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# Uranium Report 2018

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



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## Imprint

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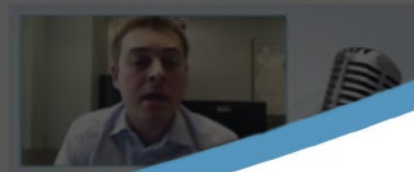
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## Preface

Dear Readers,

On the following pages, we present to you with pleasure the first update of our uranium report. Uranium is a “hot” topic and many people don’t like to say the least and some hate it. But without uranium there would be a major problem with the base load energy supply in the world and e-mobility would be still a dream of the future. Swiss Resource Capital AG has made it its business to topically and comprehensively inform metals and commodity investors, interested parties and the individual who wants to become an investor in various commodities and mining companies. On our website [www.resource-capital.ch](http://www.resource-capital.ch) you will find 20 companies and information as well as articles related to commodities. Our series of special reports started with lithium and silver. Now we move on to uranium as it is the energy metal of the future whether we like it or not. Wind and solar energy are very often not cost effective nor really energy efficient considering the complete energy balance including the amount of energy used to build it. This report shall give the reader an idea about the real facts of the uranium industry and the energy supply from nuclear power worldwide. China especially needs nuclear power plants to solve its air pollution problems because most of the electrical energy is generated by coal power plants. Today around 450 nuclear power plants are in operation in more than 30 countries globally and 70 are under construction. Over 165 nuclear power plants are planned or ordered by 2040 and if we all want to drive with emission free e-cars, bikes or motor scooters we need those nuclear power plants urgently as we cannot reliably generate the necessary extra power with wind and solar alone.

We also interviewed the experts Scott Melbye and Dr. Christian Schärer about the uranium markets and the future prospects. Of course, we present you some

interesting companies from this industry sector with numbers and facts. The combined market cap of all uranium companies is only around US\$9 billion worldwide, a crazy small market with a fascinating outlook. Climate change and clean air require nuclear energy. “There’s really only one technology that we know of that supplies carbon-free power at the scale modern civilization requires, and that is nuclear power” – Ken Caldeira of Stanford University’s Department of Global Ecology.

Commodities are the base of our economic cohabitation. Without commodities there are no products, no technical innovations and no real economic life. We need a reliable and constant base load energy supply in our highly industrialized world. With our special reports we would like to give you the necessary insights and inform you comprehensively.

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Yours Jochen Staiger



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 IP-TV-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 Roedel is chief-editorial- and chief-communications-manager at SRC AG. He has been active in the commodity sector since 2007 and held several editor- and chief-editor-positions, e.g. at the publications Rohstoff-Spiegel, Rohstoff-Woche, Rohstoffraketen, Wahrer Wohlstand and First Mover. He owns an enormous commodity expertise and a wide-spread network within the whole resource sector.

# Satisfying the Hunger for Energy and improving the Carbon Footprint at the same time? – Nuclear Energy can combine both!

The global energy demand has multiplied since the end of the 1980s, especially due to the emerging countries and in particular the BRIC countries Brazil, Russia, India and China. About 11.5% of the total energy demand is met by nuclear energy. Fossil fuels like coal and oil are still burned for energy production. The difference in the situation of 25 years ago is the increasing demand for reduction of CO<sub>2</sub> emissions and the more noticeable phenomenon of “global warming”. In particular, the energy consuming industrial nations and the emerging countries must increase their energy efficiency and improve their carbon footprint in the coming years. This cannot be achieved by burning coal and oil. The alternatives are renewable energies – which need tremendous time and cost expenditures – or nuclear energy which can provide lot of energy CO<sub>2</sub> neutral. This possibility of the fast and almost clean energy generation has long been recognized by some countries who are increasing the construction of new nuclear power plants.

## Supply Gap inevitable in the future

Today only 90% of the global uranium demand can be satisfied by producing mines. The number of nuclear reactors will double in the coming 10 to 20 years. The previous main supplier of uranium – Russia’s nuclear weapons arsenal – doesn’t exist anymore. Where will the needed uranium come from? The existing mines can be expanded and new mines opened but not at the current uranium spot price of around US\$ 20 per pound. An enormous supply gap seems to be inevitable at least at the current market price. That is the situation investors should be aware of – a sharply rising uranium spot price and an inevitable connected second uranium boom.

## What is Uranium?

### One of only two elements that can sustain nuclear fission chain reactions

Now for some information about the element uranium itself. Uranium was 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 isotopes are radioactive. Naturally occurring uranium in minerals is comprised of the isotope 238U (99.3%) and 235U (0.7%).

The uranium isotope 235U is fissile by thermic neutrons and besides the very rare plutonium isotope 239Pu, the only known natural occurring nuclide that is suitable for nuclear fission chain reactions. Therefore, it is used as a primary energy source in nuclear power plants and nuclear weapons.

### Occurrence

Uranium does not occur pure in nature but always in form of oxides in minerals. There are some 230 uranium minerals that could locally be of economic importance. There is a large range of uranium deposits from magmatic hydrothermal to sedimentary types.

The highest uranium grades are encountered in unconformity-type deposits with average uranium grades of 0.3 to 20%. These deposits are mined by the two largest uranium producers. The largest single uranium resource in the world is Olympic Dam with a proven uranium content of more than 2 million tonnes at an average uranium grade of 0.03%. The first industrial scale uranium mine in the world is in Jachymov (Czech Republic) produced from hydrothermal veins. According to the International Atomic Energy Agency (IAEA) the largest uranium

reserves are in the USA, Niger, Australia, Kazakhstan, Namibia, South Africa, Canada, Brazil, Russia, Ukraine and Uzbekistan.

## Short outline of the history of the commercial uranium industry

### From the beginnings to the first atomic bomb

Uranium was produced for the first time as a by-product in Saxon and English mines at the beginning of the 19th century. Until the 1930s there was little use for the radioactive raw material. It was used for coloring glass and ceramics as well as in photography. The shadowy existence of the uranium changed suddenly as Hitler came into power in Germany, and an unprecedented spiral of armament and testing of new weapons technologies began. Above all the “Third Reich” accelerated the expedited mining of uranium. These mining activities were exclusively in the region of Jachymov (the German name is Sankt Joachimstal) in today’s Czech Republic. The German supply submarine U-234, that was seized by two U.S. destroyers two days after the end of the war and towed to the USA had uranium ore from Jachymov on board. According to leading U.S. scientists, parts of this uranium ore were used to build the Hiroshima atomic bomb.

### The Cold War makes Uranium acceptable

The newly created uranium sector had its biggest boost after the Second World War due to the beginning of the Cold war.

The victorious powers of the Second World War, which rivaled for global dominance, now needed the highest possible number of nuclear weapons and also vast quantities of uranium. This resulted in a systematic exploration for useable uranium occurrences in all states of the USA. The previous Atomic Energy Commission (AEC) had the exclusive right to buy all of the produced uranium in the USA for over three decades. The greed for more and more nuclear armament led to extreme high prices per pound of uranium for those days. As a result, the search for uranium was conducted in all U.S. states in the 1950s and 1960s. The USA had a strong uranium industry at the end of the 1960s that was a global leader from mining to enrichment.

The Soviet Union initially expanded existing uranium mines in East Germany and Czechoslovakia. This was necessary because Russia had no knowledge of uranium occurrences in its own country until the end of the Second World War. In the 1950s and 1960s Russia began with an uranium exploration which led to large discoveries in Siberia and Kazakhstan.

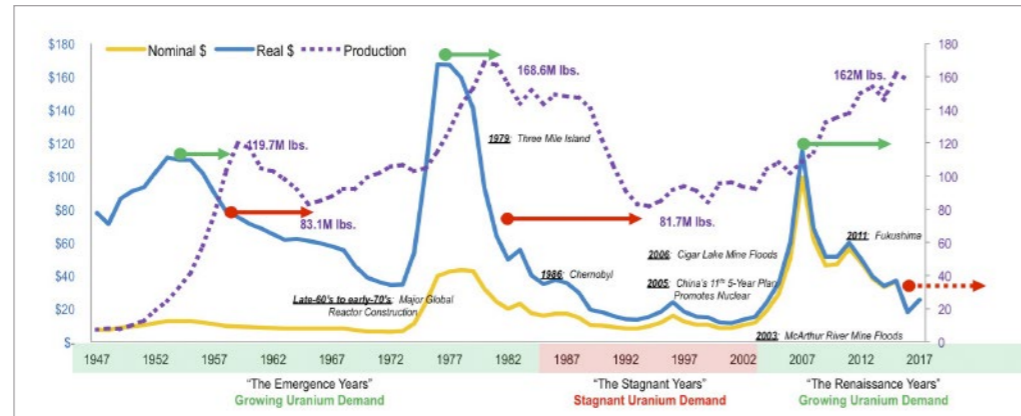
### Rise and temporary slump of civilian use of uranium

Already in 1953 the former U.S. president Eisenhower conceived a program for the civilian use of uranium. “Atoms for Peace” should find its way in the energy generation, medicine, traffic and agriculture and resulted in the demand for additional amounts of uranium. The civilian nuclear power had its beginning and was quickly advanced by other nations.

After a 25-year long uranium boom concerns have been increasingly voiced warning of the appearing lack of security in many nuclear power plants. After the almost Maximum Credible Accident in the American nuclear power plant Three Mile Island and the Super Maximum Cre-



Historical development of the uranium prices, the uranium production and important events. (Source: Energy Fuels)



dible Accident in Chernobyl, the general public turned its back more and more to nuclear power. In addition, the collapse of the Soviet Union resulted in a building stop of nuclear weapons and therefore no further uranium was needed. Many nations decided not to install new nuclear reactors and some countries switched off existing reactors. Almost 90% of all uranium mines were closed because the market price for uranium had fallen to US\$ 5 per pound in the meantime. The uranium for the operation of the still existing reactors came from old stockpiles or Russia's disarmament program.

### Uranium Production

Basically, there are two uranium production methods: the conventional production and the production via in-situ leaching or rather in-situ recovery (ISR). The exact mining method depends on the properties of the ore body, (like depth, shape, ore content, tectonic) and the type of country rock as well as other factors.

### Conventional Production

The majority of the uranium is mined in underground mines. The deposits are developed via shafts, drifts, ramps or spiral declines. Ingressing groundwater

and the ventilation of the mine often pose problems. The exact production method is chosen according to the characteristics of the deposit. The form of the orebody and the distribution of the uranium in it are especially pivotal. An orebody can be specifically mined by underground methods where less waste material is produced as by open pit methods. Ore bodies near the surface and very large ore bodies are primarily mined by open pit mining methods. This enables the use of low cost large equipment. Modern open pit mines can have a depth from a few to over 1,000 m and a diameter of several kilometers. Open pit mines often produce large amounts of waste material. Like in underground mines, large amounts of water have to be drained from the open pit however the ventilation is less problematic.

### ISR Mining

The ISR method uses injection wells to pump water and small amounts of CO<sub>2</sub> and oxygen into the sandstone horizons to leach out the uranium. From recovery wells, the pregnant solution is pumped to the surface for processing. The whole method takes place completely underground. The advantages of this method are obvious: there are no large earth movements like in open pit mines, no waste

rock stockpiles or tailings ponds for heavy metals and cyanide. At the surface only the wells are visible and the area around the wells can be used without constraints for farming. With the ISR method low grade deposits can be economically mined, the capital costs for the mine development is significantly reduced. The whole method can be implemented with a minimum of manpower which reduces drastically the operating costs. According to a study of the World Nuclear Association, 25% of the produced uranium outside of Kazakhstan comes from ISR mines.

## The current status of the Uranium Market

But how does today's uranium market look like? It is certain that the lack of investments into the procurement structure of the past 40 years – in the infrastructure of mines and processing plants – will very likely prove to be a windfall for the uranium investors in the future! Nevertheless, despite opposition against nuclear energy since the catastrophe in Chernobyl and even more after the events in the nuclear plants in Fukushima (Japan) the number of plants worldwide is at a record high. Only 30 countries currently operate (as of September 1st, 2017) 448 nuclear reactors with a total electrical net output of around 392 gigawatts.

Most of these reactors (99) are located in the USA. But this is only half the truth because emerging countries like China and India need more and more energy and have been focusing on a massive expansion of their nuclear power capacities for some time. It is of no surprise that currently 57 additional nuclear reactors

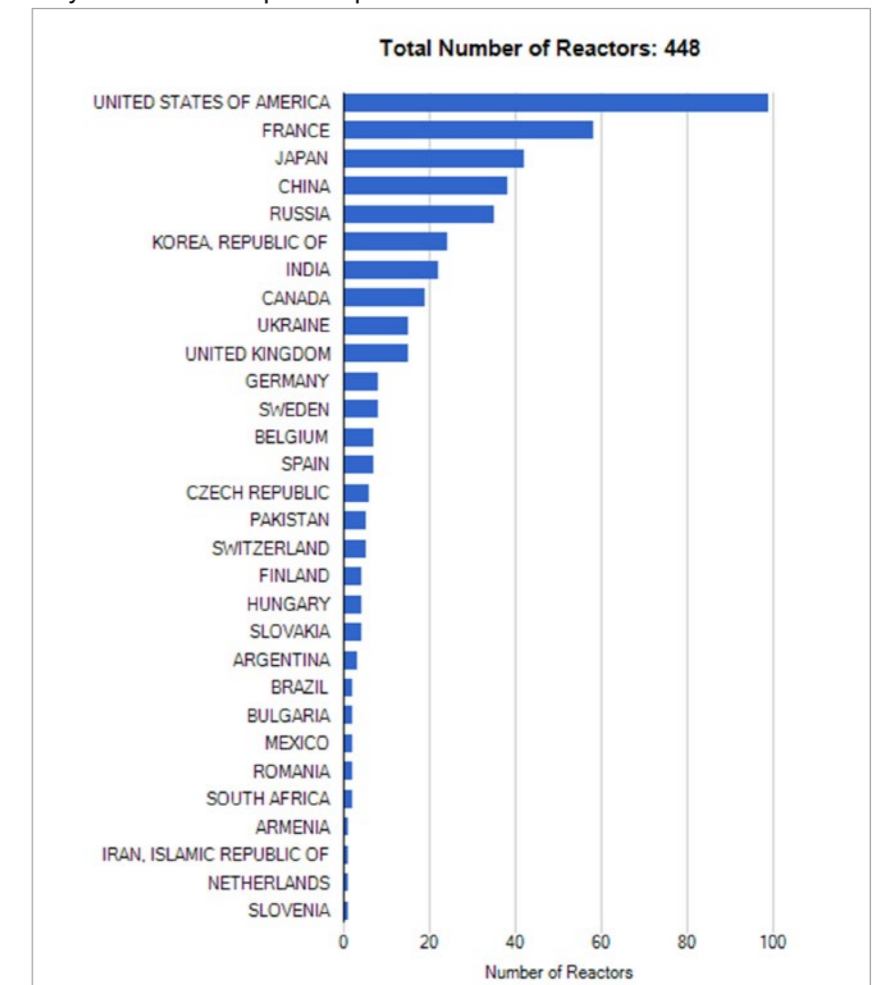
are under construction. The planning was completed for an additional 170 reactors and 372 reactors are in the planning phase. After a 20 year stop a renaissance of the uranium sector is pending – especially in China.

## Demand situation

### China is only at the beginning of the nuclear age

While many self-appointed experts have predicted the end of the nuclear age, it is only in the development phase in the

Overview of currently operating reactors per country (Source: www.iaea.org/PRIS)



most populous country in the world. China is operating 38 reactors where most of the electricity is generated by coal power plants. Since the beginning of 2015, 15 new nuclear reactors were put into service. The expansion of the nuclear energy sector in China is enormous and occurs with breathtaking speed! Over two thirds of the Chinese energy consumption is still met by coal power plants. Although China is mining its own coal deposits on a large scale, it is, besides India, one of the biggest coal importers of the world. 30% of the globally produced coal is imported by these two countries. A certain dependency from these coal imports is obvious. This is the point China's leadership wants to avoid. The obligation to implement climate friendly and clean possibilities for energy generation is only secondary matter.

In the fall of 2015 the state-owned power plant manufacturer Power Construction Corporation of China (Beijing) predicted the rise of its country among the biggest user of nuclear energy worldwide the Chinese government is planning the construction of more than 80 nuclear

reactors in the coming 15 years and more than 230 new nuclear reactors until 2050. According to information from China Power the new five-year-plan for the energy sector whose approval by the National People's Congress has been planned in March 2016 provides for a faster expansion of the nuclear capacity: to date the capacity was to increase to 58 gigawatts during the coming 5 years, but now over 90 gigawatts are under discussion. In the year 2005 the planning was 40 gigawatts until 2020. Until 2030 110 reactors should be in operation. In the year 2016 alone China started the construction of 6 new reactors. In total 19 nuclear reactors are in the construction phase. According to concepts for the energy sector initial US\$ 75 billion are budgeted for the nuclear expansion. In a second step China's nuclear power generation should be expanded to 120 – 160 gigawatts by 2030!

While in Germany the elimination of electricity generation from nuclear energy was decided after the events in Fukushima, China has decided the opposite and will do everything possible to produce electricity by nuclear fission. In light of the rising energy demand – due to the increasing prosperity – and a catastrophic carbon footprint China's approach seems only logical.

### India expands civil nuclear program massively

Besides China, India is the second of the so called "BRIC-Countries" which is pursuing a similar course. The second most populous country in the world plans to expand its nuclear energy capacity by 70 gigawatts. In contrast, India's current total electrical net output is only around 6.2 gigawatts.

But India has slept through the entry into the nuclear energy and is now desperately trying to search for mineable depo-

sits but has to expand its overloaded power grid at the same time. A tenfold increase of the nuclear energy capacities not only seems to be reasonable but also very necessary.

India doesn't have significant uranium deposits. A tenfold expansion of their own nuclear energy capacities would mean an increase of the total global nuclear electricity generation by 10%.

But where will the additionally needed uranium come from? Currently, only a few of the 22 Indian nuclear reactors are operating with full power. While Japan, China, Russia and South Korea could secure uranium resources worldwide, India missed out completely. Only recently has India entered into off-take agreements with companies from the USA, Canada, Namibia, Kazakhstan, Russia, Great Britain und South Korea.

Currently 6 nuclear reactors are under construction in India and 20 additional will follow until 2030.

### Russia and Brazil with increasing nuclear capacity

The two remaining BRIC-Countries, Russia and Brazil have also announced a massive expansion of their nuclear power plants. Currently Russia operates 35 nuclear reactors with around 27 gigawatts. 7 reactors are in the construction phase and 2 were connected to the power grid in 2016. Furthermore, Russia plans the construction of an additional 26 nuclear power plants which should increase the percentage of the nuclear energy in the Russian energy mix from currently 16% to 19%. In a second step Russia wants to increase this quota to 25%. By the year 2030 Russia wants to build 26 reactors.

