



# Uranium Report 2021

**Everything you need to know about uranium!**



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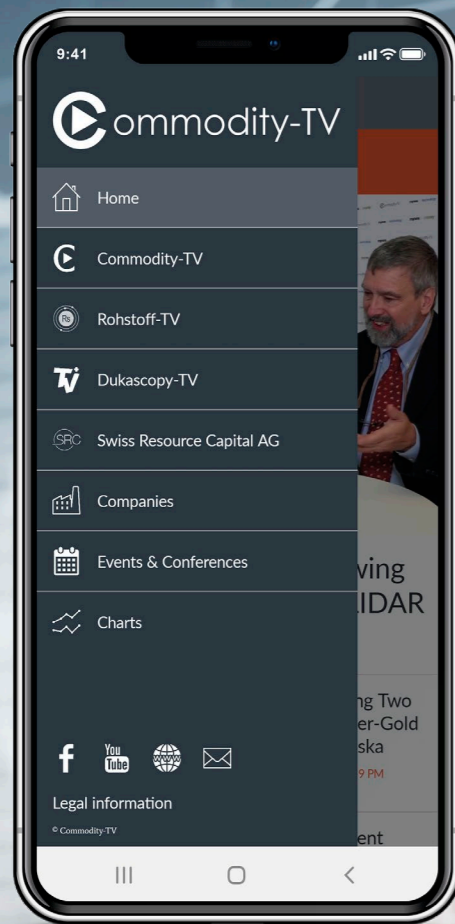
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## Preface

Dear Readers,

This new edition of the 2021 Uranium Report marks the fifth year of this special report series. For uranium, we see major imbalances in supply and demand coming to the markets. Without the generation of energy from uranium, i.e. nuclear power plants, many countries will not only have a huge problem in the stable basic energy supply, but also a real power supply problem in itself as a result of the electromobility revolution. The development of the charging infrastructure is progressing much more rapidly in Europe and electricity consumption is also continuing to rise. Even I now drive a hybrid and diligently charge electricity for short trips in the city. The question is: Where does all the electricity come from, and without pollutant emissions? Nuclear power is the only viable solution for many years to come, since the sun and wind are not capable of providing a base load and can therefore only be suppliers. This question is all the more pressing in Germany, where nuclear power is being switched off and coal is being made to disappear. Here it is once again worthwhile to look at China, where a balanced mix of photovoltaics, hydroelectric and wind power and above all nuclear power is being used. China has understood that you need a reliable, clean and cheap power supply, and nuclear power is the perfect solution.

Closely connected to the battery metals (main components of lithium-ion batteries, the heart of every electric vehicle) is the base-loadable power supply (charging) of the batteries, and thus either the burning of coal, gas or oil or the use of uranium as a fuel element in nuclear power plants. There are no other base-load-capable energy production methods as long as no adequately large storage possibilities for electricity from renewable energy sources are created. This report is intended to provide the reader with an overview of the uranium industry and the real facts, as well as of the energy supply worldwide through nuclear power.

The closure of many large uranium mines in recent years could be the ignition point for rising uranium prices in the future. Supply is still falling, and demand is rising slightly.

Of course, we also present some interesting companies of this industry with facts and figures. This is to be understood as a suggestion and not as a buy recommendation since there are only very few listed companies left.

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Jochen Staiger is founder and CEO of Swiss Resource Capital AG, located in Herisau, Switzerland. As chief-editor and founder of the first two resource IPTV-channels Commodity-TV and its German counterpart Rohstoff-TV, he reports about companies, experts, fund managers and various themes around the international mining business and the correspondent metals.



Tim Rödel is Manager Newsletter, Threads & Special Reports at SRC AG. He has been active in the commodities sector for more than 15 years and accompanied several chief-editor positions, e.g. at Rohstoff-Spiegel, Rohstoff-Woche, Rohstoffraketen, the publications Wahrer Wohlstand and First Mover. He owns an enormous commodity expertise and a wide-spread network within the whole resource sector.

# 50-million-pound deficit should soon lead to a new uranium boom

The world needs clean energy. Even in the Corona crisis! While the consumption of electricity hardly decreased during the corona period, many mines had to close down (temporarily) due to corona. This led to a slump in the production of corresponding fuels such as coal and uranium. So while many large mines had to temporarily shut down their operations or even stop them altogether due to possible infections of the personnel, at the same time the system-relevant coal and nuclear power plants must continue to operate in order not to let the social system completely fall apart. The USA in particular, but also other nations in which nuclear energy plays an important role (such

## Base load capability, what is that?

Base load capability is the ability of a power plant to provide continuous, reliable electrical energy. This includes nuclear power plants, coal-fired power plants, gas-fired power plants, oil-fired power plants and steam power plants fired with substitute fuels. Combined heat and power plants, biomass and biogas power plants can also be base load capable under certain conditions, although fossil or renewable raw materials must also be burned. The only base-load-capable electricity generation from renewable energy sources is by means of hydroelectric power plants, although this often requires a major intervention in nature. Photovoltaic and wind power plants are not suitable for base load due to their often strongly fluctuating generation and thus feed-in.

as France, Great Britain and China), urgently need fuel supplies. No matter what it costs, one might almost think so, at least if one takes a look at the uranium spot price. The price of uranium has risen sharply in the past two years but is still far from an economic level. This has recently created a supply shortfall of more than 50 million pounds of  $U_3O_8$  per year, which can still be made up by stockpiles. But this will soon be over, which should give uranium investors a big boost for their depot.

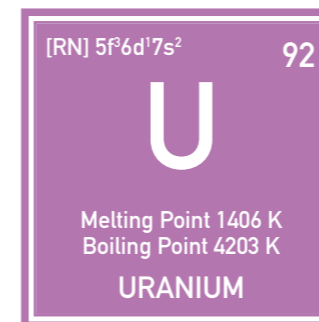
**Nuclear energy is currently the only base-load capable energy source that can manage the balancing act between an enormously increasing power demand and clean energy generation! Uranium is irreplaceable for it!**

The worldwide energy demand has multiplied since the end of the 1980s. About 11% of the total energy demand worldwide is currently covered by nuclear power. However, it is still mainly fossil fuels such as coal and crude oil that are burned to generate energy. The increasing demand for a reduction of  $CO_2$  emissions and the ever more noticeable phenomenon of „global warming“ are causing energy-guzzling industrial nations and emerging markets in particular to increase their energy efficiency and improve their  $CO_2$  budgets. The second important point is the ongoing electrical revolution, which in a few years will not only make us almost 100% electrically mobile but will also bring a huge additional surge in demand for clean energy. Burning coal and oil cannot achieve both at the same time. The alternative is renewable energies, which require an enormous amount of time and money and are not even close to base load-capable without the lack of larger electricity storage facilities, or nuclear power, which can provide a great deal of energy in a  $CO_2$ -neutral way. Some countries have long recognized this possibility of fast and almost clean energy generation and are now pushing the construction of new nuclear power plants.

## Uranium – The concentrated energy

**Uranium is one of only two elements in which nuclear fission chain reactions are possible**

Let us come to the element uranium itself. Uranium is named after the planet Uranus and is a chemical element with the element symbol U and the atomic number 92. Uranium is a metal whose all isotopes are radioactive. Uranium, which occurs naturally in minerals, consists of the isotope  $^{238}U$  (99.3%) and  $^{235}U$  (0.7%).



The uranium isotope  $^{235}U$  is fissionable by thermal neutrons and is therefore, apart from the extremely rare plutonium isotope  $^{239}Pu$ , the only known naturally occurring nuclide with which nuclear fission chain reactions are possible. For this reason, it is used as a primary energy source in nuclear power plants and nuclear weapons.

## Occurrence

Uranium does not occur in nature in solid form, but always in minerals containing oxygen. There are a total of about 230 uranium minerals that can be of local economic importance. There is a wide range of uranium deposits from magmatic hydrothermal to sedimentary types. The highest uranium grades are found in unconformity-type deposits with average uranium grades ranging from 0.3% to 20%. The highest grades are over 70%  $U_3O_8$ !

According to the International Atomic Energy Agency (IAEA), the largest uranium ore reserves are in the USA, Niger, Australia, Kazakhstan, Namibia, South Africa, Canada, Brazil, Russia, Ukraine and Uzbekistan.

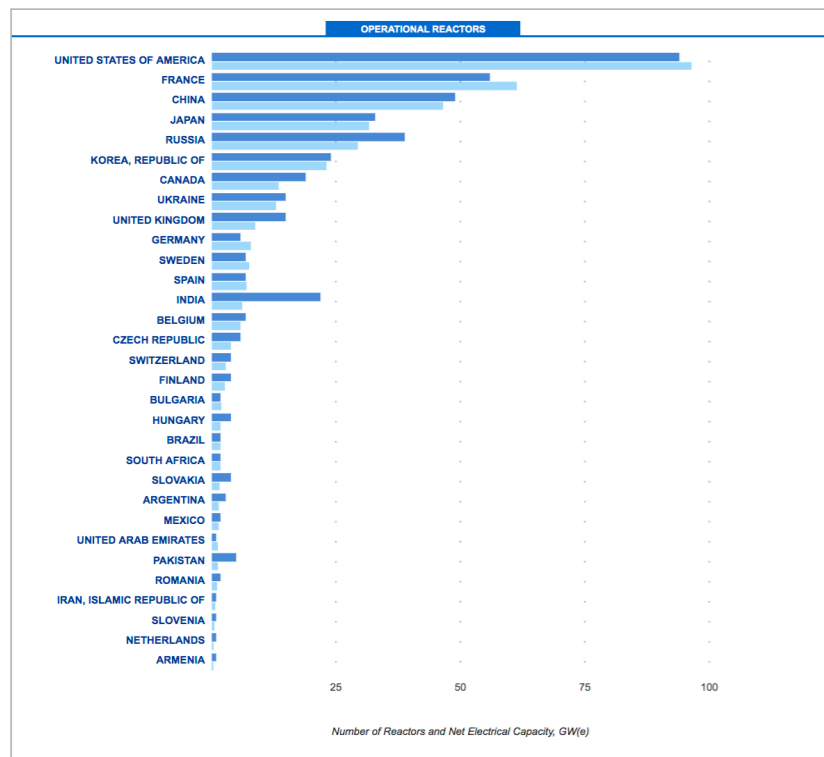
## Uranium mining

Uranium mining is basically divided into two different processes: Conventional production and extraction by means of in-situ leaching or in-situ recovery (ISR). The exact method of extraction depends on the characteristics of the ore body, such as depth, shape, ore content, tectonics, type of host rock and other factors.

## Conventional production

Most of the uranium is extracted by underground mining. The deposits are developed via shafts, galleries, ramps or spirals. Problems are often caused by the ingress of mine water and the so-called ventilation (technical measures to supply mines with fresh air). The exact mining method is chosen according to the characteristics of the deposit. Above all, the shape of the ore bodies and the distribution of the uranium in them are decisive. In underground mining, an ore body can be mined in a targeted manner, resulting in much less overburden than in open pit mining.

Near-surface or very large ore bodies are preferably extracted by open pit mining. This enables the use of cost-effective large-scale technology. Modern open-cast mines can be from a few meters to over 1,000 meters deep and can reach a diameter of several kilometers. Open pit mining often produces large quantities of overburden. As in underground mining, large quantities of water may have to be extracted for open pit mining, but ventilation is not a major problem.



Overview of the currently running reactors (blue) and the net electrical power (light blue).  
Source: www.iaea.org/PRIS

### ISR production

In the ISR method, water and small amounts of CO<sub>2</sub> and oxygen are injected into the sandstone layers with the help of so-called injection wells, the uranium is dissolved out and pumped back to the surface for further processing with the help of so-called recovery wells. The whole process is therefore completely underground. The advantages of this process are therefore obvious: there is no need for major earth movements as in open-pit operation, no overburden or run-off basins for heavy metals and cyanides are created. Only the wells are visible on the surface, the areas around the wells can continue to be farmed without restrictions. The ISR process makes even low grade deposits economically mineable, the capital costs for mine development are greatly reduced. In addition, the whole process can be carried out with a minimum of manpower, which also drastically reduces operating costs. According to a study by the World Nuclear Association, 25% of the uranium mined outside Kazakhstan recently came from ISR mines.

## The current status of the uranium market

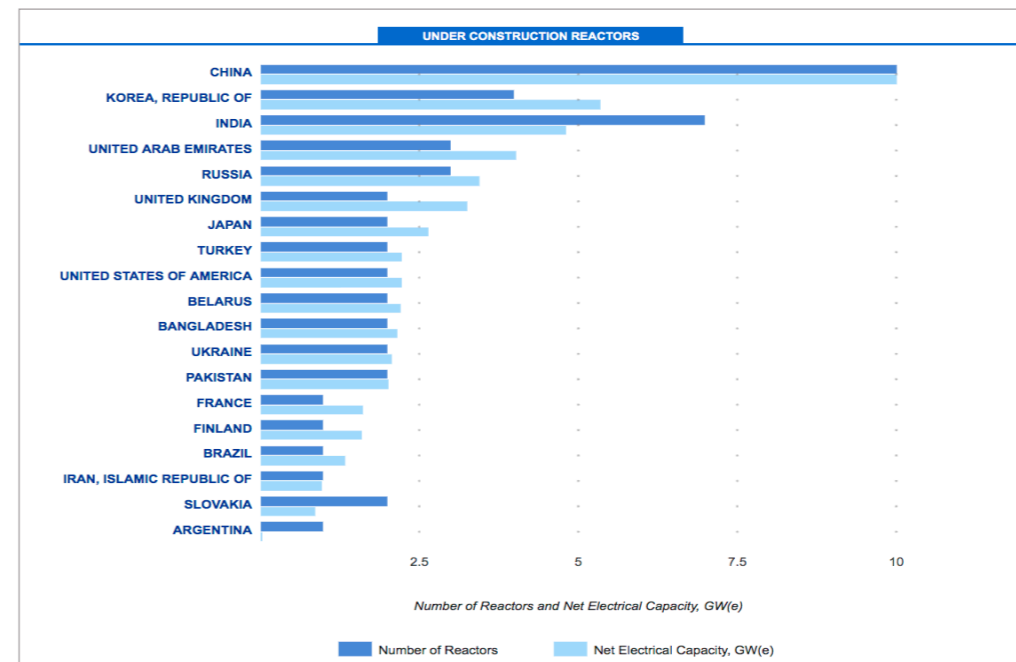
The last 45 years at missing investments into the procurement structure - thus into the infrastructure of mines and processing plants - will prove for uranium investors in the future with high probability as lucky chance! For despite the fact that, at the latest since the Chernobyl catastrophe and even more so after the events surrounding the nuclear facilities in Fukushima, Japan, the number of nuclear power plants worldwide is already at a record high. Just 30 countries currently (as of October 2020) operate 442 reactors with a total net electrical output of around 391.7 gigawatts.

The current leading nuclear power nation with 95 reactors in operation is the USA. However, emerging markets such as China and India in particular are requiring more and more energy and have been focusing on a massive expansion of their nuclear power capacities for some time now. It is therefore not surprising that 54 additional nuclear reactors with a total net electrical capacity of around 57.3 gigawatts are currently under construction. Plans for 112 additional reactors have already been completed and 330 more are in the pipeline.

