such as Petitioners.

Rosatom's activities contrary to U.S. national interests are not limited to the use of leverage in the commercial nuclear arena but also involve actions that arguably violate U.S. sanctions. Despite the U.S. and EU sanctions imposed on numerous Russian entities operating in Crimea, Rosatom itself continues to be active in the region. Rosatom's 2015 annual report declares openly that the company is supplying equipment for the Sevastopol and Simferopol power stations in Crimea. These Crimean generating facilities are operated

[124] Tails are the byproduct of the enrichment process, the uranium that has been de-enriched to produce enriched uranium with a higher concentration of U-235 than occurs in nature. By re-enriching these tails, they can be brought back to the same concentration of U-235 as occurs in nature and, in that case, are equivalent to natural uranium.

by Rostec, a state-owned technology and defense corporation that has been sanctioned by the Treasury Department's Office of Foreign Assets Control. Moreover, it has been reported publicly that Rosatom will supply equipment to Rostec by selling first to power plants in the Krasnador region of Russia and then transshipping the equipment to Crimea. This apparent attempt to hide Rosatom's support for a sanctioned entity suggests that Rosatom is aware that its activities are contrary to the economic sanctions imposed by the international community and the U.S. In addition, it has also been reported that the Rostov nuclear power plant, operated by a Rosatom entity, will supply electricity to Crimea.

Rosatom has also acted to increase its influence over the U.S. uranium market. As discussed above, in 2010, Rosatom, through its subsidiary ARMZ, took control of Uranium One. Because Uranium One owned uranium mines and mills in the U.S., this acquisition gave Rosatom control of what was estimated to be 20% of the U.S. uranium supply at the time of the transaction.[125] Around the time the Uranium One transaction took place, there was an ongoing investigation of Russian nuclear officials and their engagement in "bribery, kickbacks, extortion and money laundering designed to grow Vladimir Putin's atomic energy business inside the [U.S.]."[126] The investigation led to charges being brought against Vadim

[125] In 2010, the Obama administration approved this transaction through the Committee on Foreign Investment in the United States ("CFIUS") review process, and the Obama administration's approval of this transaction has been criticized. Given the timing of the approval of this transaction and the FBI investigation that was also ongoing at the time, the House of Representatives and Senate are expected to hold hearings to look into this matter. CFIUS is the inter-agency committee authorized to review transactions that will result in control of a U.S. business by a foreign person in order to determine the effect of such transactions on the national security of the United States. CFIUS operates pursuant to section 721 of the Defense Production Act of 1950, as amended by the Foreign Investment and National Security Act of 2007 (FINSA) (section 721) and as implemented by Executive Order 11858, as amended, and regulations at 31 C.F.R. Part 800.

[126] See, e.g., The Hill, "FBI Uncovered Russian Bribery Plot Before Obama Administration Approved Controversial Deal with Moscow," John Solomon and Alison Spann, available at http://thehill.com/policy/national-security/355749-fbi-uncovered-russian-bribery-plot-before-obama-administration.

Mikerin, the President of Rosatom's U.S. subsidiary, TENAM. Mikerin was accused of running a racketeering scheme, including money laundering and kickbacks.[127] He ultimately pled guilty to conspiracy to commit money laundering and is currently in a federal prison. The outcome of the Mikerin affair and Rosatom's acquisition of a controlling interest in Uranium One is further evidence of Russia's willingness to use any means available, including strategies contrary to U.S. sanctions and bribery laws, to increase its influence over the U.S. and global uranium markets.

Finally, it is important to recognize the continuing close relationship between Russia, Kazakhstan, and Uzbekistan. This relationship exists in the political realm but also includes joint activities in the commercial nuclear market and the nuclear fuel cycle.[128] Accordingly, any remedy adopted to reduce the impact of uranium imports on the domestic uranium market must deal not only with Russian efforts to expand its U.S. market share after the expiration of the Russian Suspension Agreement, but also ensure that the relationship between Russia, Kazakhstan, and Uzbekistan does not permit circumvention of the measures adopted to assist U.S. industry and safeguard U.S. national security.

G. China's Increasing Presence in the U.S. Market

China's uranium production remained unchanged in 2016 from the previous year and has been relatively stable since 2012. CNNC is currently the only supplier of domestic uranium in China. However, as the WNA has reported, power companies are looking to

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[127] See, e.g., Id. which includes the indictment affidavit, warrant affidavit, and plea agreement for Vadim Mikerin.

[128] See, e.g., Canada.com, "Former Kazakhstan Uranium Czar Blames Imprisonment on Sale of Clinton-linked Canadian Company to Russians," November 2, 2017; WNA, "Uranium and Nuclear Power in Kazakhstan," updated October 2017, available at http://www.world-nuclear.org/information-library/country-profiles/countries-g-n/kazakhstan.aspx. The WNA provides details on the joint ventures between Russia and Kazakhstan (Kazatomprom) for nuclear reactors, uranium production, and enrichment.

expand nuclear fuel supply deals with Kazakhstan and additional overseas uranium producers. Chinese authorities have stated that China's goal is to produce one-third of its uranium domestically, obtain one-third through foreign equity in mines and joint ventures overseas, and to purchase one-third on the open market.[129]

As with the state-subsidized industries in Russia and Kazakhstan, CNNC has a virtual monopoly on the nuclear fuel cycle in China. It has been reported that CNNC controls uranium conversion in China, and a subsidiary of CNNC, China Nuclear Fuel Corporation ("CNFC") is the entity tasked with enrichment in China. Petitioners believe that China currently has excess enrichment capacity. It sells enrichment to U.S. utilities, and Chinese enrichers underfeed and re-enrich, creating further downward pressure on uranium markets.[130]

According to a 2015 article by Hui Zhang, "Estimates based on satellite imagery, Chinese publications, and discussions with Chinese experts suggest that China is already operating civilian enrichment facilities with a capacity that may be in the range of 4.5 million SWU per year, with an estimated additional 2 million SWU per year under construction; China may well have the ability to continue at a rate that adds a million SWU of additional capacity annually. If true, then China has a lot more enrichment capacity now than we thought, with even more on the way." Likewise, TradeTech reported in its 2016 Enrichment Study, "In 2014 and 2015, multiple US utilities signed contracts with Chinese companies for enrichment services." The TradeTech report also noted that, "While China's enrichment

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[129] See WNA, "China's Nuclear Fuel Cycle," updated September 2017, available at http://www.world-nuclear.org/information-library/country-profiles/countries-a-f/china-nuclear-fuel-cycle.aspx.