Currently Brazil is operating only one nuclear power plant with two reactors. A third reactor is under construction and is

expected to be connected to the power grid in 2018. The construction of 4 additional reactors is expected until 2030.

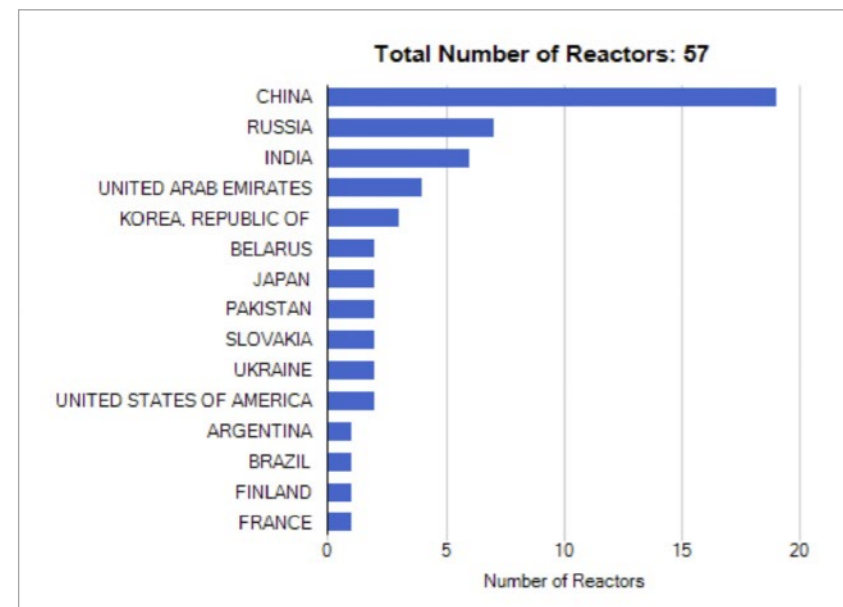
### Rising global expansion of nuclear energy

Besides the 30 nations with operating nuclear reactors, 17 additional countries are planning to install nuclear power plants. Among those countries are Egypt, the United Arab Emirates (four reactors under construction), Jordan, Turkey and Indonesia.

### The USA is close to an energy collapse

The USA has a special status. With 99 reactors, they have by far the biggest nuclear power plant fleet in the world. Nevertheless, the USA is threatened by a collapse of the energy supply. The USA is still the country with the highest electricity consumption per capita. And the hunger for energy of the Americans is increasing. In addition, the USA is facing the question how to fulfil the CO<sub>2</sub>-reductions which were agreed to in Kyoto and Paris. Because many of the coal power plants were built in the 1950s and 1960s, they are working inefficiently and uneconomically. They have to be shut down sooner rather than later. The electricity consumption is rising continuously. The USA has no choice but to increase the number of its nuclear reactors during the coming years. Of course, photovoltaic plants, wind farms, hydroelectric power plants or geothermic energy provide climate friendly energy but these energy producers can offer only a partial solution for the pressing energy problems. They are very expensive and their performance is dependent on the time of day and weather. Nuclear energy is therefore the only climate friendly energy

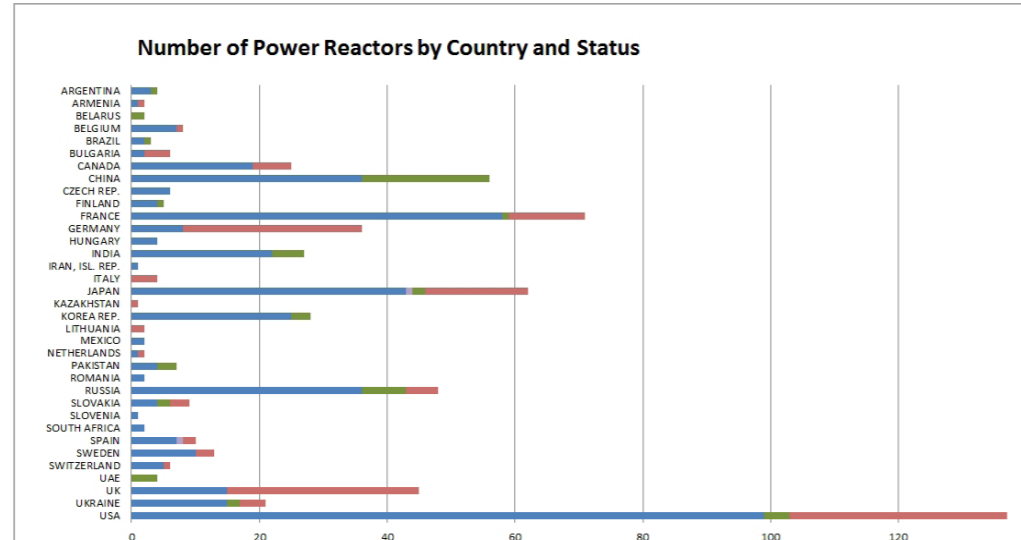
Overview of reactors currently under construction per country  
(Source: www.iaea.org/PRIS)





Overview of currently operating reactors (blue), currently shutdown reactors (grey), reactors under construction (green) and permanently shutdown reactors (red). China, India, South Korea, Russia, the United Arab Emirates and the USA are currently working increased at the expansion of their reactor fleet.

(Source: www.iaea.org/PRIS)



generating possibility. In light of the amount of additional electricity demand during the coming two to three decades regenerative energies can only be an addition to the total energy mix.

Therefore, a law for expansion and funding of the energy generation by nuclear energy was created within the “Clean Energy Act of 2009” a program to provide carbon free energy. Both U.S. governing parties worked on a US\$ 18.5 billion plan for doubling of the nuclear power capacities until 2030. At the beginning of 2010 President Obama announced that the U.S. government will provide in the 2011 federal budget additional funds of US\$ 36 billion of government guarantees for the construction of a new generation of nuclear power plants. This would be a tripling of the originally planned budget.

During the past years an application for lifetime extension of 60 years total operating time was made for over 60 U.S. nuclear reactors. In addition, there are 40 applications for the construction of new nuclear power plants that should be connected to the power grid by 2025. Until now only 4 plants are under construction and additional 16 are in a concrete planning phase.

### Long-term supply contracts expire soon

The previous cycle of contract conclusions which was dominated by the uranium price peaks of the years 2007 and 2010 was the reason that the plant operators signed contracts at higher price levels and very long durations of 8 to 10 years. On the one hand, these old contracts are ending and on the other hand the plant operators didn't look for a replacement of such deliveries. The forward contracts of the plant operators are declining and therefore the required quantities for which there are no contractual obligations are increasing and have to be contractually secured in the future. As expected the unmet demand will be just less than one billion pounds of U<sub>3</sub>O<sub>8</sub> in the coming 10 years. At the same time, over 70% of the expected reactor demands are not contractually secured until 2025. For a little traded commodity like uranium this return to more “normal” long term contracts could put tremendous pressure on the long-term prices as well as on the spot prices. The international plant operators are showing more and more buying signals which are encouraging.

### Conclusion

Fact is that currently 448 reactors are in operation and an additional 300 reactors will be added until 2030. 57 plants are already under construction and 170 additional plants are in the concrete planning phase. Even if half of the old reactors should be shut down until then 600 to 700 reactors would be in operation in 2030.

Furthermore, 90% of the long-term delivery contracts between the uranium producers and the energy generating companies are expiring by the end of 2019 which could get the established nuclear energy nations like the USA into trouble especially.

production further. All four countries produced in total just 26.835 tons uranium in 2016. In 2009, they produced 28.000 tons uranium. Australia has problems with BHP Billiton's Olympic Dam Mine, the by far most profitable uranium mine in this country. In Canada, the production start in Cameco's MacArthur River Mine had to be postponed many times due to repeated groundwater ingresses. In Niger planned mine openings also had to be postponed.

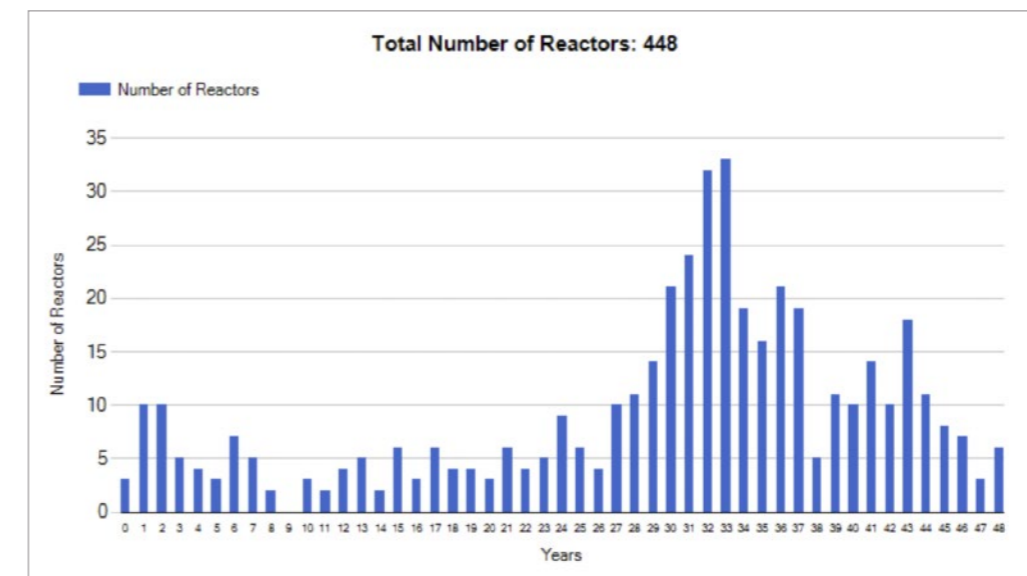
### The uranium production in the USA has hit rock bottom

The situation in the USA is even worse. Although the Obama government has approved a US\$ 54 billion program for the funding of the nuclear energy industry, it is not clear from where the necessary uranium will be derived. The uranium industry in the USA is only a shadow of the past. During the past 40 years there have been no investments in development of new deposits and almost 95% of the needed uranium was derived from the disarmament programs. The US- American nuclear reactors

### The Supply Situation

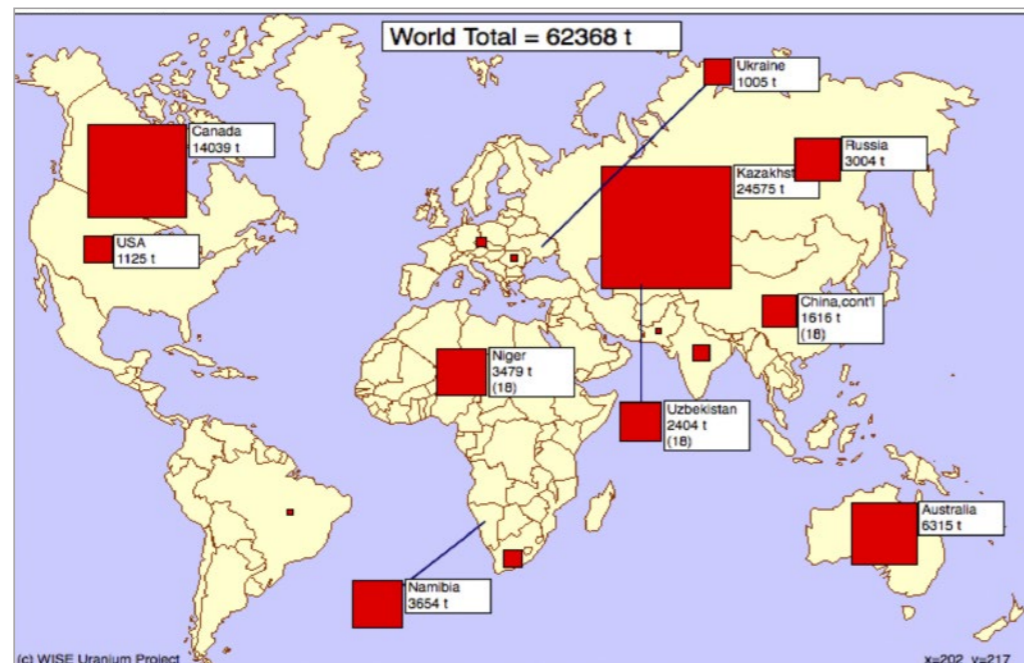
#### The established producers are running out of air

The established uranium producing nations Australia, Canada, Russia and Niger have problems to expand their



Overview, age of currently operating reactors. Many will be (have to be) replaced by more powerful ones. (Source: www.iaea.org/PRIS)

Annual uranium production 2016  
 (conversion factor tonnes uranium (tU)  
 to tonnes U<sub>3</sub>O<sub>8</sub> is 1:1.18)  
 (Source: <http://www.wise-uranium.org/>)



consume 18,000 tons uranium per year. An expansion of the capacities would also be an increase of the needed amount of uranium. The World Nuclear Association (WNA) estimates that 40,000 tons uranium per year will be needed in the USA alone by 2025. Even at the peak of the US-American uranium production during the 1960s and 1970s, such an amount could not have been produced by the mines in the USA. The US-American uranium production reached its previous peak in 1980. During that year 29,000 tons uranium were produced. After the end of the Cold War disarmed nuclear weapons became the most important source for the US-American uranium demand. This resulted in a decline of the American uranium production from 23,400 to currently 1,125 tons uranium per year. As a direct result, the majority of the infrastructure and the permitted production facilities were closed or completely dismantled. Currently there are only a few mines in Texas, Arizona and Wyoming.

### Kazakhstan – the new uranium superpower

Almost all established uranium producers are having difficulties with the rebuilding or the expansion of their uranium production but one region has climbed to the top of the uranium production: Central Asia. Kazakhstan especially could multiply its uranium production during the past 10 years. The uranium production of the previous Soviet Republic increased from 2000 to 2016 from 1,870 to over 24,500 tons. Kazakhstan surpassed the previous leader Canada in 2009 and is responsible for close to 40% of the global uranium production.

### Massive production cuts were already initiated

Kazakhstan is part of the nations which can mine uranium at the lowest costs. The country is however not willing to

give away its uranium resources to absolute low prices anymore. At the beginning of 2017 the state-owned group Kazatomprom announced that the uranium production will be cut by at least 10% in 2017. This would take around 2,500 tons uranium off the market. But Kazatomprom is not the only uranium producer which opts for production cuts in light of the ridiculous uranium price. The uranium-major Cameco also announced production cuts. These are specifically 4 million pounds of U<sub>3</sub>O<sub>8</sub> for the Rabbit Lake Mine and 2 million pounds of U<sub>3</sub>O<sub>8</sub> for the MacArthur River Mine which rank among the 10 largest uranium mines globally. From the Husab Mine in Niger 5 million pounds of U<sub>3</sub>O<sub>8</sub> per year are missing and from the Langer Heinrich Mine in Namibia 1.5 million pounds of U<sub>3</sub>O<sub>8</sub>.

### Supply gap unavoidable

In spite of the massive production expansion in Kazakhstan during the past years a large supply gap will form in the uranium sector in the foreseeable future. There is already such a gap. Until now this gap could be closed with material from nuclear waste. But the nuclear industry consumes about 10% more uranium than is currently produced. The 449 nuclear reactors worldwide are consuming around 68,000 tons uranium per year, only approximately 62,000 tons are covered by the global uranium production. The International Atomic Energy Agency (IAEA) estimates that the global uranium demand will rise to 140,000 tons uranium by 2030 due to the construction of new nuclear power plants. The percentage of primary supply has to increase because Russia has reached the end of its nuclear disarmament.

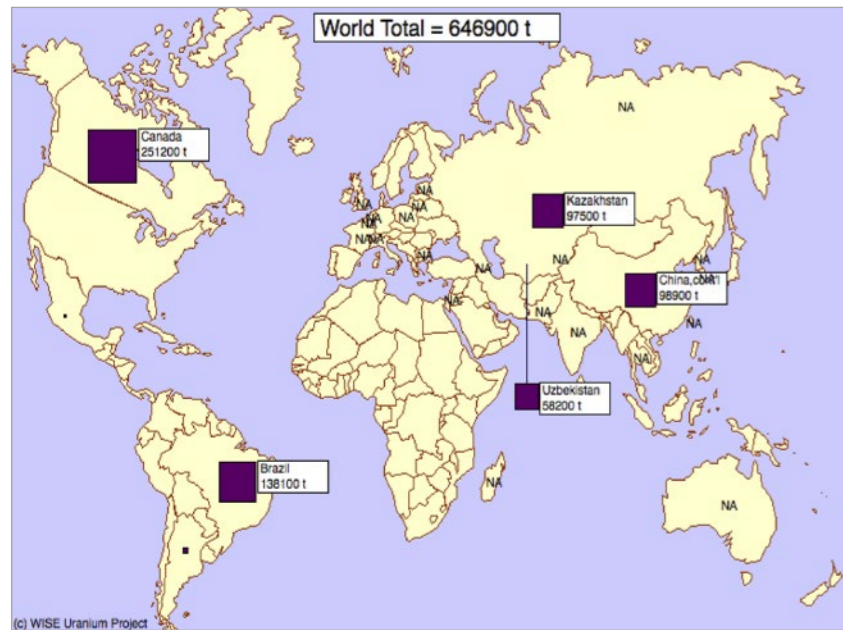
### New disarmament contracts without effect to the uranium market

The currently existing disarmament contract between the USA and Russia, New START, will not change that. It provides for a further reduction of the nuclear weapons arsenal by 30%. These 30% don't include the total weapons arsenal at the end of the Cold War but only from 2011. Since 1990 85% of all nuclear weapons have been disarmed. The remaining 15% will be reduced by 30% meaning that from the original amount only 5% will be disarmed. According to this new contract only 5% of the original amount will be disarmed during the coming 10 years, while 85% of the original amount was disarmed in the past 20 years. This material has been already consumed in form of fuel elements. The future disarmament uranium is minimal compared to the amount of the past 20 years and will have no big effect on the uranium market. The secondary supply for the uranium market will fall from currently 9% to below 5% by 2030. Therefore, the whole amount of Russia's secondary supply will remain in Russia because Russia has not offer uranium from its own disarmed nuclear weapons at the free market since 2013.