## The demand situation

### China sets the tone in the future

While many self-proclaimed experts had already prophesied the end of the atomic age, this is only just beginning to develop in the world's most populous country. 49 reactors with a total net electrical capacity of 46.5 gigawatts are operated in the Middle Kingdom, which has so far mainly used coal to generate electricity. Of these, 10 new reactors alone have been put into operation since the beginning of 2018. So the expansion of nuclear power in China is enormous and is happening at breathtaking speed! The state-owned power plant manufacturer Power Construction Corporation of China



Overview of the reactors currently under construction (blue) and the corresponding net electrical capacity (light blue) per country  
Source: www.iaea.org/PRIS

predicted in the fall of 2015 that its country would rise among the world's largest users of nuclear power after the Chinese government planned to build more than 80 new nuclear reactors in the next 15 years and more than 230 new nuclear reactors by 2050. According to information from China Power, the new five-year plan for the energy industry, envisages a faster expansion of nuclear capacity than has been the case to date: previously, capacity was expected to rise to 58 gigawatts in the coming years, but now more than 90 gigawatts are under discussion. In 2005, the plan was for only 40 gigawatts by 2020. By 2030, 110 reactors should be on the grid. A total of 11 nuclear reactors are currently under construction. In a further step, China's nuclear power generation is to be expanded to 120 to 160 gigawatts by 2030!

### India massively expands its nuclear program

India itself has hardly any significant uranium deposits. A tenfold expansion of its own nuclear energy capacities would at the same time mean a 10% increase in total global nuclear power generation.

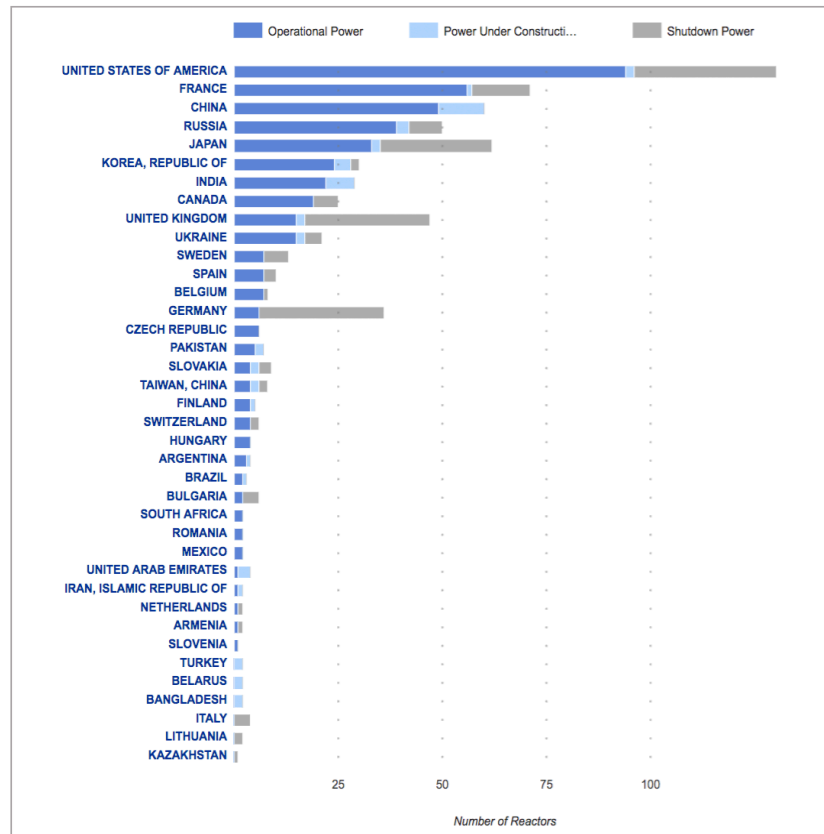
But where is the additionally needed uranium going to come from? Currently, only a few of the 22 Indian nuclear reactors are running at full load. While Japan, China, Russia and South Korea in particular have been able to secure uranium resources worldwide in recent years, India has completely missed this opportunity. Only recently, several purchase agreements have been concluded with companies from the USA, Canada, Namibia, Kazakhstan, Russia, Great Britain and South Korea. At present, 7 nuclear reactors are under construction in India, with another 42 to follow by 2050.

### Russia with increasing nuclear capacity

Russia has also announced a massive expansion of its nuclear power plants. Russia currently operates 38 nuclear reactors with about 28.5 gigawatts. 4 plants are in the construction phase. In addition, Russia plans to build 46 more nuclear power plants, which should increase the share of nuclear energy in the Russian energy mix from currently 15% to over 20%. In a further step, Russia wants to increase this quota again to 25%.

## Rising global expansion of nuclear energy

In addition to the 31 nations that already have nuclear reactors on the grid, another 17 countries are planning to install nuclear power plants. Among them are Egypt, Jordan, Turkey and Indonesia. At the beginning of March 2020, the 31st nation, the United Arab Emirates, entered into nuclear power production. There are another 3 reactors under construction. South Korea currently has 4 plants under construction.



Overview of currently running reactors (blue), currently shut down reactors (grey) and reactors under construction (light blue).

Source: [www.iaea.org/PRIS](http://www.iaea.org/PRIS)

## The USA is threatened with energy collapse

With 95 reactors, the USA has by far the largest active nuclear power plant fleet worldwide. Nevertheless, the USA is threatened with a collapse in energy supply. The United States is still the country with the highest per capita consumption of electricity worldwide. And the Americans' hunger for energy is growing

all the time. Many of the coal-fired power plants still dating from the 1950s and 1960s operate inefficiently and uneconomically. Sooner rather than later they have to be taken off the grid. Power consumption, on the other hand, is rising continuously. So the USA has no choice but to increase the number of its nuclear reactors in the coming years. Of course, climate-friendly energy is also provided by photovoltaic systems, wind farms, hydroelectric power plants or geothermal energy, but these energy producers can only solve acute energy problems to a limited extent, since they are very costly on the one hand and their output fluctuates according to the time of day and weather conditions on the other. Therefore, nuclear power is the only remaining climate-friendly energy generation option. Given the amount of additional electricity required over the next two to three decades, renewable energies can only serve as an admixture to the overall energy mix.

In recent years, an application has been filed for an extension of the operating life of more than 60 U.S. nuclear reactors to 60 years of total operating time. In addition, there are about 40 applications for the construction of new nuclear power plants. So far, however, only 2 plants are under construction, another 20 are in the concrete planning phase.

## Long-term supply contracts expire shortly

The previous cycle of contracting, dominated by the uranium price spikes of 2007 and 2010, has led plant operators to enter into higher priced contracts with very long terms of approximately 8 to 10 years. On the one hand, these old contracts are expiring, but on the other hand, the plant operators have not yet made any efforts to replace these supply volumes. Forward transactions by plant operators are therefore declining sharply, which means that the quantities required for which there is no contractual obligation yet, but which must be contractually secured in future, are also increasing. Uncovered demand is expected to exceed one billion pounds of  $U_3O_8$  in the next 10 years. At the

same time, more than 75% of the expected reactor demand until 2025 is not contractually secured. For a commodity such as uranium, which is only marginally traded, this return to more „normal“ long-term contracts is likely to put tremendous pressure on both long-term prices and spot prices. International plant operators are therefore now increasingly showing signs of increased buying activity.

## Summary

The fact is that 442 reactors are currently online and at least 330 more are to be added by 2040. 54 plants are already under construction, another 110 are in the concrete planning phase.

Furthermore, about 90% of all long-term supply contracts between uranium producers and power generation companies are about to expire, which is likely to put established nuclear power nations such as the USA in particular in trouble.

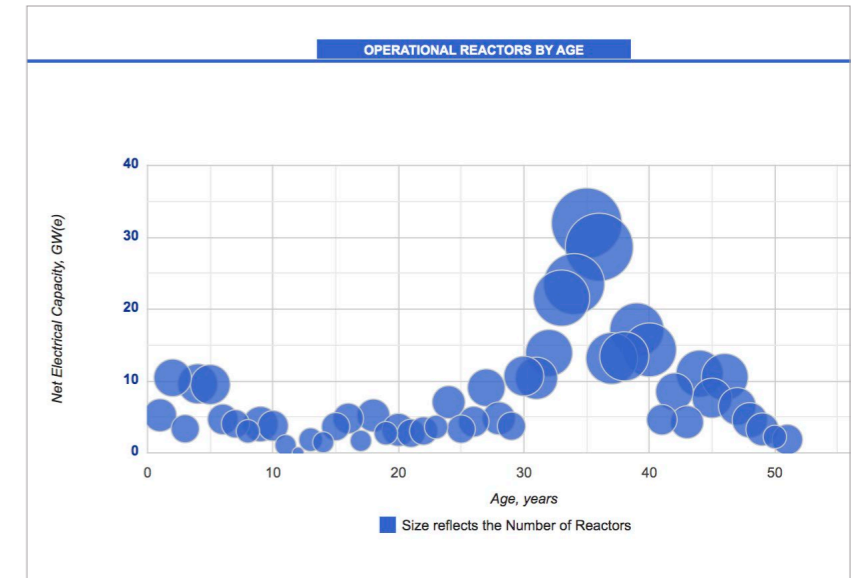
## The supply situation

### Established producers are running out of air

The established uranium producing nations Australia, Canada, Russia and Niger already had problems to expand their production before the Corona crisis. All four countries together produced almost 19,445 tons of uranium in 2019. In 2009, the figure was 28,000 tons of uranium. Some mines were closed down due to the weak uranium spot price.

### US-American uranium production is no longer in existence

The situation in the USA is even more threatening. Although the Obama administration has decided on a US\$ 54 billion program to promote the nuclear power industry in 2010, it is still far from clear where the uranium



Overview of the age of the currently running reactors. Many will (have to) be replaced by more powerful ones in the coming years.

(Source: [www.iaea.org/PRIS](http://www.iaea.org/PRIS))

needed to operate the reactors will come from. The uranium industry in the USA is only a shadow of the past. In the last 45 years, practically nothing has been invested in the development of new deposits and almost 95% of the uranium needed has been obtained from disarmament programs. US nuclear reactors already consume about 21,300 tons of uranium annually. An increase in capacity would accordingly require an increase in the amount of uranium needed. The World Nuclear Association (WNA) expects that in 2035, the USA alone will need about 40,000 tons of uranium annually. Even in the heyday of U.S. uranium production in the 1960s and 1970s, it would not have been possible to extract such a quantity from the country's own plants. US uranium production reached its peak in 1980, when about 29,000 tons of uranium were extracted from the ground. After the end of the Cold War, disarmed nuclear weapons in particular became the most important source for US uranium demand. This led to a decline in American uranium production to less than 500 tons of uranium per year. As a direct consequence, much of the infrastructure and approved production facilities were simply closed or completely dismantled.



## Kazakhstan – the new uranium superpower

While almost all established uranium producers are having difficulties in rebuilding or expanding their uranium production, one region has now moved past all other countries to the forefront of uranium mining: Central Asia. In the last ten years, Kazakhstan in particular has multiplied its uranium production there. Uranium production in the former Soviet republic rose from 1,870 to over 24,586 tons between 2000 and 2016. In 2009, Kazakhstan thus also overtook the previous leader Canada and is now responsible for about 41% of total global uranium production.

## Massive production cuts to stabilize prices

But although Kazakhstan is one of the nations that can currently mine uranium at the lowest cost, the country has long since ceased to be prepared to squander its uranium deposits at rock-bottom prices. In early 2017, the state-owned Kazatomprom announced that it would cut its own uranium production by at least 20% in 2017. In May 2018 Kazatomprom announced further production cuts. In addition to this, the production had to be further reduced due to corona. However, Kazatomprom is not the only uranium producer that has been relying on production cuts in the face of weak uranium prices. Uranium major Cameco announced production cuts and closed its McArthur River mine and Key Lake facilities indefinitely in January 2018. The Rabbit Lake mine was also closed, both of which are among the top ten uranium mines in the world. McArthur River is the mine with the second highest uranium production worldwide. With the temporary closure, 10% of the total world production was taken off the market at a stroke. In addition, Cameco has for some time been acting as a uranium buyer itself in order to supply long-term, higher-priced supply contracts with corresponding uranium volumes at spot prices. Since 2017, Kazatomprom has reduced its uranium production by about 15% and Ca-

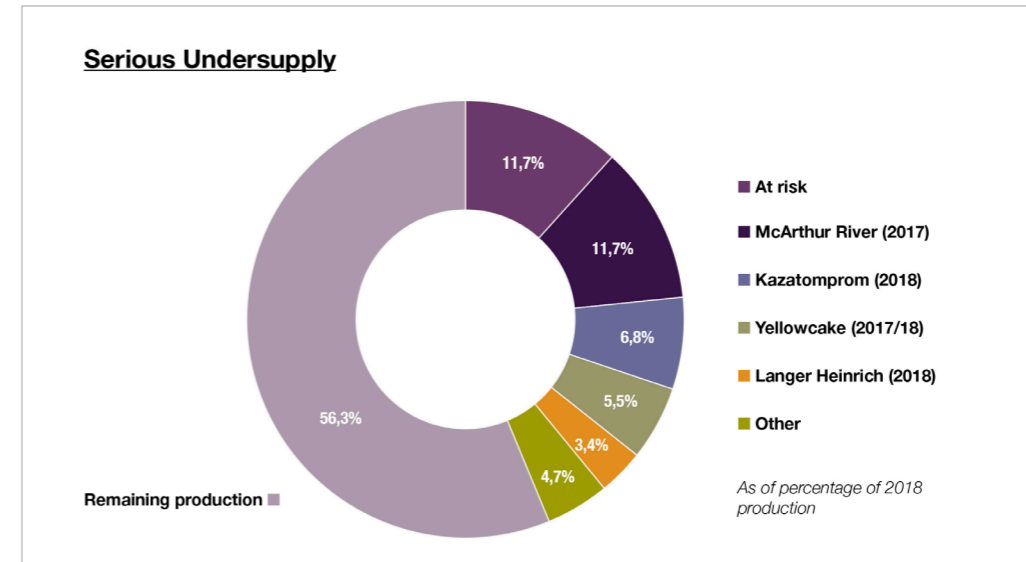
nada by about 45%. In addition, Cameco closed its Cigar Lake mine in March 2020 for four weeks due to corona, which was subsequently extended. In addition, Orano's McLean Lake processing plant also had to close. Other closures include Moab Khotseng in South Africa and the Chinese-owned Husab and Rössing mines in Namibia, to name the most important. The spot market, whose supply is mainly composed of uranium mined as a by-product at other mines, has also seen a recent decline in supply due to several mine closures.

## Huge supply gap was already present before Corona

Even before the Corona Pandemic, the supply shortfall was already about 40 million pounds of uranium per year. The current demand is therefore largely covered by stocks, which are thus rapidly running out. Thus, since 2017, about 44% of production has been taken off the market. So there is de facto already a supply gap. At the current level of 442 nuclear reactors worldwide, consumption is about 183 million pounds of  $U_3O_8$ , of which only about 139 million pounds are covered by global uranium production (excluding the special effect Corona). The International Atomic Energy Agency (IAEA) estimates that global uranium demand will increase to up to 300 million pounds of  $U_3O_8$  in 2030 due to the construction of new nuclear power plants.

## Summary

The supply side is currently in a state of flux in the uranium sector. The secondary supply from Russia's disarmed nuclear stocks is becoming less and less important. While in 2006 37% of the demand was covered by disarmed nuclear weapons, it is now only about 4%. At the same time, however, the number of nuclear reactors will increase dramatically. The established uranium producers will not be able to completely cover this equally erratic increase in demand - at least not at the current uranium spot price of



(Source: own representation)

about US\$30 per pound of  $U_3O_8$ . So where will the more needed uranium come from in the future?