[130] See Hui Zhang, "China's Uranium Enrichment Capacity: Rapid Expansion to Meet Commercial Needs," Harvard Kennedy School, Belfor Center for Science and International Affairs (August 2015).

service marketing strategy is in its infancy, it is preparing to enter the Western market with more than the occasional excess capacity sale. CNFC has stated it is primarily interested in long-term contracts, although it is in the process of setting up accounts with US fabricators to allow for timely spot swaps, when available."[131] It is Petitioners' belief that China's SWU capacity today is closer to 10 million SWU per year. Given that the Chinese have been unable to develop reactors as quickly as anticipated and that their SWU capacity exceeds internal demand, they are marketing the excess capacity. It is also Petitioners' belief that the Chinese state-owned entities are seeking to enter the U.S. nuclear market in a significant way through enrichment, and this substitution of enrichment for uranium will add further downward pressure on uranium prices.

VII. U.S. NATIONAL SECURITY IS AT RISK

Domestic uranium production is essential both for defense purposes, such as nuclear weapons and powering the Navy's fleet, and also for domestic energy production and energy security.[132] As DOE has noted, "as long as nuclear weapons exist, the U.S. will maintain a safe, secure, and effective nuclear deterrent to keep America safe."[133] Maintaining that deterrent requires a healthy U.S. uranium industry. If the uranium mining industry in the U.S. ceases to exist, the country will not only lose a highly-skilled workforce but will become dependent on foreign sources of uranium for its defense and energy needs.

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[131] TradeTech, Enrichment Market Study 2016, p. 38.

[132] WNA, "Uranium Markets," updated July 2017, available at http://www.world-nuclear.org/information-library/nuclear-fuel-cycle/uranium-resources/uranium-markets.aspx.

[133] See Department of Energy, "Nuclear Security and Nonproliferation," available at https://energy.gov/national-security-safety/nuclear-security-nonproliferation.

A. The Domestic Uranium Industry is Critical to America's National Defense

A secure supply of domestic uranium is essential to the nuclear weapons capabilities of the U.S. Because the U.S. is precluded by international treaty from using foreign sourced uranium to produce nuclear weapons and fuel for Navy reactors, it must be able to mine domestically the material it needs for defense purposes. It cannot rely on international sources for the material that is the foundation of its nuclear deterrent.[134] While non-proliferation remains a priority and a significant element of U.S. foreign policy, nuclear weapons are and will remain a critical part of the U.S. "defense posture" and will continue to be seen as a "deterrent to the use of nuclear weapons against" not only the U.S., but also its allies.[135]

The U.S. requires not only fissionable material for warheads but also needs a secure source of tritium, which, as a matter of law, must be produced utilizing domestic material in domestic production facilities. A steady supply of tritium is required to maintain the functionality of the U.S. nuclear weapons stockpile, and this must be produced using U.S. uranium in U.S. reactors.[136] The U.S. currently lacks the long-term capability to meet this need because of the erosion of the nuclear supply chain that has already occurred.[137] As has been reported:

> Existing U.S.-origin LEU will run out by mid next decade given the two-reactor production strategy. Reasonably low-cost options are

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[134] If this material is not produced domestically, it is subject to the peaceful use assurances of the Treaty on the Non-Proliferation of Nuclear Weapons, which would restrict the use of the uranium for defense purposes. See also responses to questions from the Committee on Energy and Natural Resources provided by DOE in 2015, included as Exhibit 9 to this Petition.

[135] EFI Report, p. 16.

[136] Id.

[137] Id.

> available to extend stocks until 2030 or so. Beyond that, it would force down-blend of HEU now reserved for the nuclear stockpile and naval ship propulsion. This is imprudent from a national security perspective, and wasteful given the initial large cost to highly enrich this material.[138]

The domestic nuclear industry is critical not only for the nation's nuclear weapon capabilities, but also for the nuclear Navy. As President Reagan declared in 1982, the Naval Nuclear Propulsion Program is of "critical importance."[139] Nuclear reactors provide the Navy with the "mobility, flexibility and endurance required to carry out its global mission."[140] In 2014, it was reported that the nuclear Navy "logged over 5,400 reactor years of accident-free operations, travelled over 130 million miles on nuclear energy, enough to circle the earth 3,200 times."[141] Fuel for U.S. naval reactors must be manufactured using an entirely domestic supply chain, from uranium to enrichment to fuel fabrication.[142]

Of the approximately 205 commissioned warships in the U.S. Navy, almost one-third are nuclear-powered. Moreover, the Navy's nuclear-powered ships and boats are the most important vessels – aircraft carriers, nuclear ballistic missile submarines, fast attack submarines – representing the most significant firepower in the fleet. The entire commissioned submarine fleet – 76 boats -- is nuclear powered. All of these ships must be fueled with domestic uranium. The U.S. uranium mining industry is therefore essential to the effectiveness and readiness of the Navy and the pivotal role it plays in both our

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[138] See Defense News, "Commentary: The looming crisis for US tritium production," March 6, 2017.

[139] Executive Order 12344 – Naval Nuclear Propulsion Program (1982) available at https://www.archives.gov/federal-register/codification/executive-order/12344.html.

[140] EFI Report, p. 15.

[141] Forbes, "America's Navy The Unsung Heroes of Nuclear Energy" (October 28, 2014) available at https://www.archives.gov/federal-register/codification/executive-order/12344.html.