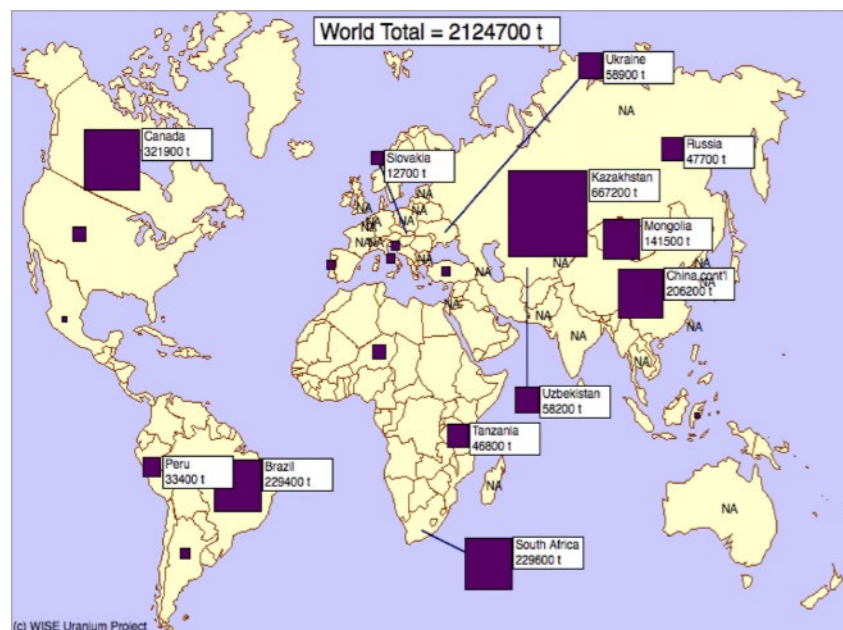
### Summary

The supply side in the uranium sector is going through a transition phase. The secondary supply from Russia's disarmed nuclear weapons becomes less and less important. While in 2006 37% of the demand was covered by disarmed nuclear weapons, currently it is only 9%. Concurrently the number of nuclear reactors will increase rapidly. This rapidly increase in demand will not be completely covered by the establis-





Uranium resources recoverable at a uranium price of under US\$ 40.  
(Source: Wise Uranium Project)



Uranium resources recoverable at a uranium price of US\$ 80.  
(Source: Wise Uranium Project)

hed uranium producers – at least not at the current uranium spot price of US\$ 20 per pound  $U_3O_8$ . From where will the needed uranium in the future come from?

An increased production can only be achieved with a higher uranium price and associated large investments in the expansion of existing and the construction of new mines. The basic problem is still the relatively low uranium spot price, which doesn't allow producers to mine difficultly accessible and more expensive deposits.

Experts estimate that there are less than 650,000 tons of economically recoverable uranium at a market price of US\$ 40 per pound uranium.

At an annual consumption of around 68,000 tons uranium, these resources would not even last for 10 years assuming a constant market price of US\$ 40 as well as a constant demand. This will rise inevitably.

If the market price for uranium would increase and would justify production costs of US\$ 80 per pound uranium the triple amount of 2.12 million tons uranium could be mined economically.

At a uranium price of US\$ 130 per pound approximately 5.7 million tons uranium could be mined economically. At the current consumption, the known reserves would last for 83 years.

## Conclusion

### **Doubling of demand is not faced by any expansion of the supply!**

The uranium spot price is as far from the US\$ 130 per pound uranium as the current demand will be from future demand. According to a conservative estimate of

the International Atomic Energy Agency (IAEA) this will double during the coming years. The aforementioned range can be cut in half in 10 to 15 years.

It shows that the still – apparently cheap way of generating electricity can only be used if the market price for the starting product uranium increases again. Supply and demand determine the market price for uranium too.

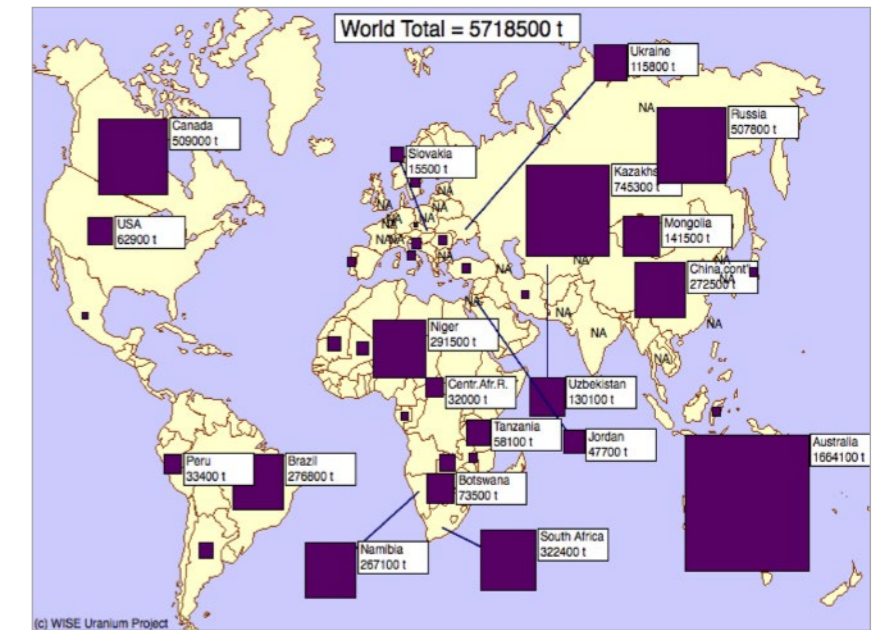
If the market price doesn't allow an economical production, it will have to increase. In the case of uranium, the demand will increase sharply due to the construction of several hundred new nuclear reactors so that the market price will benefit twofold as well as the investor who has recognized that trend in time.

### **High demand is uncovered to date**

As expected the unmet demand will be just less than one billion pounds of  $U_3O_8$  in the coming 10 years. At the same time, over 70% of the expected reactor needs are not contractually secured until 2025. For a little traded commodity like uranium this return to more "normal" long term contracts could put tremendous pressure on the long-term prices as well as on the spot prices. The international plant operators are showing buying signals more and more.

### **The best uranium stocks promise multiplication potential!**

We have taken the current situation of way to low and not reality reflecting uranium spot price plus the expected future supply deficit to present you a compact summary of promising uranium stocks. Our focus is especially on development companies with very promising projects because these offer, besides the actual appreciation due to a higher uranium spot price, in this connection also a high



Uranium resources recoverable at a uranium price of US\$ 130.  
(Source: Wise Uranium Project)

takeover chance. At the end of 2015 the merger (in fact a takeover) of Fission Uranium with (by) Denison Mines failed due to, among other things, the vote of Fission's shareholders. This example shows that the investor can act on the assumption that there will be other takeover or merger possibilities in the future. That is because the uranium sector is currently undervalued and has to be rectified first.

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



Dr. Christian Schärer is a partner in Incrementum AG and responsible for special mandates.

During the course of his study he was looking for strategic success factors of successful business models. A topic that fascinates him until today and inspires him when selecting promising investment opportunities.

Dr. Schärer studied business administration at the Universität Zürich and he received his PhD extra-occupational at the Bankeninstitut Zürich for an analytical survey of the investment strategy of Swiss pension funds in the real estate sector. Since 1991 he has gained comprehensive financial market knowledge in several roles as investment adviser, broker and portfolio manager.

Since summer 2004 Dr. Schärer's focus as an entrepreneur, adviser and portfolio manager is on several investment themes with material asset character. He brings his practice-oriented financial market knowledge as board member to companies.

**Dr. Schärer you are manager of the Uranium Resources Fund (ISIN LI0122468528) of LLB Fundservices AG in Liechtenstein. What is your strategy and what precisely represents the Fund?**

The Fund invests heavily in companies which are involved in the development and mining of uranium deposits. The Fund predominantly has shares of mining companies in its portfolio. The investment goal is to benefit maximally from the emerging supply gap at the uranium market. This supply gap is the result of a scissor movement of supply and demand at the uranium market. While supply has been stagnant for years due to falling uranium prices, the demand is continuously growing with high visibility of 3% per year. Until now the supply deficit is covered by existing inventories as well as secondary sources. But this will not be sufficient in the near future...

**Nuclear energy, especially in the German-speaking region, is controversial and the politic has initiated the exit out of nuclear energy. Nevertheless, you see an increase in demand by 3% per year?**

We have to differentiate between the situation in Germany or in Switzerland on one side and the global perspectives on the other side. Contrary to Germany, the emerging economies in Eastern Europe or Asia count on the expansion of nuclear energy. At the end of 2016, there were 448 reactors online, a historically record number! The construction of new nuclear power plants should reduce CO<sub>2</sub> emissions and air pollution as well as the dependence on imports of fossil fuels. In addition, nuclear energy provides the baseload to the power grids which are constantly under pressure due to the fast-growing de-

mand. China and India especially consistently advance the expansion of their reactor fleet. Despite the events in Fukushima and the nuclear phase-out in German-speaking regions this results in total to a capacity expansion of the nuclear energy production from 390 gig watts (2016) to 580 gig watts in 2030. The predicted demand growth of around 3% per year is to be seen against this background.

**Since the reactor accident in Fukushima the uranium price is permanently under pressure. What are the main reasons for this price collapse and how do you assess the current market situation?**

At the uranium spot market, the price dropped during the past 6 years from US\$ 75 per pound to currently US\$ 20. A movement that puts tremendous pressure on the producers. Three reasons seem to be primarily responsible: First, the sale of uranium from inventory of the Japanese nuclear power plant operators that were disconnected from the power grid after the reactor catastrophe in Fukushima. Second, the sale by uranium producers with liquidity shortages and producers with uranium as a by-product which then sell the uranium with little price sensitivity. Third, the restraint of the buyers, which are not stressed by falling prices despite low inventories.

The uranium spot price has marked a multi-year low with US\$ 18 this past November and has risen moderately since. This price increase was stimulated by the announcement of a production cut of 10% by the largest uranium producer in the world Kazatomprom. In this context, precautionary purchases resulted in significant rebounds of the share prices of uranium producers. This rally has already sold off and from a technical perspective

the securities are traded again at the breakout level of the bottom formation. With a view at the emerging supply gap an interesting entry opportunity for the long-term oriented investor is opening again. At the beginning of this year there was some short-term hustle and bustle due to the announcement that the largest uranium producer in the world, Kazatomprom, is planning to reduce production by 10%. Precautionary purchases resulted in significant short-term rebounds of the share prices of uranium producers. This rally was short lived due to the lack of follow-through buying at the physical uranium market and the shares of the uranium producer were sold again. From a technical perspective the supposed breakout from the bottom formation was a false alarm. Or positively expressed: with view at the looming supply gap the long term oriented investor is provided with another interesting entry opportunity.

**How do the uranium producers come to terms with these low uranium prices and when do you expect a rebound?**

The price decline at the uranium market is a tremendous challenge for the producers. A profitable production is unthinkable in this environment. The costs are consistently reduced accordingly. Production plans are adjusted to the low prices and unprofitable mines are closed. The existing capital is allocated with much discipline. Development and expansion projects are rescaled or cancelled accordingly. It is noteworthy that some producers have started to buy uranium at the spot market to meet the long-term commitments entered into. The current spot price is obviously below their production costs! These actions have the advantage that the yet not produced uranium stays in the ground and can be sold for higher prices at the market.

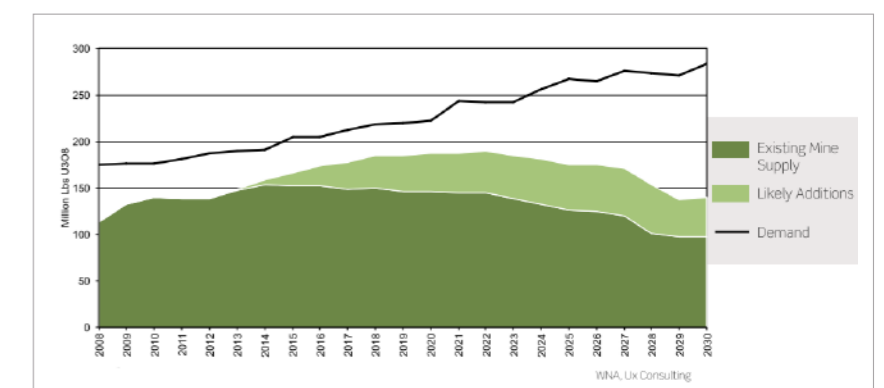
With their behavior (tightening of the supply) the producers are preparing the ground for a medium-term price turnaround at the uranium market when the stagnant supply cannot satisfy the steady demand from China and India against this background. The uranium prices will have to rise in direction US\$ 70 permanently to stimulate the necessary expansion of the production capacities...

Returning to your question: we expect that a change for the better could materialize by 2018. During that timeframe an inventory cycle comes to an end for many European and American nuclear power plant operators. They will have to come to the market to rebuild their inventories. This impulse could become the catalyst of a sustainable turnaround. Normally the market will anticipate this turnaround within a timeframe of several months...

**Is such a fund, focused on a single commodity, not too specialized and therefore too risky?**

An investment in the fund is a focused bet on the emerging supply gap at the uranium market. An attractive return potential is opening up in front of an investor with a medium-term investment horizon which could also be very risky. Therefore, the fund is suitable as complementary building block in a diversified

While supply has been stagnant for years due to falling uranium prices, the demand is continuously growing.  
(Source: WNA, UX Consulting)







portfolio but not as a basic investment. The Uranium Resources Fund has between 25 and 30 positions in the portfolio. This diversification makes sense against the background of the current state of the uranium market.

***What do you recommend to investors who are interested in an investment in the uranium sector?***

The outlined supply gap and the related potential of rising uranium prices are only foreseeable at the moment. The exact timing of the expected turnaround at the uranium market is uncertain despite the good perspectives. If, against expectations, the current phase of lethargy continues for a longer time the air will become thin very fast for some uranium producers. Their balance sheets are emaciated after the persistent price collapse and the cost reduction potentials are mostly exhausted. Even for a developer of new uranium projects the environment is challenging because their projects become economically viable and thereby feasible with increasing uranium prices. As a result, it is difficult to find investors for the funding of the next project stages. Who bets everything on one card at that constellation takes a big risk – possibly too big. The stake within a diversified investment fund seems to be reasonable. In addition, we suggest a timely scaled build-up of the positions.

***What are your selection criteria for the selection of your fund holdings?***

We initiated the fund with great confidence based on the described positive medium-term prospects three weeks before the reactor accident in Fukushima. These events have pushed back the positive starting position by 5 to 6 years. The decommissioning of the Japanese reactor fleet, which comprises 10% of all operating reactors worldwide and the related

uncertainty about the future perspectives of the civil use of nuclear energy is responsible for that. Against this background we became very humble although we still feel confident about the potential of the uranium market. Our primary goal is to remain a player when the uranium market rebounds.

Our portfolio is therefore based on three pillars. The core of the portfolio is comprised of 2 solid basic investments. First an investment in Uranium Participation (U CN), a Canadian holding company which invests in physical uranium. If we are right the supply gap at the uranium market will be closed by the increasing uranium price. Uranium Participation will be one of the first and direct profiteers. In addition, we always have a significant position in the Canadian industry leader Cameco (CCO CN). The company has a broad-based portfolio of World Class Assets, is cash flow positive and pays a dividend despite the challenging environment.

When the prices begin to climb only the producers, which can place a significant uranium production on the market will benefit. Only the one who produces can deliver. To be on the safe side we invest in companies with low production costs and that have a solid order book. It is good to know in this context that only a relatively small amount of the annual uranium production is traded at the spot market. The main portion of the uranium production is processed within long-term delivery contracts at a predetermined (forward) price. We invest in companies that have sold a significant portion of their production in the past at a predetermined price, which is considerably higher than the current spot prices. This softens the current psychological strain. An example for a company in this category is Ur-Energy (URE CN).

Third, we invest in explorers and developers that are advancing development

and mining projects on a world class level. Of special interest are those that can start their production in the timeframe of the expected supply gap. They will benefit from the attractive sales prices. In addition, these assets should have the necessary size to qualify as take-over targets. We assume that after the price turnaround at the uranium market a consolidation wave will roll through and mining companies from outside the sector would like to position themselves in the uranium business as well. This would make sense due to the low cyclical sensitivity and the relative high visibility of the uranium production.

***Currently which are your biggest individual positions and why?***

Besides the mentioned standard assets Uranium Participation and Cameco assets like Uranium Energy (UEC US), Berkeley Energia (BKY LN), NexGen Energy (NXE CN), Energy Fuels (EFR CN), Fission Uranium (FCU CN) or Denison Mines (DML CN) fit, for various reasons, in our aforementioned acquisition strategy.

***In addition, do you keep an eye on smaller uranium companies which could become interesting during the coming months?***

This is a difficult question. There are some attractive investment possibilities. If I have to name one of my favorites it would be Berkeley Energia after the recent significant price correction. The company has started the construction of the Salamanca uranium mine in Spain and will commence production in 2019, latest. At that time many nuclear reactor operators in the EU might start to renew their long-term delivery contracts. Berkeley Energia is in an excellent position because the Salamanca mine will be the only significant uranium producer in the EU-region. This makes the project at-

tractive from a strategic point of view. In addition, I like that, by global comparison, low investment volume of less than EUR 100 million is necessary to bring the mine to production. This is the result of the excellent infrastructure (water, electricity, and workforce) and the attractive geographic location. Due to the fact that the uranium deposit is near the surface low cost open pit mining is possible. Low investment volume, low production costs and an annual production volume of about 4.4 million pounds make the project from an economic perspective very attractive.

In addition, the state fund from Oman recently took a long term holding in “Berkeley Energia” with the investment of around US\$120 million within a convertible bond. Thereby the construction of the mine is financially secured. If we assume the conversion of the bond into shares of the company later Oman will be, with a holding around 37%, a strategic major shareholder. A clear commitment to the long term intact perspectives of the uranium market!

# Interview with Scott Melbye

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



Scott Melbye is a 33-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 Advisor to the CEO of Kazatomprom, the world's largest uranium producer in Kazakhstan. He also sits on the advisory board of the Colorado School of Mines, Nuclear Engineering program. Melbye received a Bachelor of Science in Business Administration with specialization in International Business from Arizona State University in 1984.

*Mr. Melbye, over the course of your career you have held positions as Executive Vice President, Marketing of Uranium One, President of Cameco Inc., Chair of the Board of Governors of the World Nuclear Fuel Market and President of the Uranium Producers of America. Currently, you are serving as Executive Vice President of Uranium Energy, Commercial V.P. of Uranium Participation Corp., and as the Advisor to the CEO of Kazatomprom. In other words: You are THE uranium expert! What led to your uranium-career?*

Thank you, that is very nice of you to say. I feel fortunate to have spent my entire career in the uranium and nuclear energy business. Our industry is quite unique in that it is a fairly small and international community of quality, smart, and devoted people who are all pulling together to supply 11 percent of global electricity supplies with highly reliable, clean-air, base-load energy. My introduction to the uranium business was at a very young age. Being a second-generation uranium miner, I grew up around the business. My father, Chuck Melbye, graduated from the Colorado School of Mines in 1950. He explored and developed uranium deposits throughout the Colorado Plateau, Wyoming and even Paraguay, with joint venture partners such as Southern California Edison, Korea Electric Power and Taiwan Power Company. I recall an early memory at the age of 12 travelling to Moab, Utah with my father to meet a bearded and dusty old prospector at the local motel coffee shop. After spreading out the exploration maps over the breakfast table, we jumped in his old pickup truck and headed out a jeep trail into the remote red-rock canyons and plateaus of that prolific uranium district. Arriving at the prospective outcropping, we took some scintillometer readings, bagged some mineral samples (kicking a scori-

on off one of them) and headed three hours back into town. Experiences like this helped me develop a real passion for the resource business. Years later, I graduated from Arizona State University in 1984, and took on my first industry role with uranium broker, Nukem Inc. in New York.