Increased production can only be achieved through a higher uranium price and associated with large investments in the expansion of existing and new mines.

However, the basic problem remains the relatively low uranium spot price, which does not allow producers to access deposits that are more difficult to access and therefore more costly to mine.

Experts estimate that at a market price of US\$40 per pound of uranium, there are just under 713,000 tonnes of commercially recoverable uranium.

With an annual consumption of about 68,000 tons of uranium, these deposits would therefore be sufficient for just 10 years, provided that the market price for them remained constant at at least US\$40 during this period and demand also remained constant. However, this demand will inevitably increase.

If the market price for uranium were to rise, justifying extraction costs of US\$80 per pound of uranium, it would be possible to economically mine approximately 1.28 million tonnes of uranium. Range at current consumption: 19 years.

If the uranium price were at US\$130 per pound, approximately 3.86 million tonnes of uranium could be economically mined. The known reserves would then last for about 56 years at current consumption levels.

## Conclusion

### Doubling the demand is matched by almost no increase in supply!

However, the uranium spot price is currently as far away from the US\$130 per pound uranium mark as current demand will soon be from future demand. According to a very conservative estimate by the International Atomic Energy Agency (IAEA), this demand will double in the coming years. In 10 to 15 years, the above-mentioned ranges could be halved without hesitation.

All this shows that the still - apparently cheapest - way of generating electricity can only be used if the market price for the starting product uranium rises again. The market price of uranium is also determined by supply and demand. However, if the market price no longer permits economic production, this price must and will inevitably rise. In the case of uranium, demand will also rise sharply due to the construction of several

hundred new nuclear reactors, so that the market price will benefit twice over. And thus of course also those investors who have recognized this trend in time.

### High proportion of demand has not yet been covered

Uncovered demand is expected to exceed one billion pounds of  $U_3O_8$  in the next ten years. More than 80% of the expected reactor demand until 2025 will not be contractually secured. For a commodity such as uranium, which is only marginally traded, this return to more „normal“ long-term contracts is likely to put enormous pressure on both long-term prices and spot prices. International plant operators are therefore already seeing increasing signs of increased buying activity.

### USA build up strategic reserves ...

In January 2018, the only two remaining U.S. uranium producers, Ur-Energy and Energy Fuels, filed a petition with the U.S. Department of Commerce to highlight the relevance of U.S. uranium mining with respect to potential security concerns and the increasing dependence of the energy industry on uranium imports.

The two companies argued that 40% of US uranium demand is met by imports from countries of the former Soviet Union (namely Russia, Kazakhstan and Uzbekistan), while only 2% of demand is produced in the US. The dependence of both the U.S. energy industry (after all, 20% of the electricity consumed in the U.S. comes from nuclear power plants) and the military on these nations has increased alarmingly as a result.

With their petition, the two producers sought to have both the Department of Commerce and President Trump develop a clear assessment of the U.S. import dependence on Russia, Kazakhstan and Uzbekistan, as well as to promote the U.S. uranium industry.

In July 2018, the U.S. Department of Commerce initiated an investigation into the impact of uranium imports on U.S. national security.

This led to the US government announcing in February 2020 that it would provide US\$150 million annually over the next 10 years to create a strategic uranium reserve. This reserve will be entirely derived from uranium from US mines.

The most important decisions were as follows:

- ▶ U.S. purchases of 17-19 million pounds of  $U_3O_8$ , starting in 2020 from domestic producers on a competitive basis. Subsequent support is considered necessary over a period of up to 10 years to restore market share.
- ▶ Streamline regulatory reform and access to land for uranium mining.
- ▶ Supporting the efforts of the Department of Commerce to extend the Russian suspension agreement to protect against future uranium dumping in the U.S. market.
- ▶ Enabling the Nuclear Supervisory Commission to refuse to import nuclear fuel manufactured in Russia or China for reasons of national security.
- ▶ Establishment of a nuclear industrial base structure analogous to the defense industrial base.
- ▶ Financing of advanced water treatment technology for uranium mining and in-situ recovery
- ▶ Increase the efficiency of export processes and adopt 123 agreements to open up new markets for the export of U.S. civil nuclear technology, materials and nuclear fuel.

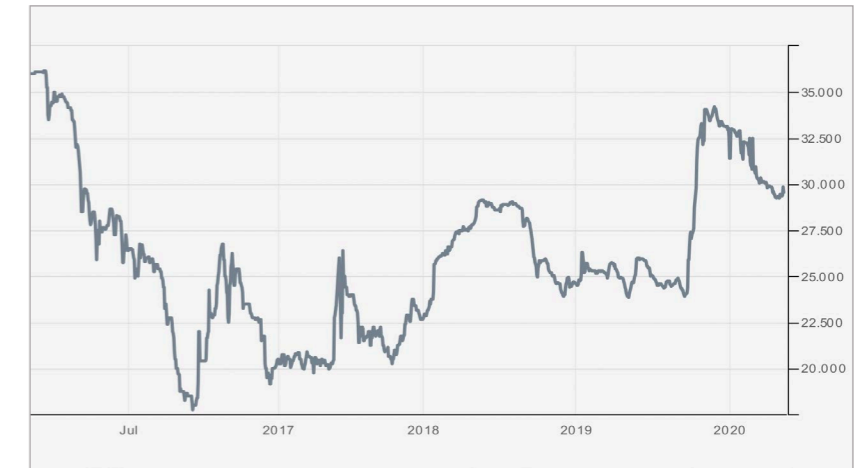
The US government is thus accommodating the domestic mine operators to a certain extent and is thus attempting to boost domestic production again. It is expected that US producers will need an average uranium price of at least US\$50 to US\$60 per pound to be able to produce sustainably. Currently, only Energy Fuels, Uranium Energy, Ur-Energy and Cameco are able to restart their mining projects, although Cameco has already announced that this is not in the best interest of the company.

### ... and reduces uranium imports from Russia

In addition to these measures, in September 2020, U.S. President Trump signed an amendment to the agreement to suspend the U.S. Department of Commerce's anti-dumping investigation into uranium from the Russian Federation, which reduces America's dependence on Russian natural uranium concentrations by up to 75% compared to previous levels. The agreement was scheduled to expire at the end of 2020 and allowed the import of approximately 20% of U.S. low enriched uranium requirements from Russia. The U.S. Department of Commerce determined that natural uranium and conversion components will account for approximately 7% of U.S. enrichment needs and will not exceed 5% from 2026. This means a reduction of Russian natural uranium imports by up to 75% compared to previous limits. In connection with the fact that the U.S. consumes about 47 million pounds of  $U_3O_8$  annually, the initialed agreement reduces the annual limit for natural uranium components from about 9.4 million pounds of Russian  $U_3O_8$  to less than 2.4 million pounds.

### Uranium ETFs drive spot price up

More recently, several other strong market players have joined, and are now securing  $U_3O_8$  on the spot market at a low price, mostly from mines where uranium is a by-product. In addition to Cameco, which is now acting as a buyer, Uranium Participation Corp. and Yellow Cake Plc. have also been able to purchase larger quantities of uranium. Yellow Cake used its IPO proceeds of US\$200 million to purchase 8.4 million pounds of  $U_3O_8$  from Kazatomprom with an option to purchase uranium for an additional US\$100 million per year for 9 years. This takes immense pressure off the uranium spot price and also puts pressure on utilities to extend their expiring contracts.



Uranium price development over the last 5 years (Source: own representation)

### The best uranium stocks promise multiplication potential!

We have taken the current situation of a far too low uranium spot price, which does not reflect reality, plus the massive supply shortfall expected in the future, as an opportunity to give you a compact summary of promising uranium shares. We are concentrating in particular on development companies with extremely promising projects, since these offer a high chance of being taken over in addition to the actual appreciation through a higher uranium spot price. At the end of 2015, the merger (de facto takeover) of Fission Uranium with (by) Denison Mines failed, among other things due to the vote of Fission shareholders. The example shows that investors assume that there will be much better takeover or merger opportunities in the future. This is precisely because the uranium sector is currently undervalued in this way, and this undervaluation needs to be eliminated.

# Interview with Dr. Christian Schärer – Manager of the Uranium Resources Fund and Partner of Incrementum AG



Dr. Christian Schärer is a partner at Incrementum AG, responsible for special mandates. During his studies he started to search for the strategic success factors of successful business models. A topic that still fascinates him today and inspires him in the selection of promising investment opportunities. He studied business administration at the University of Zurich and earned his doctorate while working at the Banking Institute Zurich with an analytical study on the investment strategy of Swiss pension funds in the real estate sector. He has acquired comprehensive financial market knowledge in various functions as investment advisor, broker and portfolio manager. Since the summer of 2004, Schärer has been focusing on various investment themes with a tangible asset character as an entrepreneur, consultant and portfolio manager. He also brings his practice-oriented financial market knowledge to companies as a member of the board of directors. He is married and father of a son. In his free time, he enjoys cooking for friends and family, hiking in the Ticino mountains or reading the biography of a fascinating personality.

*Dr. Schärer, the uranium sector experienced a five-year dry spell after the Fukushima reactor accident and could only reach its temporary low point at the end of 2016. Since then, the uranium spot price in particular has been able to increase again somewhat, albeit in small steps. However, the sector does not yet seem to be really out of the valley of tears. Why is that?*

It is indeed worthwhile to take a closer look at the market development since the Fukushima reactor accident. This is the only way we can understand how the uranium market has moved into the currently attractive starting position as part of a process of adjustment lasting several years. For the uranium sector, the Fukushima reactor accident was a drastic event that threw the market off balance. At that time, Japan had 54 reactors on the grid, produced almost 30 percent of its electricity in nuclear power plants and thus generated about 1/8 of the global demand for uranium. In addition, the power plant operators had significant uranium stocks to guarantee the security of supply. After the incident, the entire reactor fleet was taken off the grid. Around ¼ of these reactors were finally shut down. The remaining plants were subjected to a rigorous safety test and in some cases had to be retrofitted at great expense. Accordingly, the restart of the Japanese reactor fleet took considerably longer and brought fewer reactors back online than originally expected. As a consequence, the demand for uranium was significantly lower.

Against this background, it would be expected that uranium production would be significantly reduced due to the collapse in demand, thus bringing the market back into balance. But this has not happened. On the contrary. Production was even expanded under the leadership of the two sector heavyweights „Kazatomprom“ and „Cameco“. From an economic point of view, 3 factors have supported this behavior. On the one hand, „Kazatomprom“ has consistently

played out its relative cost advantages due to the „in-situ production method“ and the production location Kazakhstan. With its low-cost base behind it, the company has become the market leader (40% market share) in global uranium production. On the other hand, thanks to their full order books with long-term supply contracts at good conditions, the other producers were able to largely escape the price pressure of the market in the first years. The market imbalances have therefore not diminished but even increased in the period from 2011 to 2016. The need for adjustment was therefore all the greater.

In this context, it is also important to understand that uranium demand from power plant operators is hardly price sensitive. This is because the total production costs of nuclear power depend only insignificantly on the level of fuel costs (uranium price). The most important cost block in the operation of a nuclear power plant is the cost of capital (capitalized construction costs, which are written off over the entire operating period). Thus, the cost structure of a nuclear power plant differs significantly from that of fossil-fired power plants (high proportion of fuel costs in total production costs). This cost structure shapes the inventory cycle or the purchasing behavior of the nuclear power plant operators. It is not the absolute level of the uranium price that primarily drives the demand for uranium, but the considerations of supply security. Who invests billions in the construction of a nuclear power plant wants to be able to operate it! Seen in this light, the behavior of power plant operators is not surprising: good availability and low price of uranium do not lead to the construction of storage facilities, but to their mining. This puts an additional burden on the market.

In 2016, the turnaround in the uranium market was initiated by the realization that economic realities can be faded out, but never permanently suspended. The full order books of the uranium producers with their

guaranteed purchase quantities and prices fixed at a high level had in the meantime been largely processed. To continue to produce and sell uranium on the spot market at prices that did not cover costs was not an economically viable prospect in the long term. From an entrepreneurial point of view, it rather made sense to leave the uranium in the ground unproduced and wait for better times. Accordingly, obligations under existing supply contracts were increasingly covered by purchases on the spot market. In addition, in Kazakhstan, too, it was recognized that the dominant market position was not sufficiently profitable due to the low prices realized. This laid the foundation for an adjustment of the supply side. The uranium price was able to move into a phase of bottoming out due to initial production cutbacks after years of price correction.

*Since 2017, several major uranium producers have closed mines, reducing supply. The corona pandemic led to further mine closures or reduced production, especially in mines where uranium is a by-product and ends up on the spot market. To what extent will this supply shortage lead to an improvement in the current situation of the uranium sector?*

In this context, a distinction must be made between strategic and cyclical market developments. The corona-related production cutbacks have relieved the market in the short term within the framework of a cyclical fluctuation and have supported the spot price. This was because, due to production interruptions, renowned producers could no longer cover their delivery obligations from their own uranium production, but only with purchases on the spot market. This is a welcome contribution to the intended market stabilization. However, sooner or later these capacities will find their way back into the market. This is particularly true for producers where uranium is a by-product of the production process.

More important for the further development of the uranium price, however, are the changes on the strategic level. Under the leadership of the two heavyweights „Kazatomprom“ and „Cameco“, the supply side has attempted to bring the uranium market back into balance over the past four years with significant production cuts. We see a previously unknown supply side discipline in the market. As a result, global mine production is expected to have decreased by about a quarter compared to 2016.

These production cuts reflect nothing more than the recognition of economic realities by uranium producers. From the point of view of the mine operators, the ratio of the production costs of their existing capacities (ASIC - All In Sustaining Costs) to the spot price is relevant. If these costs are higher than the selling price realized on the spot and futures market, then uranium production makes no sense from a strategic point of view.

In the current environment, the economic reality for uranium producers is as follows: Both spot and forward prices are hovering around USD 30 per pound. Global demand is around 180 million pounds. In total, about 170 million pounds should be produced this year. The market is accordingly in deficit and the resulting supply gap is covered by non-strategic inventories and secondary sources. This development does not appear to be sustainable in view of the declining inventories and is likely to become more pronounced in the coming years due to the economic realities (ASIC) on the part of mine operators. This is because less than 100 million pounds of the current production are mined at costs (ASIC) of maximum USD 30 per pound. Consequently, a good 40% of the current production is not cost covering from an economic point of view and thus not sustainable! Consequently, the accentuating supply gap can only be closed by significantly higher uranium prices. In order for production capacities that have already been shut down (in Care & Maintenance sta-

tus) to come back on stream, prices of at least USD 50 per pound are needed. For the realization of new mining projects, uranium prices are needed that are established above the USD 60 mark on a sustainable basis. It must be taken into account that even the „only“ decommissioned capacities are not available again at the push of a button. Re-commissioning takes time and costs money. Not to mention the time it takes to implement new mining projects...

So far, we have focused our discussion solely on the pressurized supply side of the uranium market. But the supply side is also under pressure. Remarkable is the fact that despite the nuclear phase-out decided in the German-speaking countries (Germany, Switzerland), global electricity production from nuclear power plants has again exceeded the old highs from the time before the events in Fukushima. In particular, the expansion of reactor fleets in China, India, the Middle East and Russia is leading to a net growth in demand of around +2% p.a. despite various reactor shutdowns in the western industrialized countries. This expansion of nuclear power is driven by the constantly increasing demand

for low-CO2 base load in the power grids of these rapidly growing economies. Nuclear power plants produce in a 7/24 rhythm and help to balance the large production fluctuations of wind and solar plants and thus stabilize the power grids. In addition, nuclear power is a welcome trump card in the fight against air pollution as well as the dependence on imports of fossil fuels. It also seems remarkable that this growth is characterized by high visibility. Nuclear power plants do not emerge or disappear overnight. Planning and construction cost a lot and take a long time. However, once a reactor is in operation, the operators aim to achieve high utilization of production capacity over the entire life of more than 40 years, if possible. This transparency of the development of demand clearly distinguishes the uranium market from the cyclically sensitive commodity markets in the base metal or energy sector.