[142] As noted above, material not produced domestically is subject to peaceful use assurances.

conventional forces and the U.S. nuclear deterrent. The Navy will eventually need more HEU to fuel its reactors.[143] As with tritium production, because of the sensitivity of HEU and the national security uses, the entire supply chain for its production must be U.S. origin.[144] The U.S. currently lacks the domestic capabilities to maintain this supply chain, and the length of time required to stand up these domestic capabilities raises serious, near-term concerns about the U.S.'s ability to meet this critical national security need.[145]

B. A Healthy Domestic Industry Serves America's Other Foreign Policy Goals

Another important reason the U.S. must maintain a healthy uranium mining industry is the role the country has historically played as a leader on nuclear nonproliferation. Unfortunately, as the U.S. domestic nuclear capabilities have deteriorated, so has the ability of the U.S. to influence other nations' nuclear programs. It should not come as a surprise that, as other countries strengthen their nuclear skills and positions in different nuclear markets, their influence on issues of nuclear policy will increase as well, notably, at the expense of the U.S.

In addition to the key role U.S. nuclear capabilities play in nonproliferation efforts, a strong nuclear industry is a critical foreign policy tool in other contexts. According to the CEO of NEI:

> In order to retain its position as a world leader, America must lead this transition toward increased nuclear generation, not follow it. Yet while the U.S. ushered the world into the nuclear age and our companies dominated nuclear trade for decades, today the Chinese and the Russians are pulling ahead in the global nuclear marketplace.[146]

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[143] EFI report, p. 16.

[144] Id. Additionally, as noted above, material not produced domestically is subject to peaceful use assurances.

[145] Id.

[146] The full text of Maria Korsnick speech can be found at https://www.nei.org/News-Media/Speeches/Nuclear-Power-is-Critical-Infrastructure.

The recent growth of Russia's nuclear industry demonstrates that Russian President Vladimir Putin views Russia's nuclear capabilities as a critical tool for expanding Russia's global influence. Russia's use of Rosatom's nuclear fuel cycle capabilities for this purpose is a key element of Russian foreign policy.[147] As noted above, Russia has used to its advantage the vertically-integrated structure of the Russian nuclear industry in an effort to limit competition in multiple parts of the nuclear fuel cycle.[148] As evidence of the extent of Russia's growing influence, Russia now has contracts to build 34 reactors in 13 countries, and it supplies technical cooperation, fuel, and other supplies to an additional seven countries.[149]

China and Kazakhstan have also realized that their state-owned enterprises can be effective means to promote foreign policy interests, and they are expanding their industries accordingly. Through Kazatomprom, Kazakhstan operates a government-owned nuclear complex that is the largest global producer of uranium, and Kazakhstan's sovereign wealth fund Samruk-Kazyna owns 100% of the state's share of uranium production. If the U.S. allows its uranium mining industry to disappear, the country will become vulnerable to the practices of these state-owned foreign interests and their expanding international presence.

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[147] See Reuters, "Russia building nuclear reactors - and influence - around the globe," Hannah Thoburn (May 5, 2015), http://www.reuters.com/article/thoburn-rosatom/column-russia-building-nuclear-reactors-and-influence-around-the-globe-idUSL1N0XW1U320150505. See also Countering America's Adversaries Through Sanctions Act, H.R. 3364. This recently passed legislation allowing for the expansion of sanctions against Russia that initially resulted from Russia's occupation of Crimea is evidence that the U.S. has concerns regarding Russia's international strategies.

[148] See Bellona Report 2011, "The Economics of the Russian Nuclear Power Industry," Leonid Andreev, at 27. This report details Rosatom's ability to have international influence in the international nuclear market because of its ability to bundle services. Rosatom is capable of such bundling because it is a vertically-integrated, state-supported group that offers a broad range of products, from uranium mining to conversion, enrichment, and fuel fabrication. Rosatom leverages its capabilities as an integrated supplier by bundling different products within the nuclear fuel cycle to lock-in business across a range of products and services.

[149] Forbes, "Nuclear Energy In American Is Teetering On A Cusp," November 2, 2017, available at https://www.forbes.com/sites/jamesconca/2017/11/02/nuclear-energy-in-america-is-teetering-on-a-cusp/#7d2ccb776867.

While such an eventuality would have a devastating impact on the national security of the U.S., existing circumstances already present a significant threat to our national security.

C. The Domestic Uranium Industry is an Essential Part of America's Critical Infrastructure and Contributes to Energy Security and Independence

Maintaining stable, secure critical infrastructure is also essential to America's economic, energy, and national security. Energy security is generally defined to mean the ability to have uninterrupted access to energy resources at an affordable price, and nuclear generation is a critical element of U.S. energy security. As the Department of Homeland Security has noted on its website as recently as January 2018, "[t]he nation's critical infrastructure provides essential services that underpin American society and serve as the backbone of our nation's economy, security, and health."[150] The energy sector is an essential part of that critical infrastructure, and the domestic nuclear industry is essential to the stability of this sector. As NEI noted in its comments on the Federal Energy Regulatory Commission ("FERC") Grid Reliability and Resilience Pricing Notice of Proposed Rulemaking (the "FERC Reliability Rulemaking"), "nuclear energy contributes approximately $60 billion annually to the gross domestic product of the [U.S.], accounts for approximately 475,000 full time jobs (direct and secondary), and provides nearly $10 billion annually in federal tax revenues and $2.2 billion in state tax revenues."[151] Yet, as highlighted in the EFI's Report, "[i]t is undeniable that the domestic nuclear energy sector is in a

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[150] Department of Homeland Security, "What is Critical Infrastructure," available at https://www.dhs.gov/what-critical-infrastructure.

[151] Nuclear Energy Institute, "Rulemaking comments of the Nuclear Energy Institute," FERC Docket No. RM18-1-000 (Oct. 23, 2017) (citing The Brattle Group, "The Nuclear Industry's Contribution to the U.S. Economy," (July 7, 2015) available at http://www.brattle.com/system/news/pdfs/000/000/895/original/The_Nuclear_Industry's_Contribution_to_the_U.S._Economy.pdf?1436280444).

precarious state"[152] given the erosion of the supply chain and the premature shutdown of several nuclear power plants.