*Since mid-2015 we saw significant volatility in the uranium spot-price. It went from 40 to 18 and back to 26 US\$. So, have we already seen the bottom?*

The short answer is yes, even though we will have some starts and stops before we fully gain traction (as has been the case recently with the price back down around the US\$20 level). The industry has been in a six-year bear market that began after Fukushima in March 2011. This has been a long and challenging downturn, as it would be for any commodity. While this period has challenged the patience of uranium investors, the depth and breadth of this downturn has sowed the seeds of an even more robust and sustainable recovery. We are finally seeing years of low prices beginning to take its toll on the supply side of the market. Production cutbacks are becoming the norm, as higher priced legacy term contracts begin to fall off. Uranium prices in the low US\$20 per pound  $U_3O_8$  range are simply unsustainable over the longer term. All-in production costs of the lowest cost mines are higher than the current depressed price level. Further, the current price environment fails to incentivize the majority of undeveloped uranium projects towards construction.

*Japan is going to bring its reactors back to the grid step-by-step, but cancelled a supply-contract with Cameco in early 2017. Will Japan put too much pressure on the spot-price?*

The pace of the Japanese recovery has certainly been a disappointment. Most analysts, including me, have been wrong as to how quickly their reactor restarts would occur. The good news is that positive developments have been taking hold during 2017 (despite Cameco's high-profile contract dispute with Tokyo Electric Power, which appears to be isolated to those parties). Japan now has 26 restart applications submitted to Federal regulators, with twelve Safety Review approvals being handed down by the NRA. Another level of hurdles has been the legal challenges raised in three jurisdictions and the requirement of local governments to consent to each reactor restart. Great progress has been made on these fronts in recent months as appellate courts have overturned all three of these lower court rulings. We are expecting to see a total of nine reactors restarted by Spring 2018 (five are currently operating today). These don't sound like big numbers, but should be viewed as positive developments for both market fundamentals and sentiment in the uranium industry. Furthermore, recent Energy Policy has reaffirmed a target of having nuclear provide at least 20% of Japanese energy supplies going forward.

*In the last few months, a couple of producers reported that they are planning to cut their production, including Kazatomprom where you serve as an advisor. Will this significantly affect the uranium spot-price?*

This is absolutely a key catalyst in the uranium price recovery that has been long in coming. Global uranium production amounted to 162 million pounds in 2016. While this continued a trend of annual uranium production increases in the face of low prices, the rate of increase has finally slowed, and cutbacks are



Uranium production in Kazakhstan  
(Source: Kazatomprom)

being implemented. This supports observations that a peaking of mine production is occurring. Several high-profile production cutbacks have been announced, including Cameco's Saskatchewan and U.S. operations, Areva's Niger mines, Paladin's Namibian Langer Heinrich mine and Kazakhstan's 10% reduction in output. The 10% reduction in output from Kazakhstan is particularly significant, as Kazakhstan is the world's largest producer of uranium, accounting for about 40% of global mine supplies. Clearly, the move signaled a new disciplined and responsible market approach. Earlier this year, Kazakhstan also announced that progress to date on that goal amounted to a solid 13% production reduction based on 1st quarter 2017 results. Furthermore, a senior Kazatomprom representative also announced at an industry meeting that "further production cuts are not off the table", as they navigate through this difficult market environment. Finally, while not a production cutback, we received great news earlier in 2017 that the U.S. Department of Energy has bowed to pressure from the U.S. producers and reduced the amount of government inventories that are released to



the market by over 1 million pounds per year in 2017 and 2018. This may not sound like much, but combined with announced production cutbacks, about 16 million pounds of annual supply has now been removed from the market. It should also be recognized that an additional 17 million pounds per year will be removed by 2025 from the expected resource depletion of currently operating mines.

***Many long-term contracts will run out in the next 12 to 18 months. Utilities are beginning to return to the market. Will they get their uranium for less than 30 US\$ per pound?***

Only in the very near term and until such time renewed utility uranium procurement levels pick back up. This is the other key catalyst that has me excited right now.

The world's fleet of operating reactors, and those nearing completion, are now expected to generate a cumulative fuel requirement of 173 million pounds of  $U_3O_8$  in 2018. This fuel requirement is expected to grow to 194 million pounds by 2030. While this demand for uranium is fairly steady and predictable, the procurement decisions of utilities can vary based on contract coverage, inventories, forecasts of future prices and risk tolerance. The previous contracting cycle, brought on by uranium price spikes in 2007 and 2010, resulted in utilities rushing to contract at higher prices and for very long terms. While these old contracts are expiring, the utilities have not been moving to replace these supplies. As a result, the forward coverage of utilities has fallen appreciably, increasing the uncommitted requirements that will need future contract coverage. These unfilled needs (under recently revised conservative estimates) currently total around 742 million pounds over the next 10 years, which is higher than the 705 million pounds of uncommitted demand existing in 2011. In a thinly traded commodi-

ty, like uranium, this return to more normal long term contracting levels should put considerable upward pressure on long term and spot prices. We are beginning to see the signs of this increased buying activity by global utilities which is very encouraging.

***New reactors are being built and older ones will be shut down. What does this mean for the future demand? Do new reactors need more uranium than older ones?***

Ten reactors were added to the global grid during the 2016 calendar year, exceeding the mark set in 2015 for the highest growth rate of nuclear power capacities in the past 25 years. The World Nuclear Association reports that 447 reactors are operable in 30 countries. These reactors have a capacity of 392 gigawatts of electricity and supply about 11 percent of the world's electrical requirements. Currently, 56 nuclear reactors are under construction in 14 countries with the principal drivers of this expansion being China, Russia, India, the U.S. and the United Arab Emirates.

The new reactors are all of designs which exceed 1000 megawatts and more than compensate for the retirement of some older smaller reactors that have reached the end of their operating lives. The total demand for uranium will increase with the requirements of the larger reactors balanced against the retirement of the older smaller units with designs typically less than 1,000 MWe.

A trend to keep our eyes on, and not yet factored into the near-term supply and demand analysis, is the growing emergence of Small Modular Reactor ("SMR") designs. These are reactor designs which have a 50-100-megawatt range of output, and are similar to the small, compact U.S. naval reactors which have operated safely since the 1950's. SMR's can be mass produced in factories and shipped on site. They are scalable in nature, can

accommodate small grids like islands and remote areas, require much lower upfront capital, and have a faster pay-back period due to short construction times. The U.S. Nuclear Regulatory Commission is updating their regulations to accommodate these small-scale power producers, which has been a big barrier to entry to date. While these reactors will use less uranium than today's large units, this potential new growth area is a very welcome development.

***Just to give the readers some numbers: How much uranium does a new reactor need for the first load and how much does it need for further loads?***

Great question and something that adds to near term uranium requirements due to the 59 reactors currently under construction. A reactor under steady-state operation refuels only once every 12 – 24 months depending on their optimal fuel management and operating strategy. At these periodic refueling outages, approximately one-third of the reactor core is replaced with fresh fuel and the remaining fuel assemblies are shuffled to new locations in the core. The oldest fuel that has been in the reactor for several years is retired to spent fuel storage for ultimate disposal (or is reprocessed into new fuel).

In the case of a new reactor in its first operating cycle, the entire reactor core needs to be loaded with fresh fuel. This creates what is known as the "initial core effect". The first core fueling requires about 1.5 times the uranium required in a typical reload (the reason it is not 3 times more has to do with lower U-235 enrichment levels in the first cycle). Taken collectively across all of the new reactor start-ups, the bump in global requirements is substantial, not to mention that these requirements tend to be procured earlier than subsequent reloads.

To put this into actual numbers, a new Westinghouse AP-1000 reactor (like tho-

se being built in Georgia) require about 1.65 million pounds for an initial core, with a reload requiring around 1.1 million pounds. This can, of course, vary based on operating cycle-length and tails assay (depending on the relative prices of uranium and enrichment).

***The new leading nuclear nation will be China. How will their current construction plans effect the uranium sector?***

China continues to lead the global nuclear growth story, expanding from their currently installed 33 gigawatts of capacity from 36 reactors, to close to 100 gigawatts within the next ten years. The Chinese government has increased its emphasis on nuclear energy as a way to deliver vast amounts of electricity, without adding to the severe air pollution crisis from carbon emissions affecting their major cities. In terms of reactor requirements Chinese annual uranium consumption will rise from 20 million lbs in 2017, to over 60 million pounds by 2030.

This all has a profound impact on global uranium supplies, as China possesses relatively little in the way of quality domestic geologic uranium reserves, despite its large geography. As such, China state-owned companies have been aggressively pursuing uranium imports to the tune of about 50 million pounds of  $U_3O_8$  per year, taking advantage of the uranium downturn and accumulating an under-valued commodity that they will rapidly consume at their current growth rate. Their investments in foreign uranium deposits and production assets also have significant impacts on the global market. While their massive investment in the Husab uranium mine in Namibia will advance this mine's development earlier than economics would otherwise dictate, other investments in existing mines, like Langer Heinrich, also in Namibia, will take significant volumes of production "out of circulation" for western utilities.



There is extremely high air pollution in the Chinese cities.  
(Quelle: pixabay/ 3dman\_eu)

***Much has been said lately about the nuclear energy program of the United States, currently the world's largest fleet. So-called de-regulated electricity markets and low natural gas prices have put some plants under economic stress. What is the Trump Administration doing to address the continued viability of nuclear energy in the U.S.?***

We have actually seen a great deal of positive developments on this front in the past 11 months. The challenge is not that nuclear reactors are uncompetitive with their low US\$0.03 to \$0.05 per kilowatt hour generating cost. The market structure in these supposedly de-regulated jurisdictions are severely distorted by the high levels of subsidies granted renewables, and compounded by low natural gas prices. Unfortunately, renewables provide the lowest level of as-needed reliability, and gas prices cannot be relied upon to stay low forever (or simply through the cold winter weather months). Meanwhile, the potential loss of 24/7 reliable and carbon-free base load electricity from nuclear is put in jeopardy. Individual states, like New York and Illinois, and the Federal government through the

Department of Energy and the Federal Electricity Reliability Commission (FERC) have been taking real concrete steps to reform these market dysfunctions and preserve this critically important base load nuclear power in the name of reliability and grid stability. The performance of U.S. nuclear power plants during recent "polar vortex" winters, and hurricanes, have only reinforced the need for this policy shift by the Trump Administration. Elsewhere in the regulated markets of the Southeastern United States, we are seeing the construction of four new reactors of the Westinghouse AP-1000 design. Unfortunately, these massive construction projects have been caught up in the bankruptcy restructuring of Westinghouse given their inability to effectively manage these construction programs. As a result, both of these projects were thrown into jeopardy. The good news is that the Vogtle units 3&4 in Georgia will proceed to completion under a new construction manager, Bechtel, and will be supported by extended loan guarantees from the Trump Administration. The Summer units 2&3 in South Carolina remain in suspension, but here too, the story is turning positive with state officials and potential investors looking at

ways to complete these reactors and bring them into operation.

Finally, last week, the Palisades nuclear power plant in Michigan, that was slated to be retired in 2018, is now pursuing a plan to extend operations for four additional years. Also, continuing a long-term trend, we have seen most U.S. reactors pursue (and receive) approvals for license extensions to add 20 to 40 years of additional operating years to their safe and useful lives.

***Let's come to uranium supply. Do you see major new mines starting production in the next five to eight years? What does the pipeline look like and what price will most companies need to advance development, and bring their projects into production?***

This development should be startling to the nuclear generating companies, and probably explains the current, and very strategic appetite for Chinese investment. Beyond the large Chinese Husab mine, we see very little in terms of new mine development. From a producer's viewpoint this is not surprising, given the six-year period of challenging price conditions we have experienced. The incentive price for meaningful new uranium production (new developments or mine expansions) to come to the market is estimated by BMO, in their March 2017 uranium market outlook, to be higher than US\$60 per pound  $U_3O_8$ . This, and the prolonged licensing and permitting process required to bring on new production (as much as 10 years or more for a major conventional mine/mill complex), make for an interesting situation as the uranium market is expected to move into a near term supply deficit amidst higher contracting volumes.

***In summary: What are your feelings about the current supply-demand status in the uranium sector and could this***

***lead to another uranium-price upward trend?***

The uranium market has required a great deal of patience from investors as it has worked through the over-supply conditions that emerged out of the Fukushima events in 2011. Having said that, as we head into the end of 2017, we have a very exciting development materializing that is rarely seen, but certainly coveted, by commodity investors. With the record number of reactors operating, and coming on-line around the world, we are seeing a robust and growing global demand for uranium. While utilities have recently been heavily covered under contract from past cycles, we see a new contracting cycle emerging that will put renewed stress on available supplies in the coming years. The trend of global uranium production cutbacks, like those announced by Kazakhstan earlier this year, have been long in coming. These cutbacks will likely continue at a time when the pipeline for new supplies is at a low point, and lead-times required to reverse that trend could be rather prolonged. The price impact could be acute. This is certainly the right time to be positioned in uranium investments to capitalize on an emerging, sustained, price recovery.



# Anfield Resources

**Owns a high ISR Potential and one of only three fully permitted uranium processing plants in the USA!**



Anfield Resources is a uranium development company with the goal of becoming one of the leading uranium producers in the USA. Currently the main focus is on the recently acquired in-situ recovery (ISR) projects in Wyoming. Besides this, Anfield Resources owns one of only three fully permitted conventional processing plants in the USA. Herewith the company wants to establish a uranium production of 1.5 million pounds per year.

## Company Strategy

Anfield Resources impresses with a threefold company strategy. First, the creation of a company head-quartered in the USA with focus on US projects with significant production potential. This will be secured through organic growth as well as by new acquisitions.

Second, Anfield Resources wants to build a significant ISR production which would be a production that could be realized in the short to medium-term. At the currently low uranium spot price this

would give the company a significant leverage.

The third pillar gives the chance for a bigger conventional production which is longer term and would leverage the company value in the case of increasing uranium prices.

## ISR Projects in Wyoming

The biggest coup in the company history was the acquisition of a total of 24 ISR projects in Wyoming from Uranium One in September 2016. The acquisition comprised 2,667 federal mining claims, 56 Wyoming State leases and 15 private leases in known uranium districts like the Black Hills, Powder River Basin, Great Divide Basin, Laramie Basin, Shirley Basin and Wind River Basin. In addition, Anfield Resources acquired a database of drilling and geologic work that includes 575 drill holes totaling approximately 130,000m of drilling.

Together the 24 ISR projects contain historic resources of 36.8 million pounds  $U_3O_8$  whereby for some of these projects no resource estimation exists. Anfield

Anfield Resources Project	Measured			Indicated			Inferred			Total Measured & Indicated			
	Tons	Grade	Pounds	Tons	Grade	Pounds	Tons	Grade	Pounds	Tons	Grade	Pounds	
Velvet	1	362,600	0.27%	1,966,000	71,200	0.38%	548,000	76,000	0.34%	517,500	433,800	0.29%	2,514,000
Wood	1	-	-	-	377,000	0.28%	2,113,000	11,000	0.16%	34,500	377,000	0.28%	2,113,000
Red Rim	2	-	-	-	336,655	0.17%	1,142,449	472,988	0.16%	1,539,447	336,655	0.17%	1,142,449
South Sweetwater	3	166,000	0.07%	217,000	36,000	0.09%	66,200	95,200	0.07%	133,000	202,000	0.07%	283,200
Clarkson Hill	4	-	-	-	-	-	-	753,611	0.06%	939,888	-	-	-
Frank M	5	-	-	-	1,095,000	0.10%	2,210,000	42,000	0.05%	75,000	1,095,000	0.10%	2,210,000
Findlay Tank	6	--	--	--	--	--	--	211,000	0.23%	954,000	--	--	--
		528,600		2,183,000	1,915,855		6,079,649	1,661,799		4,193,335	2,444,455		8,262,649

*Current resource base  
(Source: Anfield Resources)*

Resources acquired an additional historic database of geologic information about the acquired claims and surrounding areas.

In March 2017 Anfield Resources engaged the renowned engineering firm BRS Inc. to prepare a series of NI 43-101 compliant technical reports for a number of the 24 ISR projects. In addition, the historic and more recent databases will be evaluated to outline the existing uranium resources as quickly as possible. It is important to know that the majority of the 24 ISR projects are located in close proximity to projects of other uranium developers with already existing uranium resources.

## First Resources confirmed

In a very short time, the cooperation with BRS resulted in a first resource estimate. Anfield Resources published a resource for the Red Rim Project in April 2017.

This project contains:

- ▶ an Indicated Resource of 336,655 tons of mineralized material with an average grade of 0.170% equivalent to 1,142,449 pounds of  $U_3O_8$ ; and
- ▶ an Inferred Resource of 472,988 tons of mineralized material with an average grade of 0.163% equivalent to 1,539,447 pounds of  $U_3O_8$ .

In August 2017 a second resource estimate followed, this time for the Clarkson Hill Project. The project contains:

- ▶ Inferred resources of 957.000 tons ore with average grades of 0.058%  $U_3O_8$  for 1.113 million pounds of  $U_3O_8$ .

A good start in a series of resource estimates which will be published during the coming months.

## Processing Capacity secured

The highlight of the aforementioned deal is the closing of the so-called Resin Processing Agreements with Uranium One. Anfield Resources has now the possibility to produce up to 500.000 pounds of Uranium per year in Uranium One's processing plant Irigaray in Wyoming. And there is more: In the case that Anfield Resources cannot meet the off-take agreements completely, the company has the possibility to buy the appropriate quantities from Uranium One. This is an unique agreement that provides Anfield Resources with lots of leeway for possible production scenarios and off-take contracts.

The cost for the whole package, including the Resin Processing Agreement, was only US\$ 6.55 million which Anfield Resources will pay over a period of five years.



*The Shootaring Canyon Mill is located 77km south of Hanksville in Utah.  
(Source: Anfield Resources)*

### Conventional Assets

Besides the pure ISR projects, Anfield Resources owns a number of conventional high-quality uranium assets.