In summary, with a view to the current constellation on the uranium market, we maintain that on balance a further expanding supply gap is becoming apparent. About 40% of the current uranium production is not sustainable from an economic point of view. At

the same time, the demand side is growing at around 2% p.a. The supply gap (demand > mine production) will therefore widen. So far, the deficit has been covered by the mining of non-strategic stockpiles and secondary sources. However, in view of the security of supply that power plant operators are striving for, the reduction of inventories is likely to soon reach its limits. By the end of 2019, global inventories should have reached a level of around 820 million lbs. One third of this is likely to be accounted for by China's strategic reserves, which are not available for use. Net inventories of around 550 million lbs. are therefore likely to be in the hands of producers. With an annual demand of around 180 million lbs., this corresponds to a demand coverage of around 3 years. This means that the inventory surplus has largely been eliminated and this source of supply will soon dry up. The conclusion from my point of view is clear: the risk on the uranium market is about to shift from the supply to the demand side. The demand side will become the catalyst for a significant price increase with the start of the new inventory cycle. This is the only way to close the growing supply gap.

Against this background, the risk-loving investor is offered an investment opportunity with an increasingly asymmetrical chance-risk profile (upside > downside). One should not be irritated by the duration of the soil formation process. The long-term decline in share prices has worn many investors down and thinned out the investment universe. The research coverage of the sector is correspondingly low. Moreover, the sector's market capitalization is so low that it cannot be an investment theme for institutional investors at present.

*The USA, in particular, is working to revive its uranium industry. How do you intend to achieve this?*

The background for the various initiatives and proposals to support domestic uranium producers is the fact that US nuclear power plants provide about 20% of the national

electricity production. However, due to low uranium prices, uranium production from domestic mines has collapsed in recent years and almost all the uranium needed for production has to be imported. However, a good 40% of these imports come from countries that are considered politically untrustworthy from a US perspective or are outside the US sphere of influence. This brings the issue of supply security into focus. Accordingly, the U.S. Department of Commerce has drawn up various recommendations for action based on a study on supply security. Common to all of them is the intention to encourage and support uranium production from domestic sources.

The latest U.S. government draft budget included a proposal to build a strategic uranium reserve. Up to USD 1.5 billion is to be made available for this purpose over the next 10 years. However, much is still unclear with regard to the implementation. In addition, the deal is only a proposal within the ongoing budget process and has yet to be passed by parliament. It is also unclear whether the next administration will continue to support the project. It is also not regulated at what price the uranium will be purchased. At a fixed price that covers the production costs? Or at the current spot price? Depending on the definition of the purchase price, different volumes could be acquired with the aforementioned US\$ 1.5 billion. It also remains unclear from whom the uranium should be purchased. However, the lack of domestic production capacity is precisely the origin of the initiative. So, there is still a lot that has not yet been thought through. But the impulse has been set.

*You are manager of the Uranium Resources Fund (ISIN LI0224072749) of LLB Fund-services AG in Liechtenstein. What is your strategy and what does the fund actually represent?*

An investment in our fund is a focused bet on the widening supply gap in the uranium market. An investor with a medium-term investment horizon is offered an attractive return



## uranium resources fund

The non-fossil building block for an  
alternative energy-portfolio  
anticyclical. focused. promising



potential, which is however also correspondingly risky. The Fund is therefore suitable as a complementary component in a diversified portfolio and not as a basic investment. The Uranium Resources Fund holds about 30 positions in the portfolio. This diversification makes sense against the background of the current state of the uranium market.

***What selection criteria do you apply when selecting fund values and what are your current driving forces?***

The correction on the uranium market, which has been ongoing since 2011, demands a great deal of staying power from all players. From an analytical perspective, the ongoing downward movement has also made us more humble with regard to our own forecasting ability. Nevertheless, given the fundamental starting position, we are convinced that the uranium market will turn the corner in view of the emerging supply gap. The question is not if, but when it will happen. Accordingly, our ultimate goal is to still be in play when this turnaround materializes. The next bull market in uranium stocks will open up great profit opportunities. We want to take advantage of these opportunities!

Against this background, our portfolio rests on four pillars. The first pillar is a strategic liquidity ratio. This ensures our ability to act at all times. In this way, we use attractive entry points that regularly open up due to the volatile price development of many uranium shares.

With the second pillar, we want to participate directly in an improvement in the uranium spot price. Without higher uranium prices, a sustainable recovery of uranium producers is difficult to imagine. Therefore, two investment companies, which have invested their funds predominantly in physical uranium, form the core of the portfolio. If our view is correct, the supply gap in the uranium market will be closed by a rising uranium price. Accordingly, „Uranium Participation“ and „Yellow Cake Plc“ should be the first and immediate beneficiaries of this price recovery.

We have supplemented this group with an investment in „Uranium Royalty Corp. The company adapts the „Streaming and Royalties“ business model, which is particularly successful in the precious metals environment, to the uranium market. The company finances uranium mines and in return secures a share of current or future production. However, without taking the risks associated with the operation of a mine.

The third pillar focuses on the shares of uranium producers or standby producers (approved projects, but currently not in production). If uranium prices start to rise, the producers who can place significant uranium production on the market will benefit. Only those who produce can also deliver. To be on the safe side, we rely on companies that have low production costs and a good order book of long-term supply contracts. The two industry leaders „Cameco“ and „Kazatomprom“ are significantly represented in the portfolio. Both companies have a broad portfolio of first-class production facilities. Despite the challenging environment, both companies are cash flow positive and pay a decent dividend. This group is complemented by investments in companies to which we would grant the status of „standby producer“. These are companies that have a portfolio of approved production sites and processing capacities. Production could be launched within a manageable timeframe once the economic conditions (i.e. a higher uranium price) are met. This group includes for example „Uranium Energy“ or „Energy Fuels“.

As part of the fourth pillar, we are focusing on explorers and developers who are driving forward world-class development and mining projects. These are particularly interesting if they are able to start production within the time frame of the expected supply gap. They will then be able to benefit from correspondingly attractive sales prices. In addition, these assets should have the necessary size to also qualify as takeover targets. We are assuming that after the price turnaround in the uranium market, a wave of consolidation will take place and that mining companies

from outside the sector may also want to position themselves in the uranium business. This would make sense, not least due to the low sensitivity to economic trends and the comparatively high visibility of uranium demand. For example, the companies „Denison Mines“ or „Boss Resources“ are to be assigned to this group.

***What is your advice to investors interested in investing in the uranium sector?***

The supply gap outlined above and the associated potential for rising uranium prices are still only foreseeable and the expected turnaround in the uranium market is still to come, despite the good fundamental prospects. If, contrary to expectations, the cur-

rent phase of bottom formation continues for a longer period of time, the air will quickly become thin for some uranium producers. Their balance sheets are emaciated after the continuing price collapse and the cost reduction potential has already been largely exhausted. The environment also remains challenging for the developers of new uranium projects, as their projects will only become economically viable and thus realizable with rising uranium prices. It is correspondingly difficult to find investors to finance the next stages of the project. Anyone who bets everything on one card in this constellation is therefore playing high stakes - possibly even too high. The use of a fund with diversified investments within the topic seems reasonable to me. We also recommend a staggered build-up of positions over time.

(Source: [www.fredography.be/](http://www.fredography.be/) by [unsplash.com](http://unsplash.com))



# Interview with Scott Melbye

## Executive Vice President of Uranium Energy, Commercial V.P. of Uranium Participation Corp. and Ex-Advisor to the CEO of Kazatomprom



Scott Melbye is a 35-year veteran of the nuclear energy industry having held leadership positions in major uranium mining companies as well as industry-wide organizations. Through to June 2014, Melbye was Executive Vice President, Marketing, for Uranium One, responsible for global uranium sales activities. Prior to this, Melbye spent 22 years with the Cameco Group of companies, both in the Saskatoon head office and with their U.S. subsidiaries. He had last served as President of Cameco Inc., the subsidiary responsible for marketing and trading activities with annual sales exceeding 30 million pounds  $U_3O_8$ . Melbye was formerly the Chair of the Board of Governors of the World Nuclear Fuel Market and President of the Uranium Producers of America. He also currently serves as Executive Vice President of Uranium Energy and VP-Commercial for Uranium Participation Corporation and was Advisor to the CEO of Kazatomprom, the world's largest uranium producer in Kazakhstan. Melbye received a Bachelor of Science in Business Administration with specialization in International Business from Arizona State University in 1984.

*Mr. Melbye, you have held and continue to hold senior positions with a variety of uranium companies and are considered one of the world's most respected uranium experts. Can you give our readers a brief overview of your career to date?*

Thank you, it is a pleasure to share my observations and insights into the global uranium market with your readers. I have been fortunate to spend my entire 35-year career in the uranium and nuclear energy industries. Starting out as a nuclear fuel broker with Nukem in New York on 1984, and later being responsible for uranium fuel procurement at the three-unit Palo Verde Nuclear Generating Station in Arizona, really prepared me for the bulk of my career in uranium mining. In addition to 23 years with leading producer, Cameco, most recently as President of their global uranium marketing subsidiary, I also held leadership roles at Russian-owned, Uranium One and Kazakhstan's State uranium company, Kazatomprom. I have also had the opportunity to manage the physical uranium activities of Uranium Participation Corp. Since 2014, I have served as Executive Vice President of U.S. uranium developer and producer, Uranium Energy Corp., and more recently assumed the CEO role at Uranium Royalty Corp. which launched as a public company in December 2019.

*The uranium spot price has been in a bearish phase for about 5 years and has not yet been able to recover significantly from its low in 2016, until very recently. What are the main reasons for this development?*

While we are very encouraged by the recent improvements in the uranium spot market (20-30% gains so far in 2020), it has indeed been a frustratingly slow recovery with prices moving sideways or slipping gradually since June. With the benefit of hindsight, we can now see that 2016 was a pivotal year for ura-

anium fundamentals. As a result of Fukushima market impacts, the uranium price fell from a ten-year high of US\$70 per pound in early 2011 to a cycle low of US\$17.75 per pound in November 2016. It was not until this April that we finally saw uranium prices again exceed US\$30 per pound. In the face of falling prices over the past decade, global uranium production counter-intuitively grew, year-over-year, and finally peaked in 2016 at 162 million pounds. This speaks to the relative inefficient nature of the uranium market compared to other mineral commodities like copper, gold or silver. In those commodities, price signals usually manifest in adjustments to supply much more rapidly, in real time, as selling prices are more reliant on spot price indexing. In the case of uranium, the prevalence of hedged, long-term contracts at higher-priced, base-escalated terms insulated many producers from the lower spot prices. However, by the end of 2016 we began to see the rapid drop off of that long-term contractual coverage that was secured in the previous cycle, hence (finally) exposing producers to the depressed market conditions. The uranium market has, as a result, seen a steady drop in global uranium production from 2017 to the present. This has been a key supply development as it finally allows the critical drawdown of excess inventories over-hanging the market. These supply cuts have now created a gap between annual production (likely around 120 million pounds in 2020) and consumption (currently 183 million pounds) ranging from 40-60 million pounds  $U_3O_8$  per year. This gap was only widened by recent reductions in mine supply due to the Coronavirus pandemic which we will discuss in more detail.

With regards to the demand side during this period we also witnessed the closure of Japanese reactors (both temporary and permanent), and the gradual phase-out of German reactors in response to Fukushima. However, after a period of safety re-assessments and plant upgrades, we experienced a re-

sumption of nuclear plant construction globally which remarkably returned global nuclear generation to pre-Fukushima levels in 2019. This growth has also been helped by changing attitudes towards nuclear power, particularly in the climate change community where it is increasingly being seen as an important contributor towards a lower-carbon energy future.

So, this begs the question why the post-2016 recovery to-date has been so slow and stubborn? The main reason rests in a key catalyst which has only recently begun to re-emerge. Namely, the procurement activities of the world's nuclear utilities. Just as long-term contractual coverage has been rolling off for uranium producers in recent years, this has logically also been the case for their counterparty customers, the utilities. However, rather than rush back into new long term contracts with producers, the utilities have been content to focus on spot and near term procurement with prices that reflect the near term over-supplied market (spot prices have fluctuated in the \$20-\$30 per pound range). This has been especially compelling considering the utilities had been paying \$40-\$60 per pound, or higher, under older legacy contracts signed in the previous bull-market (the most famous example being the Cameco/Tokyo Electric Power contract at \$100 per pound). The most appealing option for these short-term focused buyers had been the "carry-trade" facilitated by trading companies that buy spot material, carry it at historic low cost-of-money levels, and deliver two to three years out at fixed prices, which were at or below, \$30 per pound. While this myopic view of future uranium supplies has had a very positive impact on the fuel costs of nuclear power plants, it has not provided the level of long-term incentive pricing for uranium producers to sustain or start up new production. In a uranium market that consumes between 180 and 190 million pounds of uranium an-

nually, the forward contracting levels of utilities should be at or near those levels each year to avoid falling behind on future needs. To the contrary, UxC Consulting reported long term contracting levels in the years 2014 to 2019 averaged 75 million pounds per year (well below normal levels). Fortunately, a shift in buyer behavior began to be observed in the 4th quarter of 2019 and has continued into 2020, where utilities are now beginning to look to cover longer term needs in a more strategic fashion. The Coronavirus pandemic, and recent geopolitical developments with the U.S., China, Iran and Russia, will only reinforce the shift to a more strategic focus on securing future needs. Threatened, and realized U.S. trade actions, like the failed Section-232 petition and recently extended limitations on Russian nuclear fuel supplies, had the effect of further delaying utility procurement activities, however, these are now fully resolved (more later on this). This long-awaited interaction between buyers and primary producers should support price formation in both the spot and long-term markets which tend to interplay off of each other (the spot having already begun to move upward). Of course, as the pool of cheap spot material has been depleted by spot purchasing and carry trade activities, the spot price will rise (hence putting upward pressure on long-term prices). A current debate among market observers exists as to whether this pool of spot supply is greater than expected, or conversely, is not that extensive after years of drawdown, but has simply not been tested yet by meaningful procurement levels. To date in 2020, substantial (near record) spot market volumes have cleared without moving the spot price beyond the \$30 level, so we can assume that these supplies have been quite extensive, however, are not infinite. The 2020 production gap to consumption of 60 million pounds, accelerates the drawdown and moves us closer to a market which becomes driven more by the cost and availability of primary mine production.

***Over the past three years, several of the leading uranium producers - in particular Cameco and Kazatomprom - have announced production cutbacks, some of them substantial. When will these have a significant impact on the uranium spot price?***

Although there were some earlier exceptions, global production cuts really began to kick in during 2017 and are still a somewhat recent development. However, the magnitude of these supply cuts has reached significant levels, taking some 40-60 million pounds from the market each year. With indications that these conditions are not abating, the cumulative impact is an accelerated drawdown of excess inventories. While this production discipline is quite widespread, affecting mines in the United States, Africa and Australia, the most profound impact has been seen in Canada. After shuttering their Rabbit Lake Mine in 2016, Cameco took their world-class McArthur River Mine offline in 2018. To put this into perspective, the McArthur River operation is the world's richest uranium mine with ore grades 100 times the world's average. Production had been approaching 21 million pounds annually. Cameco made the difficult, but logical decision, to suspend this production and instead meet their very substantial long-term contract book from spot market purchases. Not only does this move reduce fresh supplies to the market, it also accelerates the drawdown of excess inventories through their purchasing activities. It also preserves valuable geological resources in the ground until they can be mined at financial returns commensurate to their discovery, and development value.