It is notable that 20% of U.S electricity is produced from nuclear power, and nuclear power is the primary source of carbon-free energy in the U.S.[153] There are currently 99 nuclear reactors operating in the U.S. and, in six states, nuclear plants made up the largest source of electricity generation during 2016.[154] The stable source of energy provided by nuclear reactors helps to ensure the reliability of the electrical grid because reactors can operate 24 hours a day, seven days a week for 18 to 24 months before having to shut down to refuel.[155] Nuclear power plants are baseload facilities capable of providing a large amount of "dispatchable" power, and the baseload power provided by nuclear generation maintains the reliability of the electric grid when other resources, such as wind and solar, are unable to generate electricity. However, given current market conditions, the commercial viability of some reactors has become unsustainable. As the Uranium Producers of America noted in their comments on the FERC Reliability Rulemaking, "Since 2013, six U.S. nuclear reactors have prematurely closed and another eight are scheduled to close between 2018 and 2025.

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[152] EFI Report, p. 16.

[153] In DOE's recent report released on grid security, it was noted that "the 99 active nuclear reactors provide almost half a million jobs and contribute more than $60 billion to the U.S. GDP." DOE, "Staff Report to Secretary On Electricity Markets and Reliability," August 2017. (citing Nuclear Energy Institute, "Nuclear Energy's Economic Benefits—Current and Future" (April 2014) available at https://www.nei.org/corporatesite/media/filefolder/policy/papers/jobs.pdf.).

[154] Nuclear Energy Institute, U.S. Nuclear Power Plants, available at https://www.nei.org/Knowledge-Center/Nuclear-Statistics/US-Nuclear-Power-Plants.

[155] See Nuclear Energy Institute, "Unmatched Reliability," available at https://www.nei.org/Why-Nuclear-Energy/Reliable-Affordable-Energy/Unmatched-Reliability.

In its review, the DOE concluded unfavorable market conditions was the predominant factor for these premature closings."[156]

Nuclear power is a "zero" greenhouse gas emission technology, like wind, solar, and hydroelectric. Nuclear power has the highest capacity factor among all currently deployed generation technologies given the intermittent nature of other renewable generation resources. Renewable generation must be backstopped by nuclear or fossil fuels due to its intermittent nature. In 2016, nuclear energy prevented "554 million metric tons of carbon dioxide emissions."[157] As the U.S. and individual states work to achieve milestones related to carbon reduction, nuclear power is an essential part of the strategy. Nuclear remains the largest and most reliable source of carbon-free electricity, and meeting local, national, and international greenhouse gas emission targets undoubtedly would be significantly more challenging without reliable baseload nuclear power.[158]

The significance of maintaining reliable baseload generation, including nuclear generation, as an essential part of the U.S. energy infrastructure, and the potential detrimental impact of the premature retirement of certain baseload generation resources, was highlighted in the FERC Reliability Rulemaking.[159] This rulemaking was initiated to ensure that wholesale power markets allow for the continued vitality of "fuel secure" generating

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[156] Uranium Producers of America, "Comments of the Uranium Producers of America" FERC Docket No. RM18-1-000 (October 23, 2017).

[157] Nuclear Energy Institute, "Rulemaking Comments of the Nuclear Energy Institute," FERC Docket No. RM18-1-000 (October 23, 2017) (citing NEI's "US Nuclear Power Plants, General U.S. Nuclear Info," https://www.nei.org/Knowledge-Center/Nuclear-Statistics/US-Nuclear-Power-Plants; NEI, *Environment: Emissions Prevented*, https://www.nei.org/Knowledge-Center/Nuclear-Statistics/Environment-Emissions-Prevented.).

[158] EFI Report, p. 13.

[159] Grid Reliability and Resilience Pricing, Docket No. RM18-1-000. While FERC has terminated the initial rulemaking proceeding initiated by DOE, FERC has initiated a subsequent docket to more thoroughly consider these issues. See Docket No. AD18-7-000.

resources that can withstand natural and man-made disasters and to secure the reliability and resilience of the electric grid. These considerations have been a priority for Secretary Perry. As he noted in his letter initiating the Notice of Proposed Rulemaking, the rulemaking was essential because "the resilience of the electric grid is threatened by the premature retirements of these fuel-secure traditional baseload resources."[160]

Given the importance of uranium to this critical nuclear infrastructure and the nation's defense, the U.S. uranium mining industry must be provided relief from excessive uranium imports that have caused the decline of the domestic industry and therefore threaten serious harm to U.S. national and economic security. Without swift relief from imports, the domestic industry is likely to have no choice but to cease operating its limited remaining production. Reasonable limits on imports of uranium are critical to protecting America's national security, and the Department should recommend that the President act to limit imports that have captured almost 90% of the domestic market.

D. Research and Development and University Programs Must Be Sustained

Serving U.S. defense needs and supporting the nuclear supply chain required for the reliable operation of the nation's energy infrastructure depends on the U.S. maintaining a well-trained nuclear work force. The U.S. must have the ability to train and employ the next generation of geologists, engineers, chemists, and health physicists as well as pursue the research and development programs necessary to keep the U.S. at the forefront of the industry. Once this pipeline is lost, it will be difficult and time consuming to rebuild. The

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[160] Department of Energy, "Secretary of Energy's Direction that the Federal Energy Regulatory Commission Issue Grid Resiliency Rules Pursuant to the Secretary's Authority Under Section 304 of the Department of Energy Organization Act" (September 28, 2017) available at https://energy.gov/sites/prod/files/2017/09/f37/Secretary%20Rick%20Perry%27s%20Letter%20to%20the%20Federal%20Energy%20Regulatory%20Commission.pdf.

table set forth in Exhibit 18 provides the education level and an estimate of the minimum time for on-the-job training that is required for positions relevant to the uranium mining industry.