#### Shootaring Canyon Mill

The Shootaring Canyon Mill is located 77km south of Hanksville in Utah. It is one of only three fully licensed conventional processing plants in the USA. Shootaring Canyon is a conventional acid leach plant with a permitted capacity of 750 tons per day. In the vicinity of the plant are stockpiles containing around 370,000 pounds of  $U_3O_8$ . The plant was in operation for a short time only.

#### Velvet-Wood Mine

The Velvet-Wood Mine is also in Utah. Anfield Resources bought this mine, like the Shootaring Canyon Mine, from Uranium One in 2015. The mine contains a current resource of 5.1 million pounds of  $U_3O_8$ . An initial economic assessment in 2016 confirmed a pre-tax IRR of solid 41%.

#### Other Projects/Royalties

In addition, Anfield Resources owns other conventional projects in the US states of Arizona, Colorado and Utah like Frank M (2.3 million pounds of  $U_3O_8$ ), Findlay Tank (954,000 pounds of  $U_3O_8$ ) and Henry Mountains. Furthermore, the company owns some stockpiles in Utah from which a significant short-term cash flow can be generated. All these assets are located within a radius of only 125 miles around the Shootaring Canyon Mill. In the US states Utah, Colorado and South Dakota the company owns royal-

ties in a total of four projects of listed uranium companies.

#### Annual Production of up to 1.5 million pounds of $U_3O_8$ within the next three years

Anfield Resources' initial focus is on the ISR production in Wyoming. Due to the Resin Processing Agreements, the company can produce 500,000 pounds of  $U_3O_8$  per year in Wyoming if the appropriate well fields are installed. This can be done within 18 to a maximum of 24 months and would cost initially, including a satellite facility, an estimated 11 million dollars. A second step is the refurbishment, the expansion and the re-commissioning of the conventional processing facilities in the Shootaring Canyon Mill and the Velvet-Wood Mine above all. The estimated costs are around 35 million dollars, a very small amount in light of an anticipated annual production of one million pounds of  $U_3O_8$ . The company would be able to produce 1.5 million pounds of  $U_3O_8$  per year in total whereby the company would rank in second place in terms of uranium production in the USA.

#### Short to medium-term Catalysts

During the coming months, a range of news is expected from Anfield Resources. Among other things a number of resource estimates are pending for the Wyoming projects as well as for the conventional assets in Utah, Colorado and Arizona. Furthermore, important milestones will be reached with the approval of the production in Wyoming. In addition, the company is looking for additional acquisition opportunities of ISR and conventional assets as well as inventory of the end product Yellowcake.

#### New Sales manager ought to finalize delivery contracts with energy producers

In addition, the company is working on delivery contracts with energy producers. For that purpose, Robert Scott Lumadue was hired as Vice President, Uranium Sales and Marketing and was part of Uranium One America's successful sales team. He also worked at the utility company Duke Energy Corporation for 12 years. He is familiar with both sides which should be invaluable for Anfield Resources.

#### Summary: at the right time with the right projects at the right location

Anfield Resources is, with its projects, at the right time at the right location. The uranium longing US-American nuclear power plant operators could stand in line at Anfield Resources. The reason being, that Anfield Resources is one of just a

handful companies that will be able to put together a significant uranium production within 2 to maximum of 3 years. This is possible due to a double strategy with the low cost ISR production and a processing plant that can be put in operation with little money besides several possibilities to provide this facility with sufficient material. This flexibility and the quick production possibility make Anfield Resources at the current share price the absolute top pick in the whole uranium sector.

Above all because several resource estimates will be announced in the short to medium-term which will continuously increase Anfield Resources' resource base and thereby increasing the company value.

In July 2017, the company was able to generate CA\$3.1 million through a financing, which makes the company well financed for the coming months.

## Interview with Corey Dias, CEO of Anfield Resources

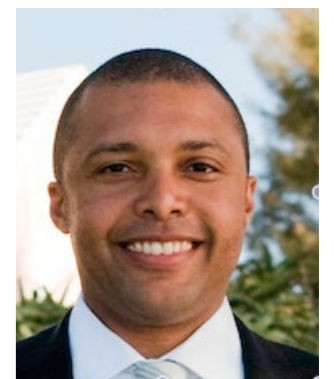
#### *What did you and your company achieve within the last 12 months?*

We acquired a portfolio of 24 ISR-amenable uranium assets in Wyoming from Uranium One. In addition to the acquisition, Anfield entered into a Resin Processing Agreement whereby Anfield secured the use of 500,000 pounds of uranium capacity at Uranium One's existing – and currently operating – processing plant in Wyoming. Finally, the Agreement also allows Anfield to both buy and borrow ura-

anium from Uranium One in order to satisfy any utility contracts Anfield may sign. Since the acquisition, Anfield has updated the uranium resource to the NI43-101 standard on two of its acquired ISR projects in Wyoming.

#### *What are the main catalysts for your company within the next 6 months?*

Anfield will look to upgrade the historical resources associated with the ISR projects it acquired from Uranium One to



Corey Dias, CEO





Shooting Canyon is a conventional acid leach plant with a permitted capacity of 750 tons per day. (Source: Anfield Resources)

NI 43-101 standard in order to increase the size of its resource base on its balance sheet. In addition, Anfield will continue to seek out acquisitions which are complementary to its current asset portfolio.

**What is your opinion about the current conditions of the uranium market?**

The current market remains a challenge; that said, we do not believe that current conditions are sustainable as supply/demand imbalance will only continue to move in producers' favor. With both reactors being built around the world and uranium production slowing, it seems inevitable that the uranium price will have to move upward in order to incentivize current and new producers to produce in order to meet demand.

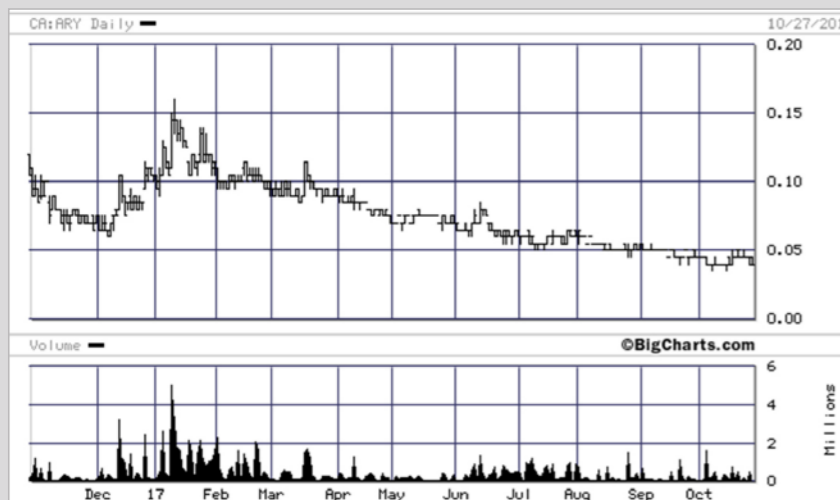
## Anfield Resources Inc.

**ISIN:** CA03463J1021  
**WKN:** A12A3A  
**FRA:** 0AD  
**TSX-V:** ARY

Shares issued: 164.0 million  
 Options: 3.1 million  
 Warrants: 103.3 million  
 Fully diluted: 270.5 million

**Contact:**  
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 phone: +1-780-920-5044

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 www.anfieldresources.com



(Source: BigCharts)

## Appia Energy

### High grade uranium and rare earth element deposits and the best uranium geologist on the planet

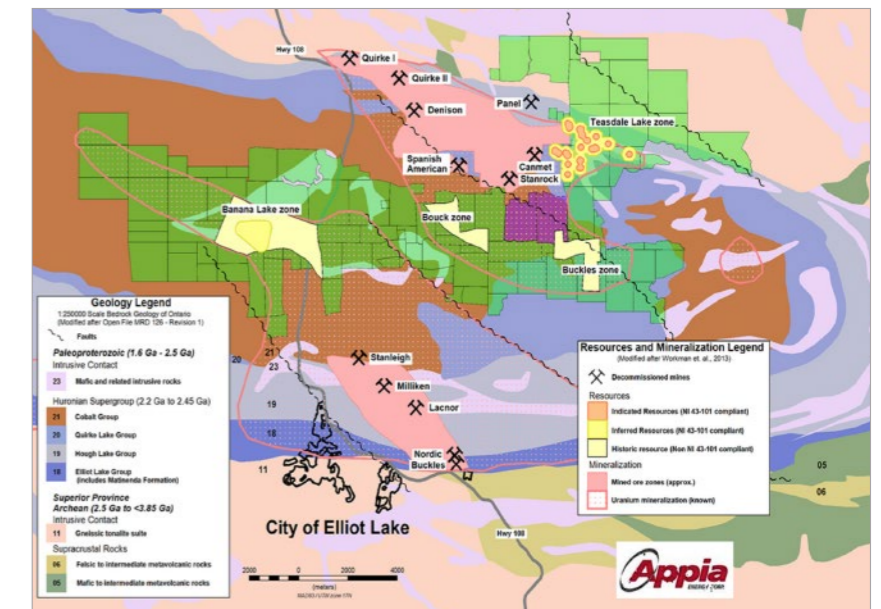
Appia Energy is a Canadian resource development company specializing in uranium and rare earth element sectors. Appia Energy has a two-fold strategy: the exploration of high-grade uranium deposits in the Athabasca Basin Region and the development of the Elliot Lake Uranium and Rare Earth Element Project in Ontario.

#### Elliot Lake

The Elliot Lake Project is located three kilometers north of the town of Elliot Lake in northern Ontario. 60km to the southwest lies the town of Blind River, where Cameco operates the world's largest uranium refinery. The short distance to the nearest town means that all the infrastructure is in place already. The project comprises 101 claims which are in the possession of Appia Energy completely. During the period from 1955 through 1996 13 underground mines within the Elliot Lake Mining Camp produced a total of 362 million pounds of U<sub>3</sub>O<sub>8</sub> at an average grade of 0.106 wt.% U<sub>3</sub>O<sub>8</sub> (weight percent).

However, Elliot Lake still contains significant resources of 8.0 million pounds of U<sub>3</sub>O<sub>8</sub> and 47.7 million pounds of TREE (total rare earth elements) in the category indicated and 47.7 million pounds of U<sub>3</sub>O<sub>8</sub> and 133.2 million pounds of TREE in the category inferred. According to historic resource estimates Elliot Lake could host more than 200 million pounds of U<sub>3</sub>O<sub>8</sub>. In the past Appia Energy and especially other companies spent over CA\$50 million for exploration campaigns in Elliot Lake. It was demonstrated that Elliot Lake has the potential for a much larger resource because the known uranium veins are open to all sides. The Elliot Lake Project hosts a number of independent deposits whereby the

Teasdale Lake Zone and the Banana Lake Zone stand out clearly. Currently these zones are the focus of additional exploration plans containing drill locations for securing good results as well as possible economic mining scenarios. The project is currently on standby and should be reactivated quickly in the case of higher uranium and rare earth element prices.

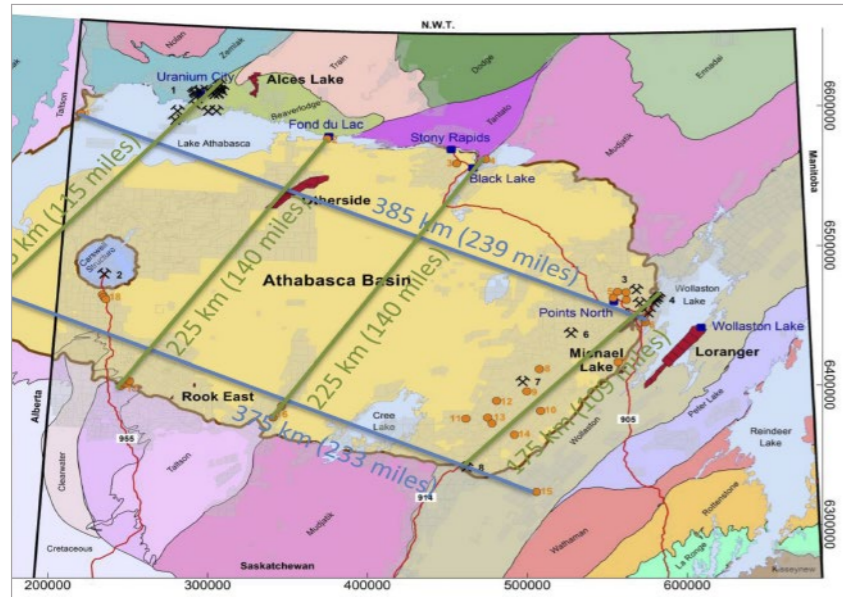


The Elliot Lake Project hosts a number of independent deposits whereby the Teasdale Lake Zone and the Banana Lake Zone stand out clearly. (Source: Appia Energy)

#### Athabasca Basin Uranium Projects

Although the Athabasca Basin is known for its rich uranium deposits (since the year 2000 alone eight deposits were discovered with more than 50 million pounds of U<sub>3</sub>O<sub>8</sub> each) the exploration in this region is still in its infancy. Appia Energy owns several high-quality license areas in the Athabasca Basin Region. Three of these projects stand out especially. All of these projects have geophysical and geological similarities with already known high-grade uranium deposits.





Athabasca Basin with projects of Appia Energy (red)  
(Source: Appia Energy)

### Loranger

Loranger is located in the southeastern part of the Athabasca Region slightly outside of the actual Athabasca Basin. The project is located 60km from the Cigar Lake Mine, 40km from the McLean Lake Mill and only 28km from the Rabbit Lake Mill. The 33,400-hectare project area is connected to a highway via a 20km long ice road and has direct access to a high-voltage power line. Besides uranium traces of rare earth elements, thorium and molybdenum are found at Loranger. Appia Energy has a 100% interest in Loranger. Several locations with high-grade near surface and not covered by sandstone uranium resources are found in the project area. Already during the 1970s radioactive outcrops and radon anomalies in water were discovered. In the course of a historic drill program significant uranium grades were identified down to a depth of 94m in 10 of the 13 drill holes. The breakthrough came in October 2016 as four separate structural corridors with a total strike length of 94km were identified by a VTEM (Versatile Time Domain Electromagnetic) survey (airborne, electromagnetic sur-

vey of the rock characteristics). To date only 2km of this area have been explored!

At the beginning of 2017 a gravity survey was conducted and numerous areas with gravity lows were identified which share numerous similarities with NexGen Energy Ltd.'s mega discovery Arrow.

In March and April 2017, a drill program was conducted where exceptionally high radioactivity was found in three drill holes. In addition, four drill holes encountered low-grade uranium traces.

In May 2017 Appia Energy released additional sensational drill results. The company encountered 72.9 m grading 0.012 wt. %  $U_3O_8$ . 150m further the drill returned 26.4m grading 0.014 wt. %  $U_3O_8$ . 600m southwest along strike 56.85 m grading 0.012 wt.%  $U_3O_8$  were intersected and 425m further the company encountered 10.3m grading 0.016 wt.%  $U_3O_8$ .

In July 2017 the company announced that instead of the two historic occurrences three radiometric occurrences with significant radioactivity were identified.

### Otherside

Otherside comprises an area of 21,800 hectares and is located in the center of the Athabasca Basin. Appia Energy has a 100% interest in the project. The company aims at the discovery of a high-grade uranium deposit because the area has geological similarities with NexGen's Arrow project. Previous exploration activities included an airborne survey as well as gravity surveys and a radon analysis. Two diamond drill holes 10 and 20km southwest of the central area encountered massive faults within the sandstone. Interesting is that the discovered veins show a similar displacement like that of NexGen's Arrow project.

### Alces Lake

Alces Lake is located northwest of the Athabasca Basin, not far from Uranium City. The project comprises 5,750 hectares and hosts, besides uranium, traces of rare earth elements, titanium and thorium. Appia Energy has a 100% interest in 8 of the 9 claims and a 90% interest in one claim. The previous exploration activities included, among other things, sampling which returned up to 36 wt% TREO (total rare earth oxide). In 2016 VTEM and radiometric as well magnetic surveys were conducted that identified numerous follow-up targets with similar characteristics like high-grade rare earth element occurrences. Trenching at Alces Lake returned the highest-grade traces of rare earth elements in Saskatchewan and are comparable with those from the world-class deposit Steenkampskraal in South Africa. In August 2017 the company commenced a field program for a closer examination of the high-grade radioactive areas discovered in 2016.

### Eastside Property

The Eastside Property is the most recent acquisition. It is a group of contiguous claims covering 4,736 hectares. Eastside is located 50 km east of the Loranger property and 85 km east of Cameco's Rabbit Lake uranium mill in the eastern part of the Athabasca Basin. Historic sampling provided samples with uranium grades of up to 7,575 ppm. In August 2017 the company commenced airborne radiometric and magnetic surveys.

### Appia Energy bets on Top Uranium Geologist

Appia Energy has a top management team where one name stands out cle-

arly: James Sykes! Exceptionally he is not the CEO but Appia Energy's Chief Geologist and Vice President Exploration & Development.

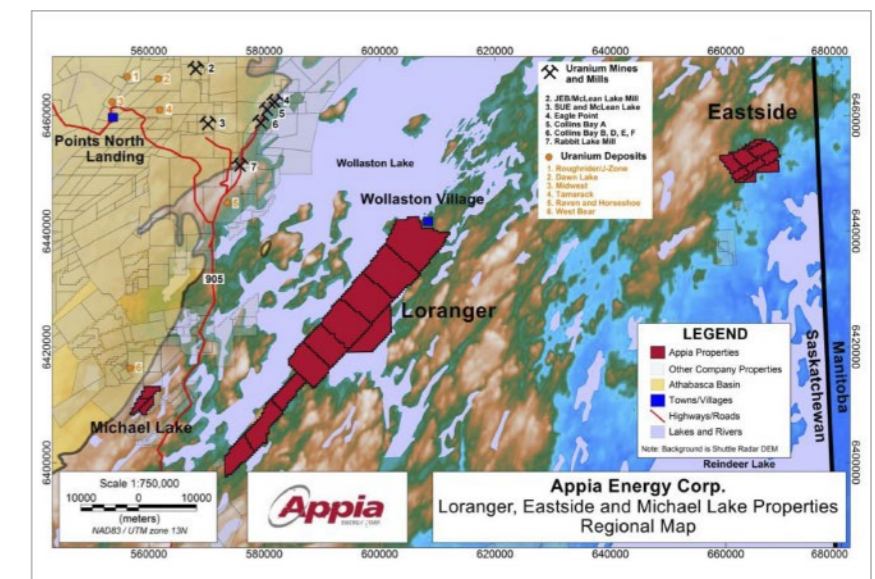
In the uranium community Sykes is considered as the one with the best nose for extreme high-grade and large uranium deposits. Sykes was part of the exploration team at Denison Mines that outlined the targets for the discovery of the mega projects Phoenix and Gryphon. At Hathor Exploration, he developed the geologic 3D model of the Roughrider West deposit which resulted in the discovery of the East and Far East deposits.