The longer the prevailing market prices remain below incentive levels, additional production will be removed from the supply equation. While all of these cuts add to the needed economic "supply destruction", the keys still remain in the hands of world leader, Kazakhstan. Their State-producer, Kazatomprom, has also announced cuts from "planned production" in recent years, but many market observers assert that more could be done to help rebalance the market

more quickly. These moves have currently capped their output at about 59 million pounds annually, which represents 40% of global supply. Incidentally, this growing reliance on a single country, under Russian influence and in a volatile part of the world, has security of supply implications, and has begun to cause some utilities to rethink nuclear fuel diversification objectives.

***The Coronavirus Pandemic has had profound impacts on the global economy, and we have now begun to see this affect major uranium operations around the world. Is this behind the recent dramatic increase in uranium prices recently?***

Very substantial production cuts have occurred as a result of Coronavirus precautions to protect the health and safety of uranium miners, support staff and impacted communities. Since the first part of April, these announced mine shutdowns have affected approximately 50% of worldwide monthly uranium output. Production cutbacks from Canada's Cigar Lake, Kazakhstan's operations, Moab Khotseng in South Africa and the Chinese-owned Husab and Rossing mines in Namibia, have removed as much as 7 million pounds from the uranium market in the months these measures were in place. Most of these mines have since announced their resumption of development and mining activity, but the ramp up back to planned volumes will be slow and gradual. The total expected reduction in global production from COVID-19 related causes is expected to be at least 20 million pounds. In answer to your question, while this provided a tipping-point catalyst for uranium prices early in the year, the real driver will be the rebalancing of global supply and demand fundamentals over the past 3 years. Put another way, this Coronavirus "black swan" event has served to accelerate fundamentals that were already significantly improved going into 2020.

***The Trump Administration recently released its comprehensive policy document on nuclear energy, including an initiative to***

***invest a total of US\$ 1.5 billion over the next 10 years in a national domestic uranium reserve. What impact will this have on the US uranium industry and the entire uranium sector?***

In 2018, the U.S. Commerce Department initiated a Section-232 investigation into whether the extreme levels of foreign uranium imports (now effectively 100%) were posing a national security threat to the United States. The Trump Administration had recently invoked tariffs on steel and aluminum imports under a similar 232 investigation. While the Trump Administration decided against tariffs or duties on foreign uranium imports in July of last year, the President did conclude that a threat to national security existed. As a result, Trump formed the U.S. Nuclear Fuel Working Group comprised of his Senior Cabinet Secretaries and Administrative Agency Heads. Their objective was to recommend policies to the President to revitalize and expand the domestic nuclear fuel cycle, including uranium. It should also be noted that in addition to the uranium requirements of the electric utility companies (nuclear is 20% of US electricity supply), the U.S. Defense Department requires U.S. origin uranium for the 108 reactors in the Navy fleet of aircraft carriers and submarines. The report titled "Restoring America's Competitive Nuclear Energy Advantage – A strategy to assure U.S. national security" was released by the U.S. Department of Energy on April 24th and provided the strongest policy support for nuclear energy since the Eisenhower Administration in the 1950's. A significant element of the plan was previously announced as part of the President's proposed FY 2021 Budget. In the budget, President Trump called for a 10-year program to establish a domestic uranium reserve funded at a rate of US\$150 million per year. It is now formally supported by this policy document, and, while many of the specific details have yet to be announced, this is viewed as a very welcome stimulus measure providing supplemental demand for U.S. mined uranium, in addition to the broader market requirements of the nuclear utility companies. The funding of this program re-

mains dependant on the Congressional appropriations process, the timing of which is understandably delayed in a Presidential election year (likely no sooner than early 2021). The Trump policy also highlighted the national security risks of America's over-reliance on imported uranium, particularly from State-owned suppliers such as Russia. It urged the continued limits on Russian nuclear fuel supplies through the U.S. Department of Commerce agreement suspending the Russian anti-dumping investigation (so-called Russian Suspension Agreement, or "RSA"). The RSA had limited the import of Russian nuclear fuel supplies (uranium, conversion and enrichment) to no more than 20% of American uranium requirements, however, these limits were set to expire in December 2020. Since the U.S. Department of Commerce had indicated that the resumption of Russian dumping would likely occur in absence of restrictions, the conditions for a negotiated extension of the RSA were possible. This agreement has now been concluded between the U.S. and Russian Federation, extending restrictions for an additional 20 years. Furthermore, in line with Trump Administration recommendations, the amount of imports will decline over time (with the natural uranium component of Russian low-enriched uranium being significantly reduced from 20% of U.S. requirements, down to 7% over the period).

***Do you see large new mines starting production in the next few years? What (spot) price will most companies need to push the development of new mines and bring their projects into production?***

This is the key question facing the uranium market in the coming years. While new production is not needed today, we do not have to go very far into the future to see that restarts of idled capacity, and new mine start-ups, are required to meet robust and growing demand for uranium. However, in a "Catch-22" very similar to the previous bull market, the market price incentives have simply not been present in the recent mid-\$20's spot market (and while the depressed

longer-term market has been impacted by lower-priced carry trades). With every year that these conditions persist, and significant long-term utility uncommitted needs are looming, the likelihood of a supply crunch increases. The lead-times to permit, license and construct new uranium mines can be 6-10 years in duration and no level of uranium price can shorten those development times.

This, of course, begs the question of what price levels are needed to incentivize the additional supply going forward. Speaking very generally, the incentive price to return idled capacity into production, or advance the start-up of the most competitive new mine developments, is likely somewhere in a sustained \$40-\$50 per pound level. A point in case being the McArthur River Mine where restart thresholds have been indicated to fall in this range. The most competitive new mine developments that can advance in this range are likely in-situ recovery operations, and those who are fully permitted and licensed (with smaller capital requirements) have an important first-mover advantage. For conventional mines requiring long permitting, licensing and development lead-times and large capital investment, they will likely require sustained prices in the \$60+ per pound range.

Another more recent hurdle facing new mine developments was the substantial drop in global equity markets that was triggered by the coronavirus pandemic. While global equity markets have largely recovered, this volatility came at a time when uranium producers were already facing 10-year lows in their share prices. The substantial funding needed to advance the next generation of uranium mines has become more difficult to raise under these challenging, capital markets conditions.

***What does the current demand situation look like? Who could be the driving force behind the revival of the uranium price in the future?***

The current demand situation for uranium can be described as robust and growing. The previous bull market in uranium was, in part, fueled by future forecasted growth in nuclear power. Today, we are actually seeing these reactors being constructed and entering into commercial operation. The nuclear energy industry has seen 50 new reactors connected to the global grid in the last eight years, and 53 additional reactors are under construction. Global requirements for uranium are projected by the World Nuclear Association to top 200 million pounds annually in the coming years (2% annual growth in the reference case forecast).

Most importantly for current and future growth, we have begun to see public attitudes toward nuclear energy turn decidedly more positive in recent years. Former opponents of nuclear energy have softened their positions, or even spoken out in support of this large baseload source of carbon-free electricity. At recent climate change meetings such as the COP 25 in Madrid, there has been an almost panicked realization that despite billions of dollars and euros spent on renewables in the past 25 years, very little progress has been achieved in global carbon reductions. Nowhere is this more evident than in Germany where the Energiewende commitment to renewables (without nuclear) has only resulted in

electricity rates 50% higher than that of nuclear neighbor, France (who produce 1/10 the carbon emissions per capita). In the process, Germany has grown increasingly dependent on Russian natural gas, and ironically, French nuclear-generated electricity imports. None of this particularly comforting for Europe's leading economy which is based on energy-intensive manufacturing exports. This point is not to single out Germany's energy policy, but to highlight the difficulty, if not impossibility to achieve meaningful carbon reductions without a significant component of nuclear power in the energy mix. In the United States (California in particular), and in South Australia, we have begun to see serious electricity reliability issues as a result of an over-reliance on intermittent renewables. Note that these are all leading global economies, and not emerging markets where electricity shortages and blackouts might be more expected.

In that regard, many of those emerging markets, with large and growing populations, struggle to energize their economic growth without adding to extreme levels of harmful air pollution in their major cities. The good news is that nuclear energy can solve those problems with production of highly reliable, 24/7, carbon free, clean air electricity.

Another growth market for uranium is emerging from Small Modular Reactors ("SMR's"). These are not the 1,600 Mwe large reactors with large capital costs and long construction times, but rather the small 25 or 50 Mwe units that can be constructed in a factory and shipped on site. These scalable units can provide carbon-free benefits while competing on cost with cheap natural gas and can co-exist with grid-heavy renewables due to their load-following characteristics. They are very similar to the compact reactors that have powered aircraft carriers and submarines safely since the 1950's, and can be ideally marketed to smaller grids, island nations, or remote locations (including mining operations and military bases). Very significant advances in government support of these innovative, carbon-free, energy sources

have occurred in both Canada and the United States multiple projects and designs have advanced in 2020.

***In summary, what do you expect for the uranium sector in the next two to three years?***

In summary, expect very good things from the uranium market going into 2021. This optimism is grounded in the most fundamental factors of supply and demand. Uranium has suffered a long, severe, bear market, but appears to have turned the corner. Any economist will tell you that no commodity will stay down, nor go up forever. Our uranium market is no exception, and its unique and inefficient nature has caused market forces to manifest more slowly into higher prices. In turn, this should be good news to investors with higher prices in an under supplied market likely to drive substantial appreciation in uranium equities. The continued growth in global nuclear energy, production discipline by existing producers and underinvestment by new producers, will test the market fundamentals in the coming months. As global utilities return to more normal procurement levels, more upward pressure on uranium prices should develop. The Coronavirus crisis has shocked economic markets in ways few imagined and certainly grabbed the headlines during 2020. In the meantime, however, a very compelling supply and demand narrative for uranium has emerged and should not be overlooked by resource investors seeking out-sized commodity gains in the coming months. Opportunities exist with the well-run uranium companies that are positioned with quality assets and management teams that can capitalize on this story. The Coronavirus pandemic and resulting mine cutbacks may well have proven to be the tipping point catalyst in accelerating the already improving uranium market fundamentals.

ISR-Mining

(Source: Uranium Energy)





# GoviEx Uranium

## Mega-resource close to feasibility phase



GoviEx Uranium is a Canadian mining development company focused on the exploration and development of uranium projects in Africa. To date, the company has proven resources of over 200 million pounds of  $U_3O_8$ . GoviEx already holds valid mining licenses for the two most advanced projects. The Company's current goal is to reduce estimated production and capital costs, while developing the most advanced Madaouela project, in parallel with the rising uranium spot price towards production from 2024. The second major Mutanga project could then follow in 2026.

### Madaouela – Location, Infrastructure, Resource

Madaouela, which is 80% owned by GoviEx, is located in the north of Niger, approximately 10 kilometers from Arlit and the Cominak and Somair mines, in which ORANO has a stake. Cominak, in operation since 1978, is due to close in March 2021. GoviEx benefits from a fairly well-developed infrastructure, which offers year-round passable roads, sufficient groundwater and a good energy supply. Madaouela has reserves of 60.54 million pounds of  $U_3O_8$ . The resources total about 138 million pounds of  $U_3O_8$ . In January 2016, GoviEx received its final mining permit for Madaouela 1, i.e. for one of

seven license areas (consisting of Madaouela 1 to 4, as well as Agal, Eral and Anou Melle). In July 2019, GoviEx signed final agreements with the Republic of Niger leading to the establishment of local mining companies of which Niger is a 20% partner. As part of this agreement, GoviEx settled all outstanding tax claims and historical costs related to the acquisition of the Madaouela 1 mining concession and Niger agreed to defer payment of future local taxes for up to three years from the date of incorporation of the local operating company.

### Madaouela – Deposits

The most significant deposit, currently known as Marianne-Marilyn, is located within the Madaouela 1 concession. It is a so-called sandstone deposit, which lies at very shallow depths of about 30 to 120 meters. The second major deposit is MSNE and it is located about four kilometers to the south. The third deposit Maryvonne, sits in the middle of both. A fourth mining area, Miriam, is located in the far south of the Madaouela 1 concession. Unlike the first three deposits, Miriam can be exploited through open pit operations. In addition, this deposit has a  $U_3O_8$  grade of over 1% in some areas, which contributes to a huge cost reduction in the overall planned production.

### Madaouela – Prefeasibility and feasibility study

In 2015, a pre-feasibility study was conducted proving that mining can be economically realized. Based on a long-term uranium price of US\$70, this study came up with a return on investment (IRR) of 21.9% and a net present value (NPV) of US\$340 million discounted at 8%. The initial cost of capital was estimated at US\$359 million and the operating cash cost was estimated at US\$24.49 per pound of  $U_3O_8$ . Annual production of 2.69 million pounds of  $U_3O_8$  was assumed over a

total mine life of 21 years. In September 2018, GoviEx appointed SRK Consulting and SGS Bateman, as consultants, to complete a feasibility study for Madaouela, which is scheduled for completion in 2021. This will include the identification of options that have significant potential to improve the feasibility of the Madaouela project.

### Madaouela – Exploration Potential

Madaouela is likely to have far more resources than previously known. Although more than 600,000 meters have already been drilled, Anou Melle, for example, offers a high „Blue Sky“ potential as this license area is located on the same geological structure as Cominak and Somair. In 2019, GoviEx received new 9-year exploration permits for approximately 1,547 km<sup>2</sup> of exploration area.

### Madaouela – Development strategy

GoviEx is currently working on a four-step development strategy for Madaouela. The first pillar, credit financing, includes the involvement of several international export credit bureaus. The second pillar consists of project optimization and completion of the detailed engineering work. The third pillar consists of the conclusion of corresponding long-term purchase agreements. Fourthly, the company is working on self-financing through the issue of shares.

### Mutanga – Location, Resource, Infrastructure

Mutanga, owned 100% by GoviEx, is located about 200 kilometers south of the Zambian capital Lusaka, just north of Lake Kariba. The project currently has 60 million pounds of  $U_3O_8$ , divided between the three deposits discovered to date: Mutanga, Dib-

we, Dibwe East, Gwabe and Njame. GoviEx holds a 25-year mining license for three of the five concessions, which allows mining via open-pit mining and heap leaching.

### Mutanga – Positive profitability assessment

In November 2017, GoviEx presented its first profitability estimate (PEA) for Mutanga. The PEA is based on 11 years of production with an average annual production of 2.6 million pounds of  $U_3O_8$ . The initial capital cost was estimated at only US\$123 million. The operating cash cost is approximately US\$31.10 per pound of  $U_3O_8$  and the absolute cost over the life of the mine is approximately US\$37.90 per pound of  $U_3O_8$ . Based on a long-term uranium price of US\$58 per pound of  $U_3O_8$ , this results in an IRR of 25%.