Although there is no specific educational requirement for entry into the uranium mining field, the industry relies on individuals with specialized education and training. The number of nuclear engineering graduates began to decline after the Three Mile Island incident and with the downturn in nuclear plant construction in the 1980s and 1990s.[161] This figure has rebounded slightly since the passage of the Energy Policy Act of 2005, based on expectations that the domestic nuclear power industry was destined for growth. Unfortunately, after the nuclear renaissance failed to materialize, the job placement of the graduates showed a "notable decline in the share of graduates taking positions in the commercial nuclear industry."[162] As noted in the EFI Report, "[u]niversities play many important roles in shaping the future of the [United States] nuclear supply chain."[163] Universities not only train the workforce for the domestic nuclear supply chain, but universities also help manage the national labs, which offer significant research capabilities and support to the domestic nuclear industry. It is therefore critical that the U.S. maintain a domestic nuclear industry that is able to provide opportunities for both students and universities.

E. It Would be Difficult to Recover From a Disruption of Supply

For the foregoing reasons, continued reliance on the current high level of imports of uranium presents a serious threat to our national defense and energy security. In today's

[161] EFI Report, p. 30.

[162] Id.

[163] Id.

tumultuous geopolitical landscape, this risk cannot be overstated. Russia in particular has a recent history of using energy exports as a geopolitical tool, such as when it has cut off the supply of natural gas to Ukraine. A comparison can also be drawn to U.S. reliance on imports of Rare Earth Elements ("REEs") and China's efforts to manipulate the market for REEs.

It is important to understand that any disruption of uranium imports, for whatever reason, is unlikely to be readily resolved and could have significant consequences for our nation's commercial nuclear fleet. A potential shutdown of even a portion of the fleet would cause a dramatic spike in electricity prices and potentially could lead to blackouts in some areas of the nation where nuclear provides a significant portion of the electricity.

In response to a significant supply disruption, the industry would start bringing back online those mines which are on standby or low, controlled production levels. However, it would take time to restore or obtain new regulatory approvals, rehire and train staff, and refurbish facilities. Given the current state of the domestic uranium mining industry, it could not quickly respond to a uranium supply disruption because the industry is highly technical, with considerable and time-consuming regulatory oversight by local, state, and federal agencies. In cases where projects have been placed on standby, meaningful production could easily be delayed for a year or more while manpower is hired, the facility is refurbished and re-started, and additional mine areas are developed.

Bringing new uranium mines online in response to a supply disruption is even more time consuming and would not provide a timely approach to a supply crisis. Even after a uranium ore body has been discovered (which may take decades), the mining company must delineate the ore body, collect environmental baseline data, submit various applications to a

plethora of regulatory agencies, and then finally construct the mine after regulatory approval has been granted.

Delineation of an ore body entails significant drilling to characterize the grade and distribution of the economic mineralization, and such efforts may take two years for a small ore body or perhaps a decade for a large ore body. If delineation drilling results indicate the mineralization is economic, the mining company must collect environmental baseline data which will be used to support permitting actions with government agencies. Environmental baseline data is typically collected for soil, geology, seismology, surface water, ground water, air, wildlife, vegetation, radiation, and cultural and visual resources. Since environmental characteristics may vary seasonally, baseline data is commonly collected over at least one year. When study design and compilation of data are also included, it commonly takes two to three years to collect baseline environmental data and organize the results into a format acceptable to permitting agencies.

The baseline environmental data, along with a mine plan, is ultimately submitted to the appropriate government agencies for review. The responsible federal agency(-ies) commonly require an Environmental Impact Statement ("EIS") in compliance with the National Environmental Policy Act ("NEPA"). Recent industry experience is that it takes at least five years to complete an EIS. Assuming all the necessary government approvals are granted, only then can a company begin construction of the facility. A complete ISR facility, including the precipitation and yellowcake packaging facilities, typically takes 9 to 12 months to construct, while a conventional mill might take up to two years to complete. Finally, once the facility is constructed, and assuming no opponents file suit to stop the project, mining operations can begin. The complete process from ore body

delineation through construction typically takes longer than nine years (assuming the deposit has already been discovered). Projects that have already been permitted and constructed can, of course, be placed into production relatively quickly.

Most importantly, as previously discussed, nuclear feedstock for the nation's defense programs cannot be sourced from other nations, not even from allies such as Canada and Australia. Therefore, it must be a national priority to maintain a healthy domestic uranium mining and processing industry that can supply the uranium necessary for defense purposes. There is no alternate source of supply.

VIII. REMEDY

With the current low price of uranium and the steady decline in the volume of uranium purchased by U.S. utilities from domestic sources, Petitioners and other members of the domestic industry confront a situation in which it will soon be uneconomic to continue operations. To prevent such a catastrophe, Petitioners propose a two-part remedy that would provide the domestic uranium industry with the ability to survive and recover while limiting the financial impact on other members of the U.S. commercial nuclear power industry and consumers. The first component of the proposed remedy is a quota on uranium imports that would reserve a reasonable and realistic portion of U.S. market demand for U.S. production. The second component is a requirement that U.S. government utilities and agencies purchase their uranium needs from domestic sources. These proposed remedies are authorized by and consistent with the President's broad authority under Section 232, which empowers the President to take action "that, in the judgment of the President, must be taken to adjust the

imports of the article [under investigation] and its derivatives so that such imports will not threaten to impair the national security."[164]

A. Uranium Import Quota

Implementation of a quota on the amount of uranium that can be imported to the U.S. while a portion of domestic demand is reserved for U.S. producers is vital to mitigating the negative impact of excessive imports. A properly designed quota will create a U.S. market environment resulting in long-term contracts that will support the recovery of the U.S. industry. These long-term contracts will help provide the required relief for domestic uranium producers and sustain the domestic nuclear supply chain while limiting imports to reasonable levels that will not destroy the domestic mining industry. Sustaining the U.S. uranium industry by implementing the proposed quota described below will protect U.S. national security interests by preventing the country from becoming completely dependent on foreign sources of uranium.