At NexGen he was jointly responsible for the discovery of the Arrow deposit and the high-grade A2 subzone. Therewith Sykes was responsible for the discovery of far more than 450 million pounds of  $U_3O_8$  during his career!

### Summary: Appia Energy has the potential for a second NexGen

As you might have noticed the name NexGen appears every now and then in the text above. Appia Energy has nothing to do with this successful urani-

(Source: Appia Energy)





um explorer except that Appia Energy's chief geologist James Sykes came from NexGen to Appia Energy. This is a big win for Appia Energy! At NexGen Sykes was jointly responsible for the discovery of the Arrow deposit and the high-grade A2 subzone and thereby for more than 300 million pounds of  $U_3O_8$ ! Sykes wants to repeat that success at Appia Energy where he finds an ideal field of activity because several Appia projects have almost identical geological features like NexGen's mega project Arrow. The company will conduct several exploration programs during the coming months to have the first of several real strikes. The ace up the sleeve is the Elliot Lake Project, where

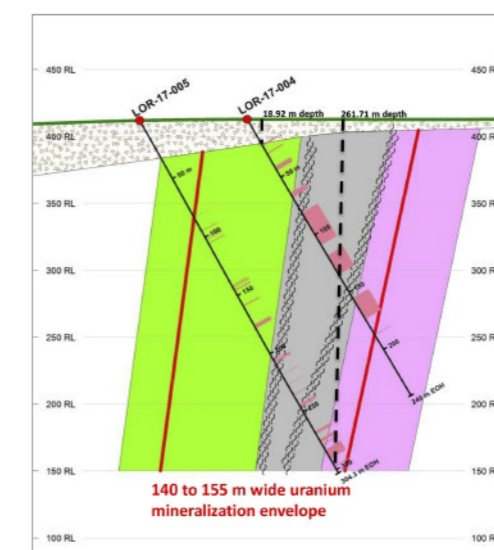
it is only a matter of time until it will recommence operation. There the company owns one of the largest uranium resources globally. Appia Energy has a big opportunity to have a big hit in the Athabasca Basin and has, in light of the large resources, a big leverage on the uranium price which must increase in the future.

In the next 6 months, Appia plans to return to the Loranger property to complete diamond drilling on highly prospective exploration targets. Appia remains well-funded to complete the planned diamond drill program.

**What is your opinion about the current conditions of the uranium market?**

The current conditions of the uranium market are not sustainable for the uranium producers, explorers and utilities. Many producers are losing money at the current uranium price and therefore they've had to curtail uranium production.

The price of uranium needs to climb higher as there are more than 300 new reactors still proposed for construction by 2030 and supply will have to almost double to 300 M lbs. uranium annually to meet demand. In the meantime, there's no new uranium mines scheduled to



Diamond drilling at Loranger was very promising (Source: Appia Energy)

come into production within the next 7 years which creates a looming shortfall in production on the horizon.



Anastasios (Tom) Drivas, CEO

## Interview with Anastasios (Tom) Drivas, CEO of Appia Energy

**What did you and your company achieve within the last 12 months?**

Appia Energy Corp. has been very active over the last 12 months. The Company has;

- ▶ raised \$1,957,405 CAD in new capital,
- ▶ completed a 715 line-km airborne VTEM/MTM Max Time-Domain EM and magnetic survey on the Loranger property,
- ▶ followed the airborne survey with ground gravity surveying,
- ▶ completed 1,461 m of diamond drilling on the Loranger property with 6 out of 7 drill intersecting uranium mineralization, and 4 of those 6 drill holes intersected wide intervals of uranium mineralization,
- ▶ completed ground radiometric prospecting and identified radioactive boulders and outcrops on the Loranger property,

- ▶ acquired the Eastside property, which is a high-grade uranium prospective area that hosts three surface outcrops along a 1.7 km geological strike with 2,538 ppm, 6,650 ppm and 7,575 ppm uranium, respectively,
- ▶ completed an airborne radiometric, magnetic and VLF-EM survey over the Eastside property; final results are still pending,
- ▶ and completed ground radiometric prospecting on the Alces Lake property; geochemical assay results are still pending.

**What are the main catalysts for your company within the next 6 months?**

In the next few weeks, the Company plans to release final results from both the Eastside airborne survey and geochemical assays from the Alces Lake prospecting program.

**ISIN:** CA03783B1022  
**WKN:** A2DLD6  
**FRA:** A0I  
**TSX-V:** API

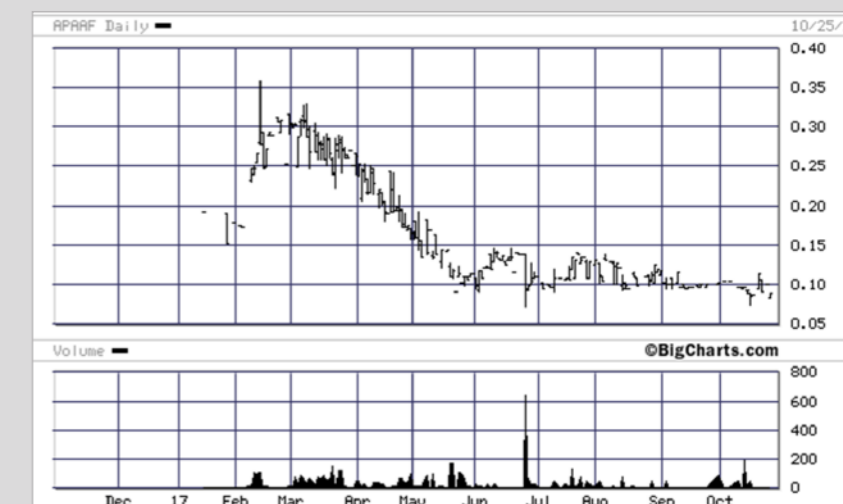
Shares issued: 52.3 million  
 Options: 3.8 million  
 Warrants: 9.1 million  
 Fully diluted: 65.3 million

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## Appia Energy Corp.



(Source: BigCharts)

# Blue Sky Uranium

## Early stage chance with prospect of low cost open pit mining!



The majority of standard uranium mines produce the uranium ore by underground mining techniques raising the construction and mining costs. The Canadian development company Blue Sky Uranium owns several huge uranium licenses in Argentina which, after initial inspection of the drill results, can probably be mined by open pit methods. This is an enormous cost advantage which promises not only faster mining but also high margins.

### Amarillo Grande Uranium-Vanadium Project: Location, Resources and Mining Possibilities

Blue Sky Uranium's flagship project is Amarillo Grande which consists of three subprojects: Anit, Ivana and Santa Barbara. In 2010 Blue Sky Uranium received



Blue Sky Uranium's projects in Argentina  
(Source: Blue Sky Uranium)

the exclusive right to complete airborne geophysical surveys over an area of 2.265 million hectares. After a detailed study the company decided to acquire the mining rights for Anit, Ivana and Santa Barbara because several significant anomalies were discovered on these projects. The three license areas cover an area of 269.000 hectares in total and are located in the province of Rio Negro, Argentina. Anit, Ivana and Santa Barbara are situated within a 140km long trend which hosts several known uranium deposits. Besides the near surface uranium mineralization, Amarillo Grande also hosts significant vanadium resources. This is interesting because the price of vanadium has more than doubled since the fall of 2016 and vanadium as by-product could significantly contribute to a low-cost production. The uranium and vanadium ore occur in depths of 0 to 25m whereby the deposits can extend over several kilometers. The overburden is comprised of only slightly compacted sand which results in favorable mining and extremely low drill costs. Mining will be carried out by a so-called scraper which strips the rock layers and a conveyor loads the stripped material directly on a following truck. No drilling and blasting is necessary, which drastically reduces the mining costs. In addition, the company does not need the majority of excavators usually needed. The ore material could be processed in a central processing plant located between the three subprojects by means of the low-cost leaching process. All these benefits make it possible to mine low grade deposits. An example for such a mine is Langer Heinrich in Namibia where the corresponding resources are mined for less than US\$18 per pound of uranium. It should be noted that Blue Sky Uranium has the advantage of the additional vanadium resources.

### Amarillo Grande Uranium-Vanadium Project: Ivana

Ivana is the largest and southernmost subproject. It covers 118,000 hectares and hosts a 25km long anomaly. Within a 4,500m x 1,500m corridor a high-grade mineralization was discovered by sampling and drilling corresponding to previous radiometric surveys. Initial sampling provided results of up to 1.81%  $U_3O_8$  over 0.75 m. This sample was collected only 2m below the surface.

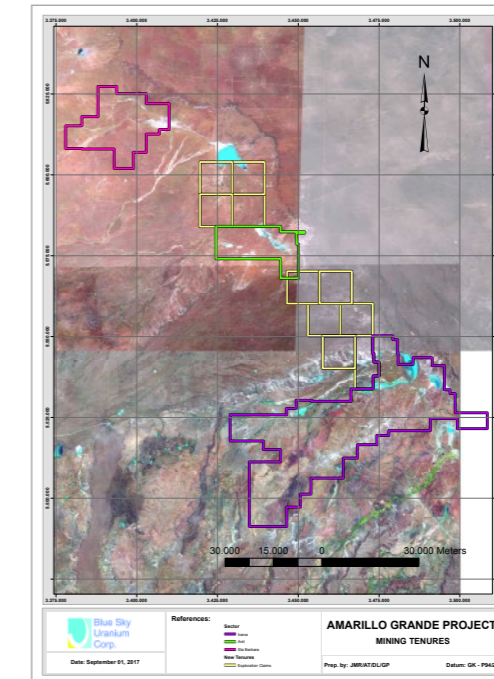
Follow-up drilling provided among other things -

- ▶ 3,136ppm  $U_3O_8$  over 1m,
- ▶ 2,182ppm  $U_3O_8$  and 1,285ppm  $V_2O_5$  over 2m,
- ▶ 2,087ppm  $U_3O_8$  and 1,892ppm  $V_2O_5$  over 1m,
- ▶ 1,861ppm  $U_3O_8$  over 3m,
- ▶ 1,473ppm  $U_3O_8$  and 721ppm  $V_2O_5$  over 1m and
- ▶ 1,410ppm  $U_3O_8$  over 1m.
- ▶ within significant Uranium and vanadium mineralization of up to 20m in thickness. All these drill results are from maximum depths of 23m!

In September 2017 released drill results could extend the strong mineralized corridor by 2km to the northeast and suggest that the corridor continues to the north and south.

### Amarillo Grande Uranium-Vanadium Project: Anit

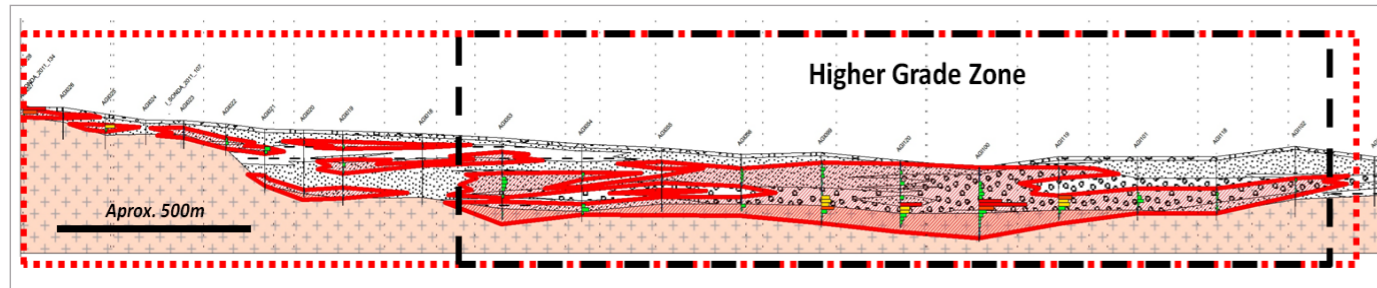
The second subproject, Anit, covers around 24,000 hectares and lies between Ivana and Santa Barbara. Anit is located on a 15km long trend showing near surface uranium mineralization. Special at-



Location of the Amarillo Grande licences.  
(Source: Blue Sky Uranium)

tention is on a 1,000m x 200m corridor within a paleo channel. Historic exploration activities identified for 81 drill holes an average grade of 0.03%  $U_3O_8$  and 0.075%  $V_2O_5$  over 2.6m. In the western and central zones 103 pits were discovered which had uranium grades of more than 50ppm whereby on average 1.97m with 0.04%  $U_3O_8$  and 0.11%  $V_2O_5$  were detected. A drill campaign, which started in May 2017, identified uranium grades of up to 1,114ppm  $U_3O_8$  and up to 3,411ppm  $V_2O_5$ . The very high-grade vanadium resource especially attracted the attention of the management so that additional work and drilling is planned in this area. Blue Sky's management believes that this corridor could be 5km or more long. Test works also showed that the majority of the present uranium and vanadium resources could be significantly improved by wet screening because coarse gravel in particular contains hardly any uranium. This could reduce transport and processing costs and achieve production at several satellite projects concurrently.





(Source: Blue Sky Uranium)

### Amarillo Grande Uranium-Vanadium Project: Santa Barbara

The third subproject Santa Barbara lies northwest of Anit and is still at a very early stage. Blue Sky Uranium could already identify several anomalies on the project and wants to make a new discovery soon.

### Amarillo Grande Uranium-Vanadium Project: current activities

Currently the company is increasingly focusing its activities on Anit and especially on Ivana. Ivana especially is at the focus because the company tries to extend the discovered high-grade areas and provide a resource estimate as quickly as possible. To this end the company works with an electrical tomography program covering 11km and a drill program comprised of 3,000m. Metallurgical test runs are conducted concurrently to establish an optimal leaching process and to receive the highest possible recovery rates.

### Exploration projects in Chubut Province

Blue Sky Uranium has additional exploration projects in the Chubut Province south of Rio Negro. The Sierra Colorada project covers around 39,900 hectares. The project is located 96km from Cerro Solo project (not Blue Sky Uranium) in a similar geolo-

gic environment. The National Commission of Atomic Energy could already confirm a significant resource at Cerro Solo. Sampling at Sierra Colorado could prove up to 0.65%  $U_3O_8$  and 1.55%  $V_2O_5$  as well as traces of molybdenum.

Blue Sky Uranium's second project Tieras Coloradas is situated northeast of Sierra Colorado and to date was explored only sporadically for existing deposits although the company detected near surface mineralization by radiometric surveys.

The Cerro Parva project covers around 67,800 hectares and is located only 40km east of Cerro Solo.

The Chubut projects are intended for a future pipeline expansion and therefore are not currently in the development focus of the company.

### Grosso Group: the game changer

Blue Sky Uranium belongs to the Grosso Group. The Grosso Group is a resource management company that is in operation since 1993. The company is specialized on South America and especially on Argentina. During this time, they made three multi million ounces precious metals finds in Argentina. In addition, partnerships could be entered with resource giants like Barrick, Areva, Rio Tinto, Teck and Yamana. Company chief Joe Grosso was awarded Argentina's Mining Man of the Year in 2005. The Grosso Group has a vast network of industry and political contacts in Argentina.

### Summary: three projects, two elements, prospect of low cost mining!

Blue Sky Uranium is a real early stage chance at an imminent uranium boom market. Although the company has already made significant exploration and development progress on its three advanced projects within Amarillo Grande, an initial resource estimate which is planned for the fourth quarter of 2017 may bring clarity on the dimension of the resources at Ivana. Two things seem objectively speaking crystal clear: First, the rocks at Ivana and also at Anit contain, besides uranium, significant vanadium resources also and second, the existing resources can be mined most likely by

open pit mining methods. Together this promises, due to several existing high-grade sections, a very good chance for an early production and especially for a low-cost production which needs only a fraction of the capital costs that similar conventional mines require. An own production should be within the realms of possibility with the very well networked Grosso Group in Argentina.

## Interview with Nikolaos Cacos, CEO of Blue Sky Uranium

### What did the company achieve within in the last 12 months?

Blue Sky Uranium has completed Phase I drilling at all three target areas on its Amarillo Grande uranium-vanadium project in Rio Negro Province, Argentina, and has also completed a follow-up reverse circulation (RC) drilling and electrical tomography (ET) geophysical program at Ivana to further define an area with elevated uranium-vanadium on the eastern flank of the previously-drilled area.

Drilling and geophysical surveying are expected to resume at the Ivana. Additionally, the Company is advancing with a beneficiation and metallurgical test work program on uranium-vanadium mineralized material from Ivana.

A total of 3729 meters of RC drilling in 256 holes and 22.5-line kilometers of ET geophysical surveying have been com-

pleted to date throughout the project area. Phase I (1390 meters in 98 holes) RC drilling results from Ivana were previously reported by the Company on June 19, 2017. The follow-up exploration program at Ivana comprised 858 meters of RC drilling and 6.5-line kilometers of ET surveying.

### What are the main catalysts for your company within the next 6 months?

Blue Sky Uranium's goal is to complete the 43-101 until year end.

This new uranium district was first identified, staked and underwent preliminary exploration by Blue Sky from 2007 to 2012 as part of the Grosso Group's strategy of adding alternative energy focus to its successful portfolio of metals exploration companies. The close proximity of several major targets suggests that



Nikolaos Cacos, CEO

if resources are delineated a central processing facility would be envisioned. The area is flat-lying, semi-arid and accessible year-round, with nearby rail, power and port access.

The near-surface mineralization, ability to locally upgrade, amenability to leaching and central processing possibility suggest a potentially low-cost development scenario for a future deposit.

As the Vanadium market starts to heat up we are very excited about the prospects of this by-product of production on Blue Sky Uranium's properties.

#### What is your opinion about the current conditions of the uranium market?

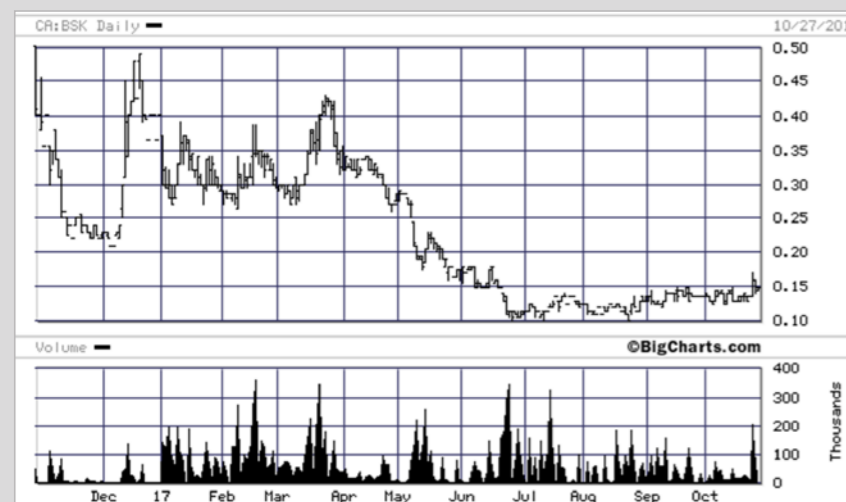
Concerns over climate change have renewed interest in nuclear energy as it is a carbon-free source of electricity with no CO<sub>2</sub> emissions. Other factors that are in addition, improved reactor performance, extended fuel cycles, increased generating capacity and reduced operating

costs are also contributing to a revival in nuclear power.