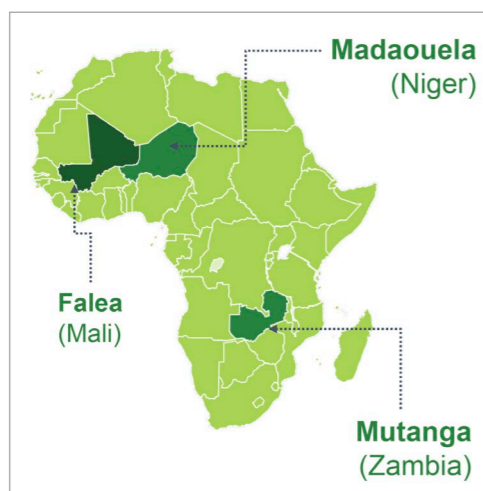
### Mutanga – Exploration potential

Mineralization starts directly at the surface and is open along strike. Although the resource appears to be high, not all areas of the concessions have yet been explored for potential uranium occurrences. In particular, the respective endpoints, i.e. the areas near the western and eastern boundaries of the concessions, offer a high potential for further significant uranium deposits.

### Falea

Falea, owned 100% by GoviEx, is located in Mali, West Africa. It consists of the three exploration licenses Bala, Madini and Falea. To date, a resource base of 30.8 million pounds of  $U_3O_8$ , 63 million pounds of copper and 21 million ounces of silver has been identified. This translates into a total resource of 38.1 million pounds of  $U_3O_8$ . The presence of gold was also demonstrated in July 2020. As a result, in October 2020, GoviEx initiated a

GoviEx' Project Locations in Africa  
(Source: GoviEx)



diamond drill core assay program to explore both the gold and polymetallic potential of the project.

It is important to note that so far only 5% of the total 225 square kilometers of license area has been investigated for such occurrences. In addition, the majority of the known deposits could not yet be completely delineated.

**Summary:  
Next catalyst: Feasibility study!**

With a resource base of over 200 million pounds of U<sub>3</sub>O<sub>8</sub>, GoviEx is undoubtedly one of the heavyweights in the uranium industry. Madaouela, by far the largest project, is virtually ready for production. In addition, the possibility of economic production could also be demonstrated for Mutanga, GoviEx' second major project. What is still missing now is a reasonable uranium price, which would move GoviEx to undreamt-of price levels, especially due to this large resource amount. Another advantage, in contrast to many other African countries, Niger is considered politically stable. Mining companies are not put in the way, as the above-mentioned example of Cominak shows, whose

mine has been in operation since the 1970s. Furthermore, GoviEx has a highly experienced and successful management team and strong major shareholders (Denison Mines, Friedland, Ivanhoe Industries, Cameco), which should ensure that GoviEx will become a real success story. In February 2020, the Company was able to generate CA\$2.3 million in fresh funds through financing and a further CA\$5 million in August 2020. GoviEx is debt-free.



(Source: GoviEx)

## Exclusive interview with Daniel Major, CEO of GoviEx Uranium



Daniel Major, CEO

**What have you and your company achieved in the past 12 months?**

The Covid pandemic has made the past 12 months very different from what we expected as we started the year. The increased restrictions have changed the way we operate, which resulted in us working from home, limiting our travel and engaging with stakeholders through online video connection.

Our Madaouela Project pre-feasibility ("PFS") has continued despite delays associated with Covid restrictions and long, test work permit timelines in South Africa. We are targeting a project that works at around US\$50/lb U<sub>3</sub>O<sub>8</sub> as we optimise operating and capital costs and validate historical process test work results. This will ensure a smooth transfer into the feasibility stage.

In Mali, a gold soil sampling program showed that two regional Birimian gold trends passed through the Company's licences and highlighted the potential for gold at the Falea Project. An initial visual assessment of a core-sampling program of 85 diamond drill cores logged display intervals of quartz veining, chalcopryrite and pyrite in many of the cores. This appears to add further support and evidence that the gold anomalies associated with the Birimian greenstones apparently underlays the known uranium-copper-silver mineralization of the Falea Project.



Exploration Work (Source: GoviEx)

**What are the most important catalysts for the next 6 to 12 months?**

The key focus is on completing the updated PFS for Madaouela so that the Company can engage with potential debt and offtake parties in order to develop the project with the anticipated improvement of uranium prices.

In Mali, the Company will continue its initial gold exploration to gain a better understanding of the projects' potential, thereby defining a longer-term strategy for the project.

**How do you see the current situation on the market for uranium?**

Covid has had limited impact on global nuclear energy demand and we continue to see growth, forecast at 2-3% per annum, with strong new increase coming from Asia. Globally, the political tide appears to be turning favourably towards nuclear energy as governments increasingly comment that achieving their green energy will only be possible with nuclear in the mix, and SMRs are ever-increasing as the way forward.

Global supply remains constrained with the two major producers limiting production. This is exacerbated by several months of mine closures, due to Covid. Utility buying has remained well below the annual average as Covid and political decisions in the USA caused buying uncertainty. With limited impact on nuclear energy, generation utilities have had to draw on inventories, and are expected to return to the market. Recent surveys have shown utilities long-term commitment to Term contracting, but producers remain unwilling to commit to new production without high prices.

**ISIN:** CA3837981057  
**WKN:** A12BL3  
**FRA:** 7GU  
**TSX-V:** GXU

Shares outstanding: 474.8 million  
Options/warrants: 200.7 million  
Fully diluted: 675.5 million

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## GoviEx Uranium



IsoEnergy is a Canadian mining development company focused on the discovery and exploration of uranium deposits in Canada. The focus is on the Athabasca Basin, where spectacular drilling successes have already been achieved. A member of the Iso team has also held senior positions at NexGen Energy in the past and was responsible for the discovery of the Arrow deposit, considered to be one of the largest uranium deposits in Canada.

### Flagship project Larocque East – Location and infrastructure

IsoEnergy's flagship project is called Larocque East and consists of 20 mineral claims totaling 8,371 hectares. Larocque East was acquired in May 2018 and was subsequently extended by staking. The project is 100% owned by IsoEnergy. Larocque East is located 35 kilometers northwest of Orano Canada's McClean Lake uranium mine and mill and is almost immediately adjacent to the northern end of IsoEnergy's Geiger uranium project. The project area covers a 15-kilometer northeast extension of the Larocque Lake Conductor System, a trend of graphitic metasedimentary basement rocks associated with significant uranium mineralization at several deposits southwest of the Larocque East property.

### Flagship project Larocque East – first direct hit in high-grade Hurricane Zone

The so-called Hurricane Zone, which is located in the southern part of the project area, only about 330 meters below the surface and flat, was discovered by IsoEnergy's first hole at Larocque East and the last hole of an 8-hole summer drill program that was actually focused on the adjacent Geiger Project. This hole intersected a broad 8.5 metre interval of elevated radioactivity averaging 1.26%  $U_3O_8$  and included a higher-grade section of 3.58%  $U_3O_8$  over 2.5 metres. This was a first direct hit, which should soon lead to even more spectacular results.

### Larocque East Flagship Project – Spectacular Drill Results

The subsequent winter drill program in early 2019 encountered significant uranium mineralization in 11 of 12 holes. These included 3.5 metres of 10.4%  $U_3O_8$ , 3.0 metres of 2.7%  $U_3O_8$  and 2.3% nickel, and 4.5 metres of 4.2%  $U_3O_8$ , 1.1% nickel and 0.8% cobalt. The 2019 summer drilling campaign also produced other top results including approximately 7.0 metres grading 5.4%  $U_3O_8$ , 0.7% nickel and 0.1% cobalt. The known high-grade uranium mineralization was extended further to the east.

However, the IsoEnergy team achieved the absolute breakthrough with the 2020 drill program. Begun in January 2020, increased radioactivity was initially detected, some of which was above the measurable range of the handheld spectrometer. This was followed by some of the most spectacular uranium grades ever achieved in the Athabasca Basin. These included 7.1%  $U_3O_8$ , 0.9% nickel and 0.3% cobalt over 5.5 meters. This included an even higher-grade interval of 24.0%  $U_3O_8$ , 2.7% nickel and 0.5% cobalt over 1.5 metres. Another drill hole returned 33.9%  $U_3O_8$  over 8.5 metres, including 5.0 metres of 57.1%  $U_3O_8$  and 2.0 metres of 62.8%  $U_3O_8$ . A third returned 19.6%  $U_3O_8$  over 8.5 metres, including a 2.5 metre interval of 63.6%  $U_3O_8$  and 1.5 metres of a whopping 76.7%  $U_3O_8$ . Finally, in March and April 2020, another 20.5%  $U_3O_8$  over 4.0 metres was reported, including 1.5 metres of 53.8%  $U_3O_8$ , 0.5 metres of 64.9%  $U_3O_8$  and 2.5 metres of 67.2%  $U_3O_8$ . This was followed by 12.8%  $U_3O_8$  over 9 metres in September 2020, which marked the start of the winter drill program.

It is important to know that the above-mentioned absolute world-class drill holes are sometimes up to 100 meters apart. In total, the mineralization known to date extends over a length of at least 1,000 meters. The thickness of the mineralization is up to 10 meters and up to 40 meters wide.

### Flagship project Larocque East – Upcoming catalysts

The Hurricane Zone is still open to the east. Expanding and, at best, delineating this zone is the Company's stated 2020 target, so drilling results are likely to remain the primary focus for the current year. The mid-term goal is to establish an initial high-grade resource that will create further market awareness.

### Other top projects in the pipeline

In addition to Larocque East, IsoEnergy has a number of other top projects.

- ▶ Geiger: Located south of Larocque East, this large area has a total of about 135 kilometers of graphite conductors. There are several mineralized intervals on the property, including high grade base mineralization with up to 2.74%  $U_3O_8$  over 1.2 metres. The project has high potential for a fully undrilled 4-kilometer-long conductor on the east side of the property. The project is ready for drilling.
- ▶ Collins Bay Extension: The most recent acquisition is located along the trend and within 7 kilometers of the Eagle Point - Collins Bay - Rabbit Lake uranium mine and mill complex.
- ▶ Thorburn Lake is located 7 kilometers east of the Cigar Lake Mine. Several drill holes have encountered uranium mineralization. There are numerous other target areas.
- ▶ Radio is located two kilometers to the east and along strike of the Roughrider deposit that Rio Tinto acquired from Hathor Exploration in February 2012 for \$587 million.
- ▶ North-Thorburn, located 12 km northeast and along strike of the Cigar Lake Mine, hosts several high priority targets.

### Further project areas from 2020

In the course of 2020, IsoEnergy staked several more potentially high-caliber uranium claims. This includes:

- ▶ Evergreen Property: 31,800 hectares along the southeast edge of the Athabasca Basin,

- ▶ Larocque East Extension: 6,900 hectares at the northwest end of the Larocque East Project,
- ▶ Full Moon Extension: 6,200 hectares between the original Full Moon project and Larocque East,
- ▶ Carlson Creek Extension: 1,200 hectares immediately east of the original Carlson Creek project,
- ▶ Hawk: 6,000 hectares, 37 kilometers west of Larocque East,
- ▶ Trident: 9,500 hectares along the eastern rim of the basin 8 kilometers south of the Rabbit Lake uranium mill,
- ▶ Spruce: 6,000 hectares along the southern edge of the basin immediately west of Evergreen Property.

IsoEnergy is thus continuing the aggressive expansion of its project portfolio and will successively test the acquired claims for traces of significant uranium mineralization.

### Unique and successful management team with extensive experience

IsoEnergy has a highly experienced and successful management team, in part made up of the people responsible for the discovery of the NexGens Arrow deposit, considered the largest, high grade, non-producing uranium deposit in Canada.

President, CEO and Director Craig Parry has been a geologist and resource sector executive for over 20 years. As co-founder, former director and now senior consultant of NexGen Energy Ltd. Parry was the geologist responsible for the exploration and business development of Tigers Realm Group from 2008 to 2015. At Rio Tinto, he led exploration programs for iron ore, copper, diamonds, coal and bauxite in Australia, Asia and South America and was Principal Geologist for the pre-feasibility study for the Kintyre Uranium Project.

Vice President Exploration Steve Blower is a professional geologist with over 20 years experience in the natural resource sector, including mining geology, resource estimation and exploration for a variety of commodities. Over the past 10 years, Blower has been involved in

uranium exploration in the Athabasca Basin, most recently as VP Exploration for Denison Mines. There he led the team that expanded the Wheeler River Project by 75 million pounds of  $U_3O_8$  mineral resources through the expansion of the Phoenix deposit and the discovery of the Gryphon uranium deposit. Chairman Leigh Curyer has over 20 years experience in the natural resources sector. His experience in uranium project evaluation focuses on projects in Canada, Australia, the United States, Africa, Central Asia and Europe, including operating mines, advanced development projects and exploration assets. While serving as Chief Financial Officer of Southern Cross Resources (now Uranium One), Curyer led the exploration, permitting and feasibility study for the Honeymoon Uranium Project in South Australia. Curyer has generated more than \$500 million for his companies in North America, the United States, Europe and Australia.

### Top shareholders and low free float

Another important feature of IsoEnergy is the relatively low free float of approximately 23%

of all outstanding shares. The largest single shareholder is NexGen with about 52% of all shares. Cameco holds 4% and Orano, the former AREVA, 2%. Another 19% are held by institutional investors. One of the largest supporters is Rick Rule, Senior Managing Director, Sprott Inc. and President & CEO, Sprott U.S. Holdings.

### Summary: One bull's eye follows the next!

After NexGen, the experienced management team around CEO Craig Parry now seems to have hit the bull's eye with IsoEnergy. Multiple drill intercepts of double-digit percent uranium mineralization are very rarely seen. Larocque East is one of the hottest irons in the Athabasca Basin and IsoEnergy is one of the hottest uranium stocks in the coming months and years. The Company was able to generate CA\$6.7 million in fresh capital in December 2019 and an additional CA\$10 million in August 2020. This will be sufficient for the upcoming programs. NexGen is also a reliable financing partner.

### What have you and your company achieved in the past 12 months?

It has been a challenging and unpredictable year thus far, and I could not be prouder of our team and their ability to continue delivering results of this caliber at the Hurricane Zone. These are new and unprecedented circumstances, and the rigorous safety measures we have put in place are to ensure all our stakeholders' safety. The health and safety of our team, suppliers, and the communities in which we live in and operate is paramount to us as an organization.

The results at Hurricane speak for themselves and continue to exceed our expectations. The Hurricane Zone is located on our 100% owned Larocque East Project in the northeastern Athabasca Basin and only 40km from Orano's operating McClean Lake Mill. We recently concluded our fourth drill program at Hurricane, and the mineralized zone continues to grow, having doubled in width over the course of this past campaign. Recent results have been impressive and extremely encouraging, with LE20-64 intersecting 48.8%  $U_3O_8$  over 5m in our southern step-out and on a previously untested fault. Not to overshadow our winter campaign, LE20-34 remains our best hole to date, intersecting 33.9%  $U_3O_8$  over 8.5m. We are expecting final assays from our recently completed summer campaign over the next 4-5 weeks.

From a financial standpoint, we have ~C\$12 million in the bank today, and we are already planning the winter 2021 program. In August 2020, we completed a ~C\$12 million financing with support from our largest shareholder NexGen Energy and welcomed Queens Road Capital, a publicly traded natural resource investment fund, as a strategic shareholder. Importantly, NexGen increased its stake in ISO to 53%, and the capital structure continues to tighten, with uranium majors and institutions accounting for ~81% of the issued and outstanding shares. We

are now fully funded and well positioned to finance the remaining resource delineation at Hurricane.