To ensure that the quota is effective and not circumvented, it must provide that a certain percentage of the domestic market is reserved for U.S. uranium producers. This can be accomplished by adopting the following requirements as part of the relief granted by the President:

- The total annual U.S. market consumption for uranium will be determined by using a moving average of reactor consumption for the preceding three calendar years derived from public data available from the EIA.[165]
- 25% of this average historical consumption will be reserved for newly produced U.S. uranium.
- The remaining 75% (the "Total Import Amount") of domestic requirements will be available for imports and secondary supplies from other sources,

[164] 19 U.S.C. § 1862(c).

[165] Petitioners suggest that EIA data be used to determine the demand and current level of imports because it is readily available and reliable. The 2016 report is available at https://www.eia.gov/uranium/marketing/pdf/2016umar.pdf.

including U.S. government inventories, and utility inventories of foreign-origin uranium.

- The Total Import Amount in a given year will be allocated to those countries that export uranium to the U.S. based on a moving average of their historical import levels for the preceding three calendar years, less any secondary supplies derived from other sources, including U.S. government inventories and utility inventories of foreign-origin uranium.
- Foreign-origin uranium delivered to a U.S. customer for consumption or processing out of U.S. inventories or by borrowing of foreign-origin uranium imported into the U.S. after January 1, 2018, will be included in the Total Import Amount in the year of such delivery.
- Imports will be allocated and tracked through a licensing system pursuant to which the Department will review and approve the level of imports to ensure compliance with the terms of the quota. (This is consistent with the process the Department uses to ensure compliance with the Russian Suspension Agreement.)

Given the current and readily available production capacity of the domestic uranium industry, 25% of current U.S. demand is a level of production that U.S. uranium producers can meet with currently operating mines and licensed mines.[166] See the Production by Mine figures provided as Exhibit 19.

In order to prevent circumvention, the portion of U.S. demand reserved for the U.S. market must be fulfilled by licensed U.S. uranium producers and sourced from domestic mines. In addition, U.S.-origin nuclear material that is held by a U.S. utility on January 1, 2018 or that is derived from uranium produced in the U.S. after that date and that is exported by the utility for conversion, enrichment or fuel fabrication and then imported back into the U.S., will not count towards the import quota of 75%. Similarly, any material classified as ore or alternate feed materials can be imported into the U.S. for processing at a U.S. licensed

[166] Petitioners expect that 25% of the current U.S. demand is a level of production that U.S. uranium miners can meet within the next one to two years if economic and financial conditions for the industry improve, including securing long-term contracts, which will incentivize the U.S. uranium miners to restart projects currently idle because of market conditions.

uranium recovery facility, without the ore or contained uranium being included in the quota allotment for the country of origin at the time of import of the ore or alternate feed material. However, any uranium recovered from such ore or alternate feed material would be classified as having the origin of the country from which the ore or alternate feed material originated and would be included in the quota allotment for such country and licensed as such, unless the uranium is exported out of the U.S. no more than 18 months after the ore or alternate feed material was imported for U.S. processing or unless the uranium recovered is a de minimus quantity, such as no more than 5,000 lbs of U_3O_8 per generator or 25,000 lbs of U_3O_8 per US recovery facility, per year.

If foreign-sourced uranium is imported into the U.S. for enrichment, that imported uranium will count against the import quota for the foreign country that sources that uranium if the product is not exported out of the U.S. after processing. Additionally, in order to support the effectiveness of the remedy, DOE should specifically be prohibited from taking any action that would have the effect of frustrating the purpose of the remedy, including without limitation supplying government-owned DUF_6 for underfeeding by enrichers.

The collective 25% market share for which U.S. producers will compete will allow market forces to operate while providing the U.S. industry with an opportunity to survive and sustain reasonable commercial operations. In order to be eligible to compete for the domestic 25% of the market, a producer must be a U.S. licensed ISR processing facility or conventional uranium mill, and the uranium must have been produced after January 1, 2018. As noted above, this 25% domestically sourced amount will be exclusive of any sales of the excess uranium inventory DOE might sell into the market. At the end of a ten-year period, the Department should conduct a review to determine if a reduction in the quota or its

elimination would allow imports to increase to a level where they would again have a detrimental impact on national security. If the Department determines pursuant to this review that the domestic industry has recovered sufficiently to sustain operations, the quota would end.

The proposed 25% quota level is reasonable and reflects what is required to encourage parties to enter into the long-term contracts necessary to restart production and to sustain the domestic uranium industry for the long term. A 25% market share would provide the domestic industry with an opportunity to operate at a sustainable level until a determination has been made that increased imports will not threaten national security. Moreover, with the market-related term contracts this quota would be expected to generate, a 25% quota represents a production volume that the U.S. uranium mining industry is capable of meeting with current operating mines plus production that can be brought online to sustain production over time.[167]

The proposed remedy would make it possible for the domestic uranium industry to compete more effectively with the state-owned uranium industries of countries such as Russia, Kazakhstan, and Uzbekistan by preserving a limited segment of the market free from the influence of state-owned entities and their unfair commercial advantages. The remedy would result in higher levels of purchases of uranium from domestic sources by U.S. utilities, while also allowing utilities to continue to purchase foreign uranium from their historical suppliers outside the U.S. This remedy will also have a minimal, if any, impact on utilities' costs of operation. Given that uranium constitutes a small proportion of a utility's costs, and

[167] As previously noted, the proper financial and economic conditions would have to exist, and long-term contracts would have to be entered into, for the U.S. uranium mining industry to bring back online production currently idle.

that a utility will generally average the price of uranium across all methods by which it purchases uranium, the quota is unlikely to increase significantly a utility's overall cost for uranium. As shown in the report *The Market Impacts of US Uranium Import Quotas* provided as Exhibit 2, under the proposed 25% import quota, prices to U.S. uranium producers would be expected to increase to levels in line with global production costs, with only a marginal potential impact on the price of electricity. As explained in the report, even if the incremental uranium costs paid by civilian nuclear plant owners and operators under the 25% quota were passed on to consumers, those incremental uranium costs due to the import quotas are less than one-tenth of one percent of the average retail price of electricity.