Looking ten years ahead, the market is expected to grow significantly. The WNA 2015 Nuclear Fuel Report reference scenario (post Fukushima accident) shows a 26% increase in uranium demand over 2015-25 (for a 30% increase in reactor capacity – many new cores will be required). Demand thereafter will depend on new plants being built and the rate at which older plant is retired – the reference scenario has a 22% increase in uranium demand for the decade 2020 to 2030.

We believe the uranium bull is just around the corner.

## Blue Sky Uranium Corp.



(Source: BigCharts)

**ISIN:** CA0960495079  
**WKN:** A12GAR  
**FRA:** MAL2  
**TSX-V:** BSK

Shares issued: 71.7 million  
 Options: 0.4 million  
 Warrants: 4.3 million  
 Fully diluted: 76.4 million

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 www.blueskyuranium.com

## Denison Mines

### The uranium developer is in pole position in the Athabasca Basin!

Denison Mines Corp. ("Denison") has a long history of uranium mining in Canada – dating back to its operations in Elliot Lake, which ceased in the 1990s after decades of mining. Having expanded its interests during the last uranium bull market to include projects in the USA, Africa and Mongolia, the company has recently divested its non-core assets and has become laser focused on Canada and the Athabasca Basin region in particular. The company currently has interests in, among other things, the Wheeler River project, which is the largest undeveloped uranium project in the eastern Athabasca Basin, and the McClean Lake mill, which is a fully licensed uranium processing plant with excess licensed capacity. In addition, Denison is the manager of Uranium Participation Corp., a type of physical uranium investment fund that is traded on the TSX.

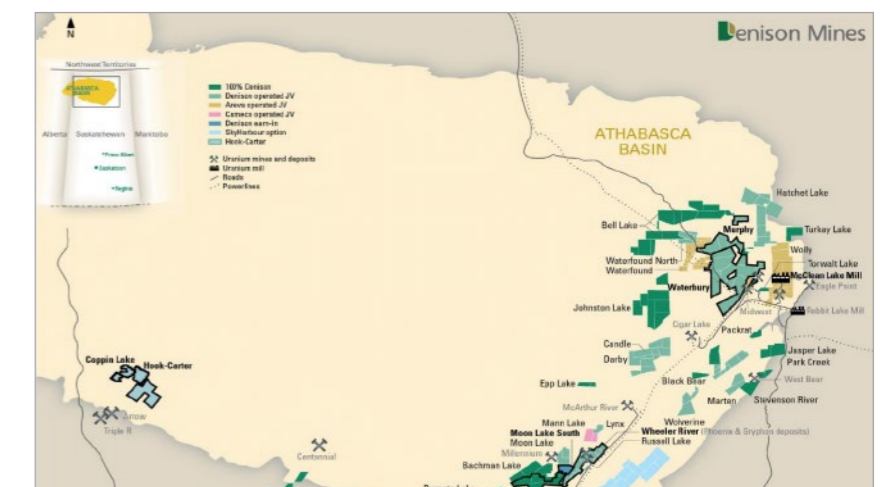
#### Wheeler River – Location, Infrastructure, Ownership structure

Denison's flagship project is Wheeler River which is located in the southeast of the Athabasca Basin between the MacArthur River Mine and Cameco's Key Lake Mill. As a result, Wheeler River is well situated amongst critical infrastructure – including roads and the provincial power grid. Denison holds a 60% interest in Wheeler River, while 30% belongs to Cameco and 10% to JCU (Canada) Exploration Limited. At the beginning of 2017 Denison announced a binding agreement with Cameco where Denison will increase its interest to ~66% by the end of 2018. Cameco's interest will be reduced to ~24%. In exchange Denison has to pay for 50% of Cameco's share of expenses at Wheeler River in 2017 and 2018.

#### Wheeler River – Resources

A glance at Wheeler River's current resource basis shows what a difference a

further 6% will make. The resources were last estimated in 2015 and amounted to 114.3 million pounds of U<sub>3</sub>O<sub>8</sub>. Denison current 60% interest equates to 68.6 million pounds U<sub>3</sub>O<sub>8</sub>, with an additional 6% bringing Denison's share up to over 75 million pounds U<sub>3</sub>O<sub>8</sub>. With continued exploration success through 2016 and 2017, the total resources at Wheeler River are sure to increase.



#### Wheeler River – Deposits

Wheeler River is host to two separate deposits, the Phoenix deposit and the Gryphon deposit. The two deposits are situated in the northern part of the property and are only separated by approximately 3 kilometers.

#### Wheeler River – Phoenix

The larger deposit of the two is Phoenix, which is estimated to contain inferred resources of 1.1 million pounds U<sub>3</sub>O<sub>8</sub> at 5.8% U<sub>3</sub>O<sub>8</sub>, plus indicated resources of 70.2 million pounds U<sub>3</sub>O<sub>8</sub> at an average grade of 19.1% U<sub>3</sub>O<sub>8</sub> – which makes Phoenix the highest grade undeveloped uranium deposit in the world. By comparison, some ISR projects have grades between 0.01% and 0.02% U<sub>3</sub>O<sub>8</sub>! In the company's Preliminary Economic As-

*Denison Mines holds a number of high-class uranium licenses (green) mainly in the eastern part of the Athabasca Basin (Source: Denison Mines)*



assessment (“PEA”) for the Wheeler River project, this deposit is estimated to provide 7 million pounds of  $U_3O_8$  per year over 9 years. The deposit is expected to be mined by a Jet Bore Mining method similar to Cigar Lake.

### Wheeler River – Gryphon

Gryphon was discovered in 2014, when drill hole WR-556 returned uranium grades of 15% over several meters. Gryphon is hosted in basement rocks and can be mined by conventional and low-cost underground mining methods. Gryphon is estimated to contain 43.0 million pounds  $U_3O_8$  at an average grade of 2.3%  $U_3O_8$ , and according to Denison’s PEA could provide 6 million pounds of  $U_3O_8$  per year over 7 years as the first stage of a co-development plan that will provide a 16-year mine life together with Phoenix. The resources were last estimated for Gryphon in 2015 and included the results from the A, B and C series of mineralized lenses. Since then, Denison has discovered the D and E series of lenses. In May 2017, Denison announced the best result to date for the D Lenses with drill hole WR-633D3, returning 3.3%

$U_3O_8$  over 13.5m, plus 6.2%  $U_3O_8$  over 2.5m and 1.3%  $U_3O_8$  over 3.0m.

### Wheeler River – Economic Assessment

Denison released a PEA for Wheeler River in April 2016, using the then current long-term contract price for uranium (US\$44/lb  $U_3O_8$ ) in its base case. The results were very encouraging for such a moderate price assumption, returning a pre-tax IRR of 20.4% and a pre-tax Net Present Value („NPV“) of CAD\$513 million. At a uranium price of US\$62.60 per pound  $U_3O_8$ , the pre-tax NPV would reach CAD\$1.42 billion and the pre-tax IRR would climb to 34.1%. The initial capital costs modelled for the project were also very encouraging – amounting to only CA\$560 million (100%), as the plan assumes use of excess capacity at the company’s 22.5% owned McClean Lake mill, rather than building a new uranium mill.

The estimated operating cash costs are also worth highlighting. According to the PEA, operating costs are estimated to be US\$22.15 per pound of  $U_3O_8$  at Phoenix and only US\$14.28 per pound  $U_3O_8$  at Gryphon. Sensational numbers considering that these numbers are based only on the drill results received by the end of 2015. With the discovery of the D and E series of lenses at Gryphon, since that time, it is fair to expect that the results from the ongoing preliminary feasibility study (PFS) could be even better.

### McClean Lake – the own plant as future processing facility for ore from Wheeler River

The McClean processing plant is an ace by all estimates. Denison already holds a 22.5% interest in that plant through a Joint Venture with AREVA (70%). The plant is fully licensed and is presently processing ore from the Cigar Lake mine under a toll milling agreement. McClean

has a licensed processing capacity of 24 million pounds of  $U_3O_8$  per year, with 18 million pounds  $U_3O_8$  per year available for Cigar Lake. The remaining 6 million pounds of processing capacity is available, at present, for Denison to potentially use for Wheeler River. Although McClean is 120km from Wheeler River, the high grades at Wheeler make for a low tonnage operation well suited for transport to an existing mill – providing an unbeatable alternative to building and licensing a costly new plant.

### Wheeler River – current plans and schedule

In 2017 Denison is planning two things: First, the advancement of the PFS that should be published during the first half of 2018 at the latest. In order to deliver the PFS in 2018, the company will conduct geotechnical, hydrogeological and environmental field programs in 2017. In addition, the company will complete studies for shaft construction, different mining methods for Phoenix, and evaluations for water treatment. Beyond working towards the PFS, Denison is planning an aggressive exploration drill program, originally totaling 46,000m – to confirm and expand the mineralization at Gryphon. After a highly successful winter exploration season and a tremendous start to the summer 2017 exploration program, the company expanded its 2017 drilling plans at Gryphon by adding approximately 6,500 meters in 16 additional drill holes, which will be completed before the resource estimate is updated towards the end of 2017.

Following the PFS, investors can expect Denison to look at permitting the project, and completing a bankable feasibility study ahead of mine construction in the early 2020s. Given the permitting required in Saskatchewan, a realistic time for mining to start is estimated in 2025/2026.

### Wheeler River – Exploration and development potential

Although Wheeler River is already the largest undeveloped uranium project in the infrastructure rich eastern portion of the Athabasca Basin, mineralization at Gryphon remains open on multiple fronts and continues to expand.

### Other Projects

Including Wheeler River, Denison owns interests in over 350,000 hectares of ground in the Athabasca Basin region – which is highlighted by numerous highly prospective exploration pipeline projects.

### Waterbury and Midwest

The Waterbury Project (Denison: ~64%) was acquired from Fission Energy in 2013, and is host to the J-Zone uranium deposit (estimated to include an indicated resource of 12.8 million pounds  $U_3O_8$  at an average grade of 2.0%  $U_3O_8$ ). Denison recently made a new discovery on the property – located approximately 1 kilometer north of J-Zone at an area that is now called the “Huskie” zone. In an initial 9-hole drill program, mineralization has been discovered in the basement rocks over 100 meters of strike length and is highlighted by various high-grade drill intersections – including drill hole WAT17-446A, which returned 3.7%  $eU_3O_8$  over 3.9 meters.

Adjacent to Waterbury is the Roughrider deposit, acquired by Rio Tinto in 2011 for over CAD\$500 million, and the Midwest project (25.17% owned by Denison). Midwest is estimated to contain over 50 million pounds  $U_3O_8$  in the Midwest and Midwest A deposits. Both Waterbury and Midwest are located only a few kilometers from McClean Lake. Denison has a 25.17% interest in Midwest.

McClean processing plant  
(Source: Denison Mines)



### Hook-Carter

In October 2016, Denison acquired an 80% interest in the Hook-Carter Project located on the same trend as Fission Uranium's Triple R deposit and NexGen's Arrow deposit. Hook-Carter covers 19,573 hectares and has seen little to no exploration to date. The company also acquired the Coppin Lake project to consolidate Hook-Carter into a single land package. In 2017 Denison carried out extensive geophysical surveying and now plans to carry out a maiden drill program in 2018.

### Holdings in other top uranium companies

Due to the disposal of various non-core assets, Denison has become a large shareholder in other top uranium companies in past years. Denison owns approximately 20% of the shares of GoviEx Uranium, and more than 10% of the shares of Skyharbour Resources.

**Summary: Soon to be uranium producer with almost unlimited development potential!**

Denison is well prepared for increasing uranium prices. Wheeler River is the largest undeveloped uranium project in the eastern Athabasca Basin – and located in Cameco Corporation's backyard. Wheeler has the benefit of existing infrastructure nearby, high-grade uranium, and large scale. Taken together, a mining start seems to be realistic within seven years. The ownership of the McClean Lake processing plant is also a very important part of Denison's story, as it is already built and licensed, so capital costs for Wheeler River are comparative low. Beyond Wheeler, Denison has over 350,000 hectares of license areas in the Athabasca Basin, and is currently exploring the very exciting Huskie discovery at Waterbury Lake. With such high-quality exploration ground, Denison almost has unlimited news and development potential, as it looks to return to the ranks of uranium producers.

Another important advantage: Denison is backed by the Lundin family, one of the best known and most successful mining dynasties, with Lukas Lundin holding the position of Executive Chairman at Denison.

building up our resource base and improving project economics with virtually every drill hole at Wheeler, and we are delineating a new potentially significant discovery at Waterbury with the Huskie zone.

### What are the main catalysts for your company within the next 6 months?

With advancing Wheeler River towards development as our top priority, we are planning to update our estimate of resources at the property in late 2017 – this will include the results of drilling over the last 24 months, which has focused on delineating and expanding the Gryphon deposit. This will likely include our maiden estimates for the new D and E series of lenses. With an updated resource estimate, we expect to complete a Pre-Feasibility Study ("PFS") for the project in 2018, which will likely consider lower cost mining methods for the Phoenix deposit. We will also follow up the very exciting Huskie discovery at Waterbury.

### What is your opinion about the current conditions of the uranium market?

The uranium market is oversupplied at present, and spot prices reflect the fact that buying is occurring on a discretionary basis. Without sustained utility buying, we should expect the spot market to remain soft. I'm not overly concerned about the current market – as prices are irrationally low and would struggle to incentivize even the lowest cost projects in operation today if it weren't for higher priced contracts. For nuclear utilities to have sustainable supplies of uranium for their long-lived nuclear reactors, prices will have to rise significantly to incentivize new production. Denison is positioning Wheeler River as a low-cost, large-scale, long-lived asset that will fit the bill for utilities when they do return to the market. Quite honestly, the sustained low uranium price is an opportunity for investors to accumulate considerable positions in uranium mining companies at low prices before the market returns to rational prices in future years.



David D. Cates, CEO

## Interview with David D. Cates, CEO of Denison Mines

### What did you and your company achieve within the last 12 months?

We've succeeded on virtually all fronts over the last 12 months. We raised CAD\$63.5M in Q1'2017 at a cost of only 3% dilution, we've expanded the Gryphon deposit (Wheeler River) significantly with the discovery and delineation of the D and E series of lenses (neither

are included in our previous resource estimate for the deposit) and we discovered a new zone of basement hosted high-grade uranium mineralization ("Huskie" Zone) on the Waterbury Lake property. We have a fantastic exploration team in Saskatchewan, and this year they have delivered with countless high-grade intercepts from our winter and summer drilling programs. We are

**ISIN:** CA2483561072  
**WKN:** AOLFYS  
**FRA:** IUQ  
**TSX:** DML  
**NYSE:** DNN

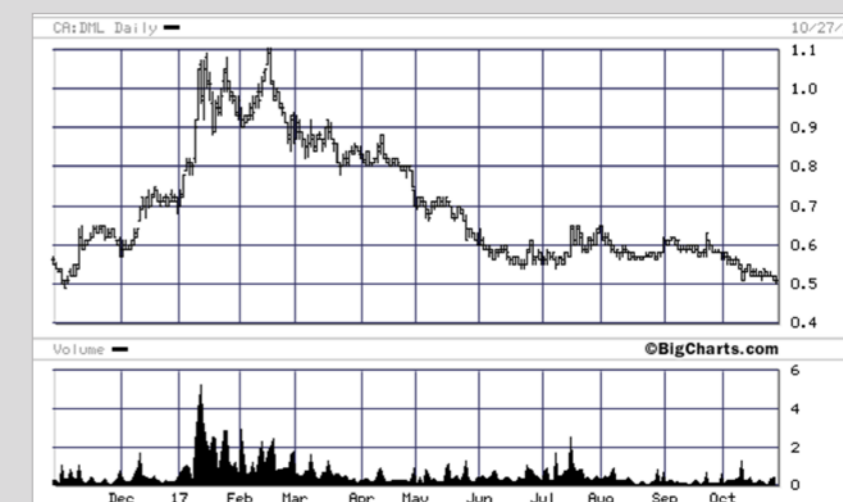
Shares issued: 559.1 million  
 Options: 12.5 million  
 Warrants: 1.6 million  
 Fully diluted: 573.2 million

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## Denison Mines Corp.



(Source: BigCharts)



# Energy Fuels

## Mega production capacities for the next uranium rebound



Energy Fuels is currently the second largest uranium producer in the USA after Cameco. Although the company produced one million pounds of  $U_3O_8$  and delivered 1.15 million pounds of  $U_3O_8$  to the appropriate energy suppliers, Energy Fuels has a tenfold licensed production capacity. This means that Energy Fuel could produce and sell up to 11.5 million pounds of  $U_3O_8$  in the case of increasing uranium prices. This provides the company with a tremendous leverage on the uranium spot price!

### Nichols Ranch ISR Project

One of the two producing uranium projects is Nichols Ranch and is located in the U.S. state Wyoming. Nichols Ranch is a so called in-situ recovery (ISR) project and was acquired in the merger with Uranerz Energy. ISR mining is a relatively low-cost production method which is why Energy Fuels can operate this project at very low uranium prices. At Nichols Ranch 9 well fields produce the uranium (300,000 pounds of  $U_3O_8$  are planned for 2017) which is processed in plant with a licensed capacity of the 2

million pounds of  $U_3O_8$  per year. Nichols Ranch has 4 additional well fields which can be operated in the future. The project contains resources totaling 2.8 million pounds of  $U_3O_8$ . Nichols Ranch is the central puzzle piece of a series of other (potential) satellite projects. The nearby projects Jane Dough and Hank have at least an additional 30 well fields with relevant resources which can be connected easily and at low costs to the existing pipeline system. Jane Dough contains a current resource of 3.9 million pounds of  $U_3O_8$ , Hank more than 1.7 million pounds of  $U_3O_8$ . While Hank is fully permitted for a future production, Jane Dough is in a very advanced approval phase. Nichols Ranch could increase significantly the production within six months, provided it could realize a uranium sales price of US\$40 to US\$50 per pound of  $U_3O_8$ .