### What are the most important catalysts for the next 6 to 12 months?

Catalysts from the standpoint of IsoEnergy will be the release of remaining assays and continued expansion of the Hurricane Zone with the upcoming winter program in early 2021. We have shown the market that Hurricane contains a significant amount of uranium and has continued to expand in size ahead of our maiden mineral resource estimate in 2021.

The two largest uranium producers, Kazatomprom and Cameco have been buying off the spot market to offset COVID related shutdowns, putting even more strain on an already undersupplied market. The scarcity of supply on the spot market has forced utilities into inventory drawdown. The catalyst over the near term will be if utilities decide to enter the long-term market, driving up the uranium price or continue to draw down inventories to potentially dangerous levels. I am of the mindset the utilities will be looking to enter long term contracts sooner rather than later.

### How do you see the current situation on the market for uranium?

I am extremely bullish on the current uranium market; new reactors are continually coming online, and sentiment towards nuclear is improving because nuclear power offers the only reliable carbon-free energy source. There need to be a major price adjustment of uranium soon to accommodate an under-supplied market with growing demand putting IsoEnergy in a fantastic position as we work towards our maiden resource at Hurricane.



Craig Parry, CEO

## IsoEnergy Ltd.



**ISIN:** CA46500E1079  
**WKN:** A2DMA2  
**FRA:** I01  
**TSX-V:** ISO

Shares outstanding: 91.2 million  
Options: 8.8 million  
Warrants/Convertibles: 15.8 million  
Fully diluted: 115.9 million

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# Skyharbour Resources

## World-class uranium projects with high-grade discovery potential coupled with prospect generation and strategic partnerships



Skyharbour Resources is a preeminent uranium exploration company with projects located in the prolific Athabasca Basin of Saskatchewan, Canada which consistently ranks in the top five mining jurisdictions to work in globally by the Fraser Institute. The Company has been acquiring top-tier exploration projects at attractive valuations culminating in six uranium properties totaling approx. 240,000 hectares throughout the Basin. Skyharbour owns 100% of its flagship property, the Moore Uranium Project which hosts the high-grade Maverick Zone. In addition to the Maverick Zone, the project hosts other mineralized targets with strong discovery potential which the Company plans to test in upcoming drill programs. While focused on its core strategy as a discovery-driven exploration company, Skyharbour also employs the prospect generator model to advance and fund exploration at its other projects in the Basin and has brought in three strategic partners in Orano Canada, Azincourt Energy and Valor Resources.

### Moore Lake Uranium Project – Summary

Skyharbour Resources' flagship project Moore Lake is in the southeast region of the Athabasca Basin, about 15 kilometers east of Denison Mines' development project Wheeler River and midway between the Key Lake Mill and the McArthur River Mine. The high-grade Moore Lake Project consists of 12 contiguous claims totaling 35,705 hectares and Skyharbour acquired it from its largest strategic shareholder Denison. In order to acquire 100% of Moore Lake, Skyharbour Resources issued shares and paid CA\$500,000 in cash and completed CA\$3.5 million in exploration expenditures to complete the 100% earn in at Moore Lake back in August 2018, well ahead of schedule. All in all, a bargain price considering that more than CA\$40 million has been invested in exploration at Moore Lake including more than 370 drill holes totalling over 140,000 metres.

### Moore Lake Uranium Project – Recent Exploration and Drilling

Skyharbour started with two drill programs in 2017 including winter and summer programs. High-grade uranium mineralization was encountered in several drill holes and notable new discoveries were made at the Main and East Maverick Zones. Highlights from the drill programs included 20.8%  $U_3O_8$  over 1.5 metres within a 5.9 metre interval of 6.0%  $U_3O_8$  at 262 metres downhole, 5.6%  $U_3O_8$  over 1.8 metres within a 10.7 metre interval of 1.4%  $U_3O_8$  at 267 metres downhole, 2.25%  $U_3O_8$  over 3.0 metres, and 4.17%  $U_3O_8$  over 4.5 metres including 9.12%  $U_3O_8$  over 1.4 metres at a new discovery area called the Maverick East Zone.

Continued drilling in 2018 returned additional high-grade intercepts including 3.11%  $U_3O_8$  over 1.8 metres and 1.33%  $U_3O_8$  over 7.8 metres.

In 2019, the Company started testing new targets identified using drone-flown geophysics in the underlying basement rocks underneath the unconformity and Athabasca sandstone. This is the geological setting that hosts notable recent discoveries like those made by NexGen Energy and Fission Uranium, and very little drill testing had been carried out historically to test the basement rocks at the Moore Lake project. The Company successfully intersected high-grade mineralization in the potential basement-hosted feeder zones including 2.5 metres of 2.31%  $U_3O_8$ . Additional follow-up drilling and testing was warranted.

In February 2020, the Company commenced a drilling campaign which doubled the known strike extent of the Maverick East Zone. This included intersecting 4.5 metres of 0.38%  $U_3O_8$ , with a basal high-grade pedestal interval yielding 0.5 metres of 1.43%  $U_3O_8$ .



Airborne survey at Preston  
(Source: Skyharbour Resources)

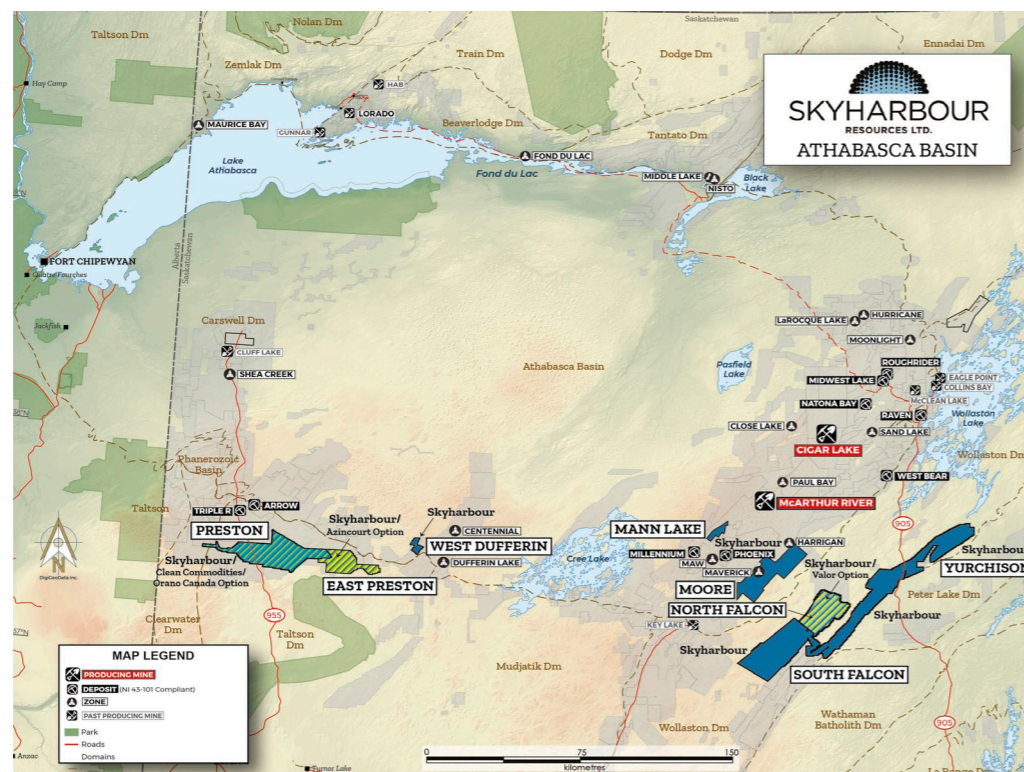
In the Fall of 2020, Skyharbour carried out a drill program to follow up on the results of previous programs. This drill program tested unconformity and basement-hosted targets along the high-grade Maverick structural corridor. Of particular interest are potential underlying basement feeder zones to the unconformity-hosted high-grade uranium present along the Maverick corridor. The company is fully funded for drill programs upcoming in 2021 and plans to start drilling again early in the new year.

### Preston Uranium Project – Location and Exploration

The Preston Uranium Project is in the southwest quadrant, just outside the Athabasca Basin in the Patterson Lake region. It is bordered to the north by Fission 3.0's and NexGen's project areas, among others. The Preston Project, which covers approximately 70,000 hectares and in which Skyharbour Resources holds a 50% interest (the remaining 50% is owned by partner Dixie Gold), is located close to the high-profile NexGen (Arrow) and Fission Uranium (Patterson Lake South) discovery.

Historically, CA \$5 million had been spent on exploration and reconnaissance drilling, which helped identify 15 areas with similar indicators to Patterson Lake South and Arrow. Several other additional drill targets also provide robust exploration upside potential.

Skyharbour's Project Locations  
(Source: Skyharbour Resources)



### Preston Uranium Project – Option Agreement with Orano Canada

In March 2017, Skyharbour entered into an option agreement with industry-leader and France’s largest uranium mining and nuclear fuel cycle company Orano (formerly AREVA). Under the terms of the agreement, Orano can earn up to a 70% interest in the western portion of the Preston Uranium Project, totalling 50,000 hectares, by investing CA\$7.3 million in exploration over 6 years and making an additional CA\$700,000 in cash payments. Orano is currently approximately halfway through the earn in having just completed a large field and geophysical program earlier in the year.

### East Preston Uranium Project – Option Agreement with Azincourt Energy

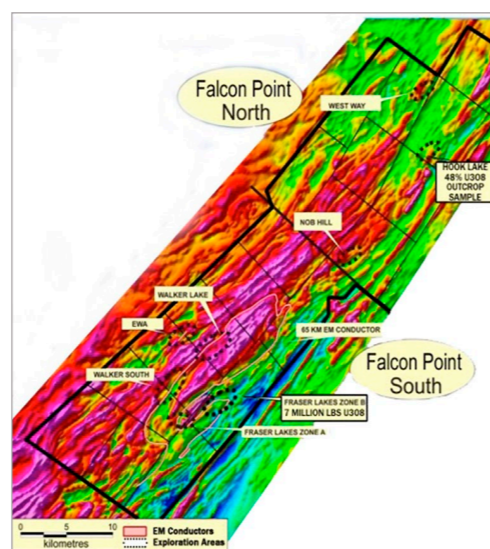
Also, in March 2017, Skyharbour entered into a second option agreement with Azincourt Energy for the East Preston Uranium Project. This project comprises the eastern portion of the Preston project and covers an area of approximately 20,000 hectares. Azincourt Uranium may earn a 70% interest in the East Preston Uranium Project by issuing shares to Skyharbour, making cash payments totaling CA\$1 million and investing a further CA\$2.5 million in exploration on the project over a three year period. The term of this agreement was extended by one year in April 2020 in exchange for the transfer of a total of 5 million Azincourt shares to Skyharbour and partner Dixie Gold.

In early 2018, geophysical gravity studies enabled Azincourt to identify several significant targets for further exploration and in 2019, a VTEM survey was used to identify seven new targets. An initial drill campaign also confirmed the prospectivity of the East Preston Project as the underground lithologies and graphitic structures intersected at East Preston have similarities to the Patterson Lake South, Arrow and the Hook Lake/Spitfire uranium deposits. In February 2020,

a second drilling program was completed which encountered radioactivity and traces of rare earths and other indicator elements. A ground geophysical program was also conducted in the summer of 2020 to support future drilling programs based on the existing interpretation available throughout the property and the results of the heli-assisted VTEM survey helped identify numerous untested graphitic conductor corridors which will be tested with future drilling.

### North Falcon Point Project – Option Agreement with Valor Resources

Skyharbour’s North Falcon Point Project is located 60 km east of the Key Lake Uranium Mine and covers approximately 26,000 hectares. Skyharbour recently announced an LOI with ASX-listed Valor Resources which provides Valor an earn-in option to acquire an 80% interest in the North Falcon Point Uranium Project. To complete the earn-in Valor will issue shares to Skyharbour and contribute cash and exploration expenditure consideration totaling CA\$3,925,000 over a three-year period (\$425,000 will be in cash payments to Skyharbour and \$3,500,000 will be in exploration expenditures). Valor will issue a total of 250,000,000 shares to Skyharbour.



Falcon-Point-exploration-map (Source: Skyharbour Resources)

The 16 contiguous mineral claims at North Falcon Point host several prospective areas of uranium mineralisation including the Hook Lake / Zone S target area (high-grade surface outcrop with reported grades in grab samples up to 68% U<sub>3</sub>O<sub>8</sub>; a bio-geochemical survey carried out over the trenches in 2015 responded positively with along-strike anomalies 2 km to the northeast) as well as the Nob Hill target area (fracture-controlled vein-type uranium mineralisation on surface outcrop with up to 0.130% - 0.141% U<sub>3</sub>O<sub>8</sub> in grab samples; diamond drilling intersected anomalous uranium in several drill holes with values up to 422 ppm U over 0.5 m). Historical exploration has consisted of airborne and ground geophysics, multi-phased diamond drill campaigns, detailed geochemical sampling and surveys, and ground-based prospecting culminating in an extensive geological database for the project area. It is anticipated that the initial phase of exploration work by Valor will include further bio-geochemical surveys, detailed UAV magnetics, ground gravity and resistivity surveys as well as detailed geological and structural mapping.

### Other Uranium Projects in the Athabasca Basin

In addition to Moore Lake, Preston, and North Falcon Point, Skyharbour owns 100% of several other highly prospective exploration projects in the Basin.

These includes the South Falcon Project which covers 79,000 hectares and is located approximately 55 kilometers east of the Key Lake Mine. In 2015, Skyharbour reported a shallow, NI 43-101 inferred mineral resource estimate totaling 7.0 million pounds at an average grade of 0.03% U<sub>3</sub>O<sub>8</sub> and 5.3 million pounds at an average grade of 0.023% ThO<sub>2</sub> at the Fraser Lakes Zone B deposit area which is open along strike and at depth. The project has geological and geochemical similarities to some of the best projects in the Athabasca Basin such as Eagle Point, Millennium, P-Patch and Roug-hrider.

The Company also owns the Mann Lake Project which is adjacent to the joint venture project of the same name between Cameco, Denison and Orano. Mann Lake is strategically located approximately 25 kilometers southwest of Cameco’s McArthur River Mine and 15 kilometers northeast of Cameco’s Millennium Uranium Deposit.



Mann Lake is strategically located approximately 25 kilometers southwest of Cameco’s McArthur River Mine and 15 kilometers northeast of Cameco’s Millennium Uranium Deposit. (Source: Skyharbour Resources)

### Upcoming Catalysts

Skyharbour and its partners have a very active year coming up in 2021 including several exploration and drill programs planned for early in the new year. The Company has just finished a drill program at its flagship Moore Uranium Project and continues to expand the known high-grade zones at the project while making additional discoveries in the relatively undertested basement rocks. The news flow from drill programs and results is a key catalyst for Skyharbour and it is important to note that the Company is fully funded for an upcoming winter drill program at the project which will commence in early 2021. Skyharbour’s partner companies Orano, Azincourt and Valor have plans for future exploration and drill programs at the Preston, East Preston, and North Falcon Point projects, respectively. Azincourt has already identified several drill targets through geophysical programs and plans to follow up on these in the next several months, while Valor is planning a field program at North Falcon Point set to commence early in 2021.

Skyharbour plans to continue to find partners on its projects as a part of its prospect generator model to both advance the assets, generate additional news flow, and bring in funds through option payments. Lastly, Skyharbour will benefit with the continuing uranium market recovery as one of the few remaining active uranium exploration companies in the Athabasca Basin. Uranium pricing has been somewhat volatile over the last few years but has been upwards more recently. The underlying fundamentals for the market are very compelling. Nuclear utilities are facing expiring contracts, producers like Cameco are having to purchase material on the spot market, and the supply deficit between primary mine supply and reactor requirements continues to grow at an unsustainable level.