B. Buy American Requirements

Along with the quota described above, and consistent with the Administration's goal of encouraging and requiring the executive branch to buy and hire American, federal power agencies such as the Tennessee Valley Authority ("TVA") and the Bonneville Power Administration ("BPA") (collectively, "Government Utilities") that have a need for uranium should be required to purchase all of their uranium needs (including U_3O_8, UF_6 and EUP), that are not subject to existing contracts as of January 1, 2018, from domestic sources. Likewise, to the extent the National Nuclear Security Administration and the Department of Defense have uranium requirements (including U_3O_8, UF_6 and EUP), those needs that are not subject to existing contracts as of January 1, 2018, should be met from domestic sources. The proposed approach would require that all uranium and conversion services purchased by the Government, for any purpose, that are not subject to existing contracts as of January 1, 2018, be U.S. sourced.

As President Trump noted in his Buy American Executive Order,[168] it is the policy of the executive branch to "maximize, consistent with the law, through terms and conditions of Federal financial assistance awards and Federal procurements, the use of goods, products, and materials produced in the U.S."[169] This policy should include the purchase of domestically-produced uranium and domestic conversion services. On June 30, 2017, Secretary Ross and the Director of the Office of Management and Budget, Dennis Mulvaney, issued a "Memorandum for Heads of Executive Departments and Agencies" to implement the Buy American Executive Order. In their joint memorandum, Secretary Ross and Director Mulvaney instructed federal agencies to help implement the requirements of the Buy American Executive Order to maximize the benefits of the Administration's Buy American policy. The joint memorandum directs agencies to assess their compliance with the Buy American laws, "develop and propose policies to maximize use of material produced in the United States," and to report their findings. Consistent with the Buy American Executive Order and the policy outlined in the joint memorandum, the Government Utilities should be required to follow the principles of the Buy American program.

Under the proposed remedy, the following requirements would apply to each Government Utility on and after the effective date of the remedy:

- By the end of each calendar year, a Government Utility must have at least 90% of its nuclear fuel requirements contracted for the following ten calendar years. Any additional U_3O_8 purchases made by the Government Utility for the year must be pursuant to a contract with the owner of a Licensed Uranium Recovery Facility (a licensed ISR recovery facility or a licensed conventional uranium mill), for the delivery of U_3O_8 to be produced from the Licensed Uranium Recovery Facility located in the U.S. on or after the Effective Date;

[168] "Buy American and Hire American" Executive Order 13788 of April 18, 2017 ("Buy American Executive Order").

[169] Buy American Executive Order § 2(a).

- If sufficient U_3O_8 is not available under the paragraphs above to meet the Government Utility's nuclear fuel requirements for any calendar year, then the Government Utility may enter into contracts with non-U.S. producers to acquire uranium for that calendar year, but only to the extent such uranium is not available under the requirements noted in the paragraphs above;
- All contracts referred to above would be non-assignable, except to a subsequent owner of the U.S. Licensed U_3O_8. The Government Utility shall not enter into any contracts as described above with any single supplier for the acquisition of more than one million pounds of U_3O_8 for any given calendar year, unless sufficient U_3O_8 is not otherwise available as required by the paragraphs above to meet the Government Utility's nuclear fuel requirements for that calendar year.
- The Government Utility shall also not purchase or acquire any UF_6, other than UF_6 that results from the conversion of U_3O_8 that has been converted into UF_6 at a U.S. Licensed UF_6 Facility, provided the U.S. Licensed UF_6 Facility offers such conversion services on terms and conditions generally made available to its other customers. If no U.S. Licensed UF_6 Facility is able or willing to offer such conversion services on terms and conditions generally made available to its other customers, then the Government Utility may have its U_3O_8 converted into UF_6 at a conversion facility that is not a U.S. Licensed UF_6 Facility.
- The Government Utility shall not purchase or acquire any EUP, other than EUP that results from the enrichment into EUP at a U.S. Licensed EUP Facility, provided the U.S. Licensed EUP Facility provides such enrichment services on terms and conditions generally made available to its other customers. If no U.S. Licensed EUP Facility is able or willing to offer such enrichment services on terms and conditions generally made available to its other customers, then the Government Utility may have its UF_6 enriched into EUP at an enrichment facility that is not a U.S. Licensed EUP Facility.

Petitioners recognize that the benefits to the U.S. industry of the Buy American remedy will be more advantageous over the long term rather than immediately because of existing contractual commitments of the Government Utilities. However, in conjunction with the quota remedy outlined above, this additional domestic content requirement has the potential to make an important contribution to a sustained recovery of the U.S. uranium industry.

Collectively, the two components of the proposed remedy will have the effect of increasing production rates at existing and new U.S. uranium mines, which will in turn drive down production costs on a per pound basis; particularly at ISR mines. This is shown by the

chart in Exhibit 23, which was generated by plotting the quarterly production rate over the past 16 quarters at the Lost Creek ISR mine in Wyoming against the all-in production cost (cash + non-cash costs) per pound produced. Since ISR mines have significant fixed costs that are relatively independent of the production rate, as the rate of production increases, the cost of production on a per pound basis declines. For example, when the quarterly production rate at Lost Creek is approximately 100,000 pounds U_3O_8, the all-in production cost is around $40/pound U_3O_8. However, as the production rate approaches 250,000 pounds U_3O_8 per quarter, the all-in production cost is expected to fall below $20/pound U_3O_8. As production rates increase in the U.S. in response to the trade remedy, the cost of production will decline, making U.S. operators even more cost competitive and lending additional support to the recovery of the U.S. mining industry.

C. Uranium Product Imports Covered By The Import Quota

Given the complex and interrelated elements of the nuclear fuel cycle, it is important to structure any remedy so it cannot be circumvented by importing uranium in forms other than yellowcake. Petitioners' proposed definition of uranium products is designed to minimize the potential for circumvention. For the purpose of the quota, the U_3O_8 content of a uranium product would be the governing reference for the quota limitations, regardless of the form in which the uranium was imported. The definition of the uranium products governed by the quota is consistent with the approach the Department has administered under the Russian Suspension Agreement.[170] For reference, we have included as Exhibit 22 the product description that was utilized in the most recent Sunset Review of the Russian Suspension Agreement.

[170] See, e.g., Uranium From Russia, Investigation No. 731-TA-539-C (Fourth Review) p. I-13, which cites the scope of the product as defined by the Department.

Accordingly, the quota remedy should be structured utilizing the following definition:

> The uranium products covered by this Petition and subject to the proposed quota include the following, provided that for quota reference purposes the relevant figure is the U_3O_8 content of the uranium product to be imported: natural uranium in the form of uranium ores and concentrates; natural uranium metal and natural uranium compounds; alloys, dispersions (including cermets), ceramic products, and mixtures containing natural uranium or natural uranium compounds; uranium enriched in U-235 and its compounds; alloys, dispersions (including cermets), ceramic products, and mixtures containing uranium enriched in U-235 or compounds of uranium enriched in U-235; and any other forms of uranium within the same class or kind. Uranium that is milled into U_3O_8 and/or converted into UF_6, UF_4, or UO_2 is covered by this Petition. Uranium enriched in U-235 or compounds of uranium enriched in U-235 are also covered by this Petition. HEU is within the scope of the Petition, and, for the purposes of this Petition, HEU means uranium enriched to 20% or greater in the isotope U-235, and enrichment will not change the country of origin of the uranium. Additionally, LEU contained in fuel rods and assemblies, Normal Uranium[171] and off-spec uranium is covered by any remedy imposed pursuant to this Petition.

Imports of uranium ores and concentrates, natural uranium compounds, and all forms of enriched uranium are currently classifiable under the Harmonized Tariff Schedule of the U.S. ("HTSUS") subheadings: 2612.10.00, 2844.10.20, 2844.20.00, respectively. Imports of natural uranium metal and forms of natural uranium other than compounds are currently classifiable under HTSUS subheadings: 2844.10.10 and 2844.10.50. HTSUS subheadings are provided for convenience and Customs purposes, and should not serve to limit the uranium that is covered by the Petition.

Uranium imported from Russia is currently subject to the limitations imposed by the Russian Suspension Agreement, until its expiration at the end of 2020. After the Russian

[171] Normal uranium is defined by the NRC NUREG/BR-0096 to include "Any uranium-bearing material having a uranium iso[]topic weight distribution that can be described as being (1) 0.700 to 0.724% in combined U-233 plus U-235; and (2) at least 99.200% in U-238. [Note: All 'natural uranium' having a U-235 isotopic concentration in the range of 0.700 to 0.724[%] is 'normal uranium,' but not all 'normal uranium' is 'natural uranium']."

Suspension Agreement expires, uranium imported from Russia that meets the foregoing definition would be included in the proposed quota restrictions. Until December 31, 2020, the uranium content of Russian uranium products would be subtracted from the Total Import Amount so it would not reduce the amount of U.S. demand allocated to the U.S. industry. Uranium that is re-exported from the U.S. after processing (*i.e.,* for conversion, enrichment or fuel fabrication) in the U.S. would not count against a given country's quota, provided that it was exported no more than 18 months after it was imported for U.S. processing. Foreign-sourced uranium produced in the U.S. would retain its original country of origin.

The Department has significant experience, gained over more than two decades, in administering uranium imports under the Russian Suspension Agreement. Accordingly, Petitioners are confident that it will be possible for the Department to effectively implement the type of quota system described above. The quota volumes would be based on objective information that can be ascertained from existing public sources and would take into account the relative levels of imports from uranium-producing countries.

IX. CONCLUSION

The domestic uranium mining industry has reached a turning point. Absent immediate relief from imports, the industry could soon cease to exist. The Department should determine that uranium imports have been and will continue to be detrimental to America's national, energy and economic security. It is essential that the President impose the measures requested in this Petition to preserve our domestic uranium industry, the first stage of the U.S. commercial nuclear fuel cycle and a critical contributor to the nation's national security and energy independence.

Respectfully submitted,

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EXHIBITS

Exhibit 1	Compliance with Regulatory Requirements
Exhibit 2	The Market Impacts of U.S. Uranium Import Quotas
Exhibit 3	Global Operating Cost Curve for Primary Uranium Production, Section 232 Investigation of Uranium Imports
Exhibit 4	Ur-Energy Background
Exhibit 5	Energy Fuels Background
Exhibit 6	EIA 2016 Uranium Marketing Annual Report
Exhibit 7	EIA 2011 Annual Energy Review: Table 9.3
Exhibit 8	DOE Excess Uranium Inventory Management Plan
Exhibit 9	DOE Responses to U.S. Senate Committee on Energy and Natural Resources (June 9, 2015)
Exhibit 10	EFI Report: The U.S. Nuclear Energy Enterprise: A Key National Security Enabler
Exhibit 11	World Nuclear Association Background Materials
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Exhibit 14	DOC Affirmative Preliminary Antidumping Determination (1992)
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Exhibit 16	*The Nuclear Review*, August 2017
Exhibit 17	Constructed Annual Mine Capacity and Spot Price
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Exhibit 19	Project Status and Capacities of Domestic Mines and Mills
Exhibit 20	Uranium Purchases by Origin and Delivery Year, 2012-2016

Exhibit 21	Referenced Uranium One Press Releases
Exhibit 22	Product Definition from the 2017 ITC Sunset Review of the Russian Suspension Agreement
Exhibit 23	Effect of Production Rate on Cost at Lost Creek Mine
Exhibit 24	Selected Press Articles and Reports