### Alta Mesa ISR Plant

The Alta Mesa ISR Plant is located in southeastern Texas and is currently on standby mode. From 2005 to 2013 Alta Mesa produced in total 4.6 million pounds of  $U_3O_8$  and has a fully licensed

processing capacity of 1.5 million pounds of  $U_3O_8$  per year. The associated license area hosts resources of 20.4 million pounds of  $U_3O_8$  and the production could be restarted within 12 months if a uranium sales price of US\$40 to US\$50 per pound of  $U_3O_8$  could be realized. The license area (200,000 acres) has a high exploration potential which could extend the mine life by an additional 15 years.

### White Mesa Mill

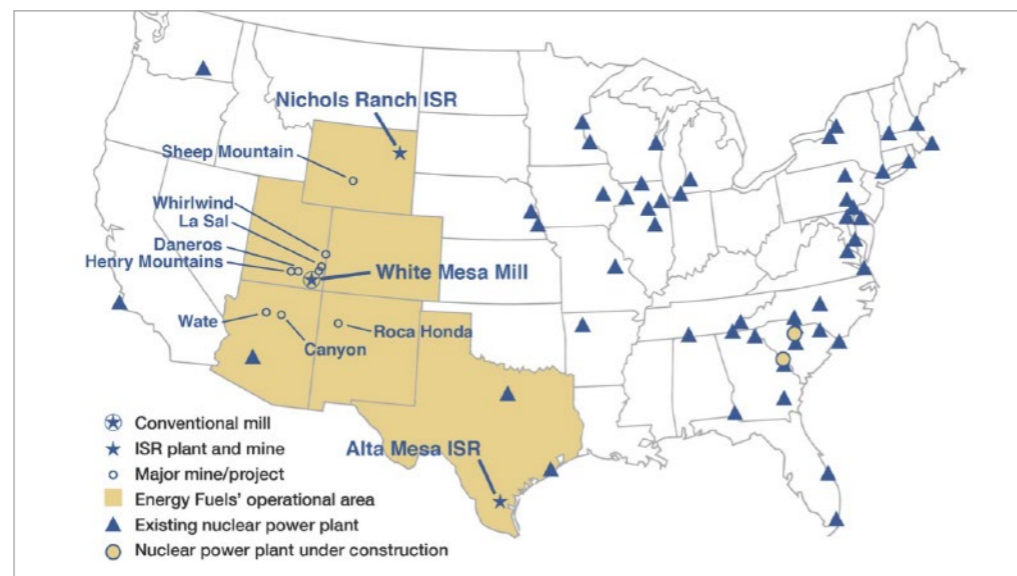
White Mesa Mill is located in southeastern Utah and is currently the only functional and operating conventional uranium processing plant in the entire USA! It has a fully permitted annual processing capacity of 8 million pounds  $U_3O_8$ . A production of 375,000 pounds of  $U_3O_8$  is expected in 2017. Primarily "alternate feed" material is processed which is derived from tailings coming from mines which don't produce uranium or from other recyclable materials. The White Mesa Mill has several special features. It has a separate circuit for low cost processing the aforementioned alternate feed materials. The mill also has an additional circuit for processing of vanadium and had a significant vanadium production in the past. But the biggest advantage of the White Mesa Mill is its unique location. The mill is located centrally between several mines featuring the highest uranium grades in the USA. Besides the possibility to feed the mill from these mines, the company is working together with the U.S. Government at a legacy cleanup program in which also significant amounts of uranium could be generated as well. Last but not least, Energy Fuels is processing for a third party on toll milling basis uranium rich ore. Thereby the company is generating US\$6 million per year.

### Canyon Mine

One of the high-grade uranium mines that will feed uranium rich ore to the White Mesa Mill in the future (again) is owned by Energy Fuels. It is the fully permitted and currently on standby mode Canyon Uranium and Copper Mine in northern Arizona which has the highest grades of all conventional uranium mines in the USA! The Canyon Mine currently hosts resources of 1.6 million pounds of  $U_3O_8$  (as of 2012) but was only sporadically explored for existing deposits. Since 2012 the company announced excellent drill results. Averaging the 12 best drill intersections results in 1.15%  $U_3O_8$  and 9.36% copper over just 300m in total! The surface infrastructure and the production shaft are already completed. According to estimates, Canyon ranks among the conventional uranium mines with the lowest production costs worldwide. The actual processing of the produced ore will take place at the White Mesa Mill located 300km away. Canyon could be commissioned within 12 months in case of a stable uranium price between US\$40 and US\$50 per pound of  $U_3O_8$  and produce between 500,000 and one million pounds of  $U_3O_8$  per year. In 2017 published drill results confirmed grades of up to 2.88%  $U_3O_8$  and 14.85% copper in the Canyon Mine. The high copper values could lead to Energy Fuels processing the ore from the Canyon Mine for an almost unbeatable price in the White Mesa Mill. Appropriate test processes are ongoing.

In August 2017 Energy Fuels published a new expanded resource estimate for the Canyon Mine. According to the estimate the Upper, Main and Juniper zones contain around 2.6 million pounds  $U_3O_8$  with average grades between 0.20% and 0.89% as well as around 12.5 million pounds of copper with average grades between 5.70% and 9.29%.

Overview over Energy Fuels' projects and plants and locations of the US nuclear plants  
(Source: Energy Fuels)

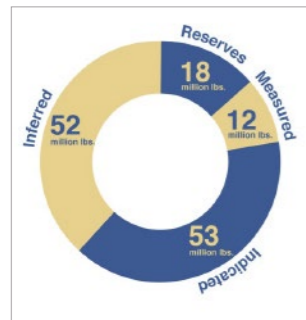


### Other permitted top projects

Besides the already mentioned large-scale projects Energy Fuel owns a series of additional projects which are fully permitted for production.

### La Sal Complex, Utah

The La Sal Complex is located around 100km northeast of the White Mesa Mill and is comprised of the two mines Beaver and Pandora which were already in production in 2012. Both mines contain more than 4.5 million pounds of  $U_3O_8$  and 23.4 million pounds of vanadium. The La Sal Complex could be recommissioned within 6 months if a uranium sales price of at least US\$60 per pound of  $U_3O_8$  could be realized. Due to the recent increase of the vanadium price the commissioning of La Sal could reactivate the vanadium circuit in the White Mesa Mill.



Energy Fuels has a resource base totaling over 135 million pounds of  $U_3O_8$   
(Source: Energy Fuels)

### Daneros Mine

The Daneros Mine is located 40km west of the White Mesa Mill and was in operation until 2012. The mine contains around 0.7 million pounds of  $U_3O_8$ . Daneros could be recommissioned within 6 months if a uranium sales price of at least US\$60 per pound of  $U_3O_8$  could be realized.

### Whirlwind Mine

The Whirlwind Mine is located 120km northeast of the White Mesa Mill. It contains around 3.0 million pounds of  $U_3O_8$  and 10.1 million pounds of vanadium. Whirlwind could be commissioned within 6 months if a uranium sales price of at least US\$60 per pound of  $U_3O_8$  could be realized. Regarding the vanadium resource the same applies like for the La Sal Complex.

### Tony M Mine (Henry Mountains)

The Tony M Mine is located 200km west of the White Mesa Mill and belongs like the Bullfrog Mine to the Henry Mountains Complex. Tony M contains 10.9 million pounds of  $U_3O_8$  and could be commissioned within 6 months if a uranium sales price of at least US\$60 per pound of  $U_3O_8$  could be realized.

### Projects in the development phase

Besides the already permitted mines Energy Fuels owns a series of other excellent projects which will need start-up periods of several years. Among them are the aforementioned Bullfrog Project with a resource of 10 million pounds of  $U_3O_8$ , Roca Honda with 25.8 million pounds of  $U_3O_8$  and Sheep Mountain with over 30 million pounds of  $U_3O_8$ . Energy Fuels has a resource basis totaling over 135 million pounds of  $U_3O_8$  as well as 24.5 million pounds of vanadium and more than 12 million pounds of copper.

### Summary: the possibility of fast commissioning of several mines provides a large leverage on the uranium price!

Energy Fuels is the second largest uranium producer in the USA after Cameco and has production capacities of over 11 million pounds of  $U_3O_8$  per year! The company owns several low-cost mines and could increase its production already at a uranium price of US\$40. In addition, the company owns several processing plants which can produce at lower costs with increasing utilization. These are very flexible regarding an increasing production and can extract other commodities like vanadium and copper. With that Energy Fuels not only has a significant

leverage on the uranium spot price but also a unique variability. Another advantage: Energy Fuels is producing not only conventionally but also by ISR mining. With resources of 135 million pounds of  $U_3O_8$  Energy Fuel ranks under the top three companies with the largest uranium resources in the USA, a country that longs for cheap energy generation and therefore for uranium.

Another important issue: the management holds more than 9.2% of all outstanding shares. That and the fact that more than 10 insiders increased their

shareholdings in 2017 alone show that the management is standing behind the company and expects a significant price rebound.

## Interview with Stephen P. Antony, CEO of Energy Fuels

### What did you and your company achieve within the last 12 months?

We are proud to announce that we expect to become the #1 producer of uranium in the U.S. in 2017. This is important, as the U.S. remains the World's largest consumer of uranium. We have proven uranium production capabilities, and we hold some of the best uranium production facilities in the U.S., including Nichols Ranch, Alta Mesa, and the White Mesa Mill, the only operating conventional uranium mill in the U.S. These are fully-permitted and built projects that would take hundreds of millions of dollars, plus many years, to explore, permit, finance and develop if starting from the beginning. When uranium markets turn – and we strongly believe they will – we will be one of the first producers back into the market. We expect to produce about 650,000 lbs. of uranium in 2017 with „our foot off the gas.“ When uranium sales prices reach the \$40-\$50/lb. level, we believe we can increase our annual production to 2.0-2.5 million lbs.

### What are the main catalysts for your company within the next 6 months?

While we are primarily a uranium producer, we are also fortunate to have other revenue-generating opportunities. We are actively pursuing government contracts to assist in the cleanup of historic uranium mines in the southwest U.S. We believe our White Mesa Mill is the perfect repository for some of this material, where we would be paid a fee to process and dispose of the material. We also hold a large, high-grade vanadium resource at certain of our mines. The price of vanadium has increased from \$2.75 per pound to around \$10.00 per pound today. We are a proven past vanadium producer, having produced 1.5 million lbs. of  $V_2O_5$  as recently as 2013 at the White Mesa Mill. In addition, White Mesa is the last remaining vanadium production facility in the U.S., which is highly strategic. Finally, we recently announced a copper resource of almost 6% Cu at our Canyon Mine that we believe we can



Stephen P. Antony, CEO





The White Mesa Mill is the only fully-licensed and operating conventional uranium mill in the United States.  
(Source: Energy Fuels)



process into a salable product at our White Mesa Mill. These other opportunities have the potential to generate significant revenues for Energy Fuels while we await the inevitable uranium price recovery.

**What is your opinion about the current conditions of the uranium market?**

The current uranium market is over-supplied and unhealthy. However, we believe this is setting the stage for an eventu-

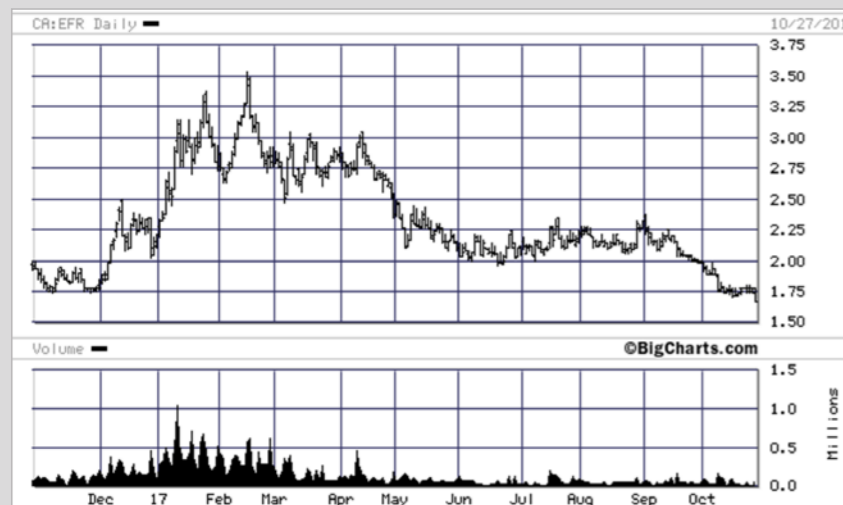
al recovery. Uranium demand is rising inexorably, but very few uranium mines globally can make money at today's levels. Therefore, we expect to see further reductions in mine supply that will bring more rationality to the market. The key for a company like Energy Fuels is to maintain our production facilities in a state of readiness, so that we are one of the first to bring new production into the market. We don't know when this will happen, but we expect to be ready.

## Energy Fuels Inc.

**ISIN:** CA2926717083  
**WKN:** A1W757  
**FRA:** VO51  
**TSX:** EFR  
**NYSE:** UUUU

Shares issued: 70.1 million  
Options: 2.0 million  
Warrants: 6.7 million  
Restricted: 1.7 million  
Convertible Deb.: 5.3 million  
Fully diluted: 85.9 million

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(Source: BigCharts)

## Fission 3.0

### On the best way to a similar success like Fission Uranium

Fission 3.0 is a Canadian development company with 20 uranium projects in and around the Athabasca Basin and the Macusani Project in Peru. The company is the product of a spin-out from Fission Uranium and therefore the third Fission project of the successful management team under Dev Randhawa. He wants to achieve similar successes with Fission 3.0 as with fission Energy and Fission Uranium.

### From Strathmore Minerals to Fission 3.0

1996 Randhawa founded Strathmore Minerals at a time when the uranium spot price was at US\$7. He led Strathmore Minerals from an initial market cap of 2 million dollar to a market cap of over 450 million dollars by 2007. During that time, he completed a Joint Venture with Sumitomo. In 2007 the spin-out of Fission Energy took place. Randhawa led Fission Energy from a market cap of 16 million dollars to a market cap of 150 million dollars by 2013. Besides a joint venture with KEPCO he discovered the J Zone which was successfully sold to Denison Mines. In addition, he discovered the Triple R Zone which is currently a part of the Patterson Lake South (PLS) mega project of Fission Uranium. Fission Uranium is a spin-out resulting from the Denison deal. In 2013 Fission Uranium acquired a 50% interest in PLS from Alpha Minerals, at which time the other projects were spun out into Fission 3.0. Fission 3.0 is an independent company since November 2013.

### The most important projects

The many projects in the Athabasca Basin region can be roughly divided into four categories:

1. The three Patterson Lake South Projects which are located north and

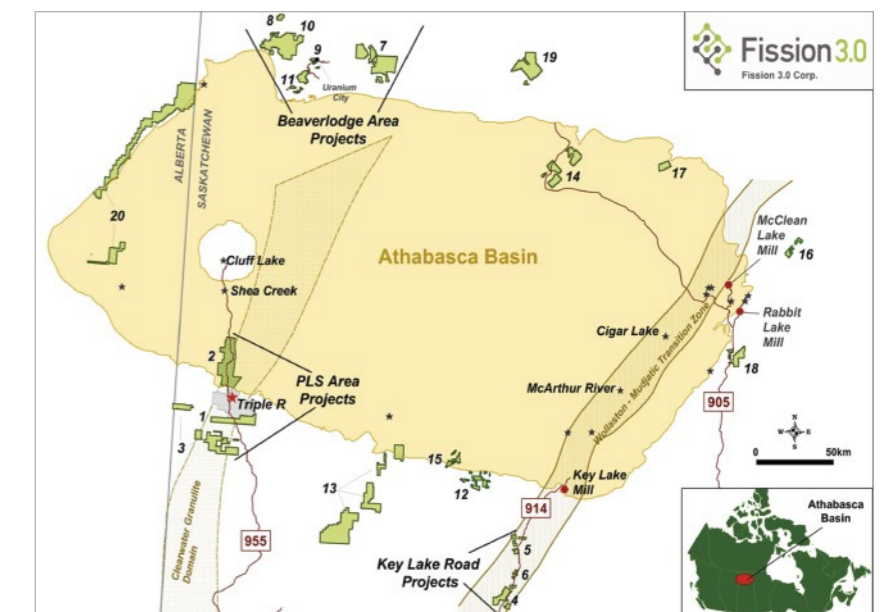
2. south of Fission Uranium's PLS Project.
2. The three Key Lake Road Projects which line up along Highway 914 southwest of Key Lake Mill.
3. The five Beaverlodge Projects which are located north northwest the Athabasca Basin around Uranium City.
4. The remaining project areas which are dispersed in and outside the Athabasca Basin.

In addition to these projects is the Macusani Project in southern Peru. Following is a detailed overview of the most important projects.

### Patterson Lake South Projects

The three Patterson Lake South Projects; Patterson Lake North, Clearwater West and Whales Lake comprise an area of close to 60,000 hectares located along Highway 955 and are partly in close proximity to Fission Uranium's PLS Project. The complete southwestern area of the Athabasca Basin hosts some very large uranium deposits like the past producing Cluff Lake Mine on the one hand and the high-grade deposits Triple R,

Fission 3.0 holds a number of promising projects in and outside the Athabasca Basin  
(Source: Fission 3.0)



Arrow and Shea Lake on the other hand and is still considered as largely under explored.

### Patterson Lake North

Patterson Lake North is the flagship project of Fission 3.0. It is the northern counterpart of Fission Uranium's Patterson Lake South mega project. Patterson Lake North is a joint venture project between Fission 3.0 (90%) and Azincourt Uranium. Although Patterson Lake North is not as advanced as Patterson Lake South, there are credible signs that Patterson Lake North could host a significant uranium deposit as well. The project is located on the same structural corridor as PLS. Several drill holes have already tested the corridor over a distance of 700m. The drill holes returned significant uranium mineralization and other elements like boron, copper, nickel and zinc indicating a high-grade potential.



Location of Fission 3.0's Patterson Lake South projects (Source: Fission 3.0)

### Clearwater West

Clearwater West directly borders Fission Uranium's Patterson Lake South Project in the south. Thereby it is also in the sphere of influence of the boulder field that was the starting point for the disco-

very of Patterson Lake South as well for the Patterson Lake North Project. On both projects, a new "boulder finding" technology was applied for which a patent application was filed. This airborne survey method was largely responsible for the discovery of the Patterson Lake South boulder field. Now the first anomalies were also detected for Patterson Lake North and Clearwater West.

### Wales Lake

Wales Lake is located 25km southwest of Fission Uranium's Triple R deposit. In 2017 a helicopter borne VTEM survey was flown over the area. The results will provide Fission 3.0 indications for potentially high-grade drill targets.

### Key Lake Projects

The three Key Lake Projects (12,670 hectares) have the potential for high-grade, near surface uranium resources. To date the entire Key Lake region produced more than 200 million pounds of  $U_3O_8$  and has an excellent