**Summary:  
This company is on fire!**

Skyharbour is well positioned to take advantage of a rising uranium price with its top-tier portfolio of high-grade uranium projects in the Athabasca Basin. The Company will benefit from ample news flow over the coming year as it continues to advance its flagship

high-grade Moore Lake Uranium Project while three partner companies fund exploration and development at its other projects. The Company is run by a strong management and geological team who are major shareholders with extensive capital markets experience as well as focused uranium exploration expertise in the Basin. Skyharbour's goal is to maximize shareholder value through new mineral discoveries, committed long-term partnerships, and the advancement of exploration projects in geopolitically favourable jurisdictions.



Hooker-Lake-Mineral (Source: Skyharbour)

## Exclusive interview with Jordan Trimble, CEO of Skyharbour Resources



Jordan Trimble, CEO

**What have you and your company achieved in the past 12 months?**

In the last 12 months Skyharbour has advanced its high-grade uranium projects in the Athabasca Basin, strengthened its Board of Directors, and raised capital with new institutional investors. The Company completed a drill program earlier in 2020 totalling 2,328m in 6 holes at its flagship Moore Uranium Project and intersected high-grade uranium in several holes while doubling the known strike length at the Maverick East Zone. Skyharbour is currently conducting a follow-up drill program with results expected later in 2020. As a part of the Company's prospect generator strategy, partners Orano (previously AREVA) and Azincourt both completed exploration and drill programs at the Preston and East Preston projects respectively with follow-up work planned through 2020 and 2021.

Corporately, Skyharbour recently added Joseph Gallucci to its Board of Directors. Mr. Gallucci has over 15 years of investment banking experience and is currently the Managing Director and head of mining investment banking at Laurentian Bank Securities Inc. During the last year, the Company raised over \$4.5M and is well funded to continue its exploration efforts at its projects while receiving cash payments from option partners.

**What are the most important catalysts for the next 6 to 12 months?**

Skyharbour will be receiving drill results from its 2500 metre drill program currently being carried out at its Moore Uranium Project. The Company continues to test several targets along the Maverick Structural Corridor as it works toward a resource estimate while delineating basement feeder zones and source mineralization for some of the higher grade zones present at the project including mineralization of up to 21% U<sub>3</sub>O<sub>8</sub> in previous drilling.

Skyharbour has also positioned itself as an Athabasca Basin prospect generator having amassed over 237,000 hectares of uranium projects in the Basin. Skyharbour's partners Orano and Azincourt are exploring at our Preston and East Preston Projects which will add to the news flow and increase the odds of exploration success with multiple projects being advanced simultaneously. These partner companies can earn up to 70% of the Preston and East Preston projects through project consideration totalling \$11.5 million in exploration and cash payments. The Company is in advanced negotiations with other potential partners at its other 100% owned projects.

**How do you see the current situation on the market for uranium?**

The uranium price has been moving higher this year due to strengthening supply/demand fundamentals and mine supply disruptions from the pandemic including Kazatomprom's recent announcement of extended production cuts over the next several years. Nuclear utilities are facing expiring contracts, and large producers such as Cameco and Kazatomprom are having to purchase material in the spot market, as the supply deficit between primary mine supply and reactor requirements continues to grow at an unsustainable rate. On the demand side, China is on a mission to be carbon neutral by 2060 and their ambition to be the world's leader in nuclear energy is clear. Another interesting development is the Small Modular Reactor (SMR) technology that is being advanced by several companies and governments globally which would result in an increase in uranium demand going forward. A unique set of underlying fundamentals and drivers, including sticky demand and major supply curtailment, should lead to a continued revival of the sector in 2021.

ISIN: CA8308166096  
WKN: A2AJ7J  
FRA: SC1P  
TSX-V: SYH  
OTCQB:SYHBF

Shares outstanding: 92.6 million  
Options/warrants: 45.6 million  
Fully diluted: 138.2 million

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## Skyharbour Resources Ltd.



# Uranium Energy

## Is ready to resume and expand uranium production

Uranium Energy Corp is a production ready U.S.-based uranium mining and exploration company with a U.S. production profile of 4 million pounds  $U_3O_8$  per year. In South Texas, the Company's hub-and-spoke operations are anchored by the fully licensed Hobson Processing Facility, which is central to the fully licensed Palangana, Burke Hollow and Goliad low-cost ISR projects. In Wyoming, UEC controls the Reno Creek project, which is the largest permitted, pre-construction ISR uranium project in the U.S. Additionally, the Company controls a pipeline of uranium projects in Arizona, New Mexico and Paraguay, a uranium/vanadium project in Colorado and one of the highest-grade and largest undeveloped Ferro-Titanium deposits in the world, located in Paraguay.

### Palangana Project

The Palangana In-situ Recovery (ISR) project is fully licensed and commenced production in December 2010. The project ramped down its production to a standby status in 2014 due to a weak uranium market. The Palangana project has a Measured and Indicated (M&I) resource of 1.1 million pounds and an Inferred resource of 1.2 million pounds of  $U_3O_8$ . Internally, it is estimated that approximately US\$1 to 2 million will be required to bring Palangana back on stream and would take less than 6 months. Historically, production cash costs have been below US\$22 per pound of uranium.

### Goliad project fully licensed

The Goliad ISR project is also fully licensed for production. The Goliad project, like Palangana is located near the Hobson processing plant in South Texas. It has a NI 43-101 compliant resource of 5.5 million pounds of Measured and Indicated  $U_3O_8$  and 1.5 million pounds in the Inferred category. Uranium mineralization as currently defined by historic drilling, remains open laterally in all directions, providing excellent potential targets for additional drilling and increasing the size of the resource.

### Burke Hollow Project

UEC's largest South Texas ISR project is known as Burke Hollow and covers about 20,000 acres. The project holds all four of the major licenses required for uranium extraction. Burke Hollow has an Inferred resource of 7.09 million pounds of  $U_3O_8$  and is located about 50 miles from Hobson. A total of six independent uranium trends have been identified, with about half of the project area having been explored. In 2019, Uranium Energy conducted a drilling campaign at Burke Hollow consisting of 57 delineation holes and the installation of 76 monitor wells to further advance the project towards uranium extraction. An additional campaign is scheduled for 2021 that the company believes will further define and expand the resource, moving it closer to production.

### Hobson Processing Plant

The Hobson production facility located in South Texas is a fully licensed processing facility that has a capacity of 2 million pounds of  $U_3O_8$  per year. The plant has been completely refurbished and is a state-of-the-art facility. UEC has applied for a license amendment to increase the licensed capacity to 4 million pounds of  $U_3O_8$  per year. Hobson serves as the hub in the company's hub and spoke strategy where uranium is processed from the company's various South Texas low-cost ISR mines.

### Reno Creek Project

In May 2017, Uranium Energy announced the acquisition of Reno Creek Holdings Inc. and 100% of its fully licensed Reno Creek ISR uranium project in Wyoming. The project is ready for the construction of ISR well fields and a central processing plant. The project is licensed to extract and process up to 2 million pounds of  $U_3O_8$  per year. Reno Creek has a large NI 43-101 resource of 26 million pounds of  $U_3O_8$  in the M&I category. In addition, Reno Creek has a further 1.49 million pounds of  $U_3O_8$  in the Inferred category. A 2014 pre-feasibility study confirmed Reno Creek is a highly economic project with low capital and operating costs. In total, Uranium Energy paid less than US\$25 million for this fully licensed ISR project with a resource of approximately 27.5 million pounds of  $U_3O_8$ , plus the now fully integrated Reno Creek North Project, acquired in November 2017. In addition, the project still has much higher exploration potential. Previous owners project expenditures totaled approximately \$60 million on the exploration and development of the project.

### Alto Paraná Titanium Project

In July 2017, Uranium Energy acquired CIC Resources (Paraguay) Inc., consolidating more than 70,000 hectares of land comprising the project area in Paraguay that hosts the Alto Parana Titanium Project and its pilot plant. Prior to the acquisition CIC Resources and former joint venture partner Tronox had invested approximately \$25 million in the project. The Alto Parana Titanium Project is an advanced exploration project located in eastern Paraguay within the Departments of Alto Parana and Canindeyú. The property covers an area of 70,498 hectares with five mining permits. Work completed on the project has included an extensive program of trenching and auger drilling, the development of a small test mine, the construction of a pilot plant to evaluate the planned ore processing flow chart, laboratory-scale smelting tests, the production of approximately 110 tonnes of concentrate for extensive

smelting tests and related engineering, marketing, logistics and environmental work.

In September 2017, Uranium Energy was able to publish its own resource estimate for Alto Paraná. The total inferred resource was estimated at 4.94 billion tonnes grading 7.41% titanium oxide („TiO2“) and 23.6% iron oxide („Fe2O3“) at a TiO2 cut off of 6% making Alto Parana one of the largest known and highest grade ferro-titanium deposits in the world. In 2020, the Company reported the completion of a 49-hole drilling campaign in Alto Paraná that is expected to result in a revised resource estimate and is the first phase of a pre-feasibility study (PEA). Uranium Energy plans to monetize the project at some point in the future. With the titanium market expected to show a supply deficit from 2021 onwards, major producers are expected to be interested in the project.

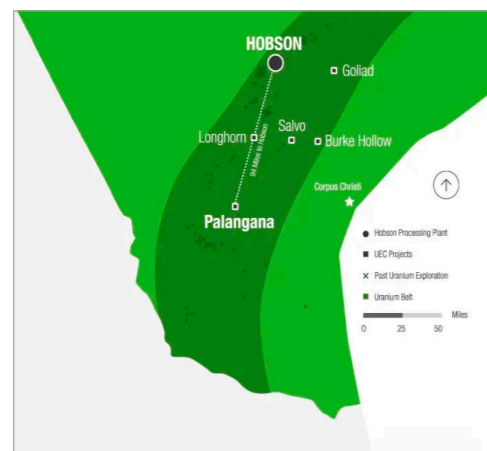
### Diabase Project

In February 2018, Uranium Energy acquired the Diabase project, located on the southern edge of the Uranium District in the Athabasca Basin. The project covers 21,949 hectares of land and overlays a highly prospective regional corridor less than 75 kilometers from Cameco's Key Lake mill. Uranium Energy paid a total of only about US\$500,000 for the acquisition, a bargain price considering that more than US\$20 million has been invested in exploration on the property in the past, including over 21,000 meters of diamond drilling, geophysical surveys and surface sampling data.

### More potential top projects in the pipeline

In addition to the above listed projects, Uranium Energy holds a number of other excellent projects. For example, the Anderson Project in Arizona, will have average production in excess of one million pounds per annum, for a total production of 16 million pounds of uranium over a 14-year mine life and direct operating costs of \$30.68 per contained lb.  $U_3O_8$ ;

Uranium Energy's project locations in Texas  
(Source: Uranium Energy)





The Slick Rock Project in Colorado has 11.6 million pounds of U<sub>3</sub>O<sub>8</sub> in the inferred category plus 69.6 million pounds of vanadium.

Uranium Energy also has two promising ISR uranium projects in Paraguay with geology very similar to that found in South Texas. The Yuty project has resources of 8.9M lbs. U<sub>3</sub>O<sub>8</sub> M&I and 2.2M lbs. U<sub>3</sub>O<sub>8</sub> Inferred. The Oviedo project has an exploration target of 23 to 56 million pounds of U<sub>3</sub>O<sub>8</sub> under NI 43-101 criteria.

**Summary: Several projects ready to start = high leverage on the uranium price**

Uranium Energy has 3 fully licensed, low-cost ISR projects in South Texas as well as a fully operational processing plant with a current capacity of 2 million lbs. per year and a pending license to increase production to 4 million lbs. per year. Together with the Reno Creek project (including Reno Creek North), which is also fully licensed for 2 million lbs. per year, the Company has a current U.S. production profile of 4 million pounds of U<sub>3</sub>O<sub>8</sub> per year. The company has also been

able to secure a very advanced titanium project for a modest investment that offers very attractive potential for future monetization.

Uranium Energy combines all the expected benefits of an upcoming supply shortfall in the uranium market with cost-effective mining technology, a centrally located processing facility and assets in uranium-friendly jurisdictions. The Company was able to generate \$15 million in cash through a financing in September 2020 and is adequately funded. It also holds 14 million shares in Uranium Royalty Corp. that is the first and only publicly traded uranium royalty and streaming company. The Company's shares are publicly traded on the TSX-V with the symbol URC.

With its low-cost ISR projects in Texas and Wyoming, Uranium Energy is ideally positioned to supply the U.S. Government's announced 10-year Uranium Reserve program, that has a total budget of US\$1.5 billion to purchase domestically mined uranium.

**Exclusive interview with Amir Adnani, CEO of Uranium Energy**



Amir Adnani, CEO

**What have you and your company achieved in the past 12 months?**

In December of last year, we successfully launched Uranium Royalty Corp. (URC) on the TSX-V exchange (ticker symbol URC). UEC co-founded URC providing start-up resources and management to build the very first dedicated royalty and streaming company in the uranium space. It is ideally positioned in the uranium industry where new mine developments need capital following several years of depressed market prices.

We continued to advance our production ready strategy with our low cost In-situ recovery (ISR) projects. At our Palangana ISR mine in South Texas, we optimized the well-field patterns of the next production area to yield a more thorough recovery of the remaining resources. At Burke Hollow, near our fully operational Hobson Processing Plant, we advanced the project closer to production with a drilling and monitor well installation campaign. This effort resulted in discovery of additional mineralization and an expansion of the first production area.

UEC also concluded a successful US\$15 million offering in September that positions us to pursue development objectives going into what should be an exciting 2021.

**How do you see U.S. policy developments toward uranium mining?**

There have been significant developments in U.S. nuclear fuel policy over the past year that have set the stage for a robust recovery in U.S. uranium mining. The U.S. established the Nuclear Fuel Working Group (NFWG) after the Department of Commerce identified national security concerns from the impact of uranium imports on domestic mining.

A report from the NFWG was released in April by the Department of Energy that outlined a multi-year strategy to re-establish critical nuclear fuel supply capabilities in the United States. The strategy includes revitalizing the front end of the nuclear fuel cycle and directs the establishment of a Uranium Reserve (UR) to be supplied with U.S. produced uranium. In the U.S. Fiscal Year 2021 budget, a \$1.5 billion, 10-year program is outlined (\$150M per year) for uranium purchases from the U.S. uranium industry.

UEC controls the largest resource base of fully permitted ISR projects in Texas and Wyoming of any U.S. based producer and is ideally positioned to lead a resurgence in domestic uranium mining.

**What are the most important catalysts for the next 6 to 12 months?**

For UEC, clearly the establishment of the UR is an important catalyst. The uranium market itself provides another catalyst as it faces large deficits between primary production (~135M lbs. in 2021) and requirements (~180M lbs). While the gap has been filled with secondary market supplies, those are finite. Also of importance is the collective long-term contracting by global utilities that has been below normal levels for several years. This has finally begun to change in the 4th quarter of 2020 as public long-term contract tenders and off-market discussions between utilities and producers have picked up again. UEC believes this renewed procurement cycle will be an important market catalyst going into 2021.

**ISIN:** US9168961038  
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**FRA:** U6Z  
**NYSE:** UEC

Shares outstanding: 197.4 million  
Options: 14.2 million  
Warrants/RSUs: 16.2 million  
Fully diluted: 227.8 million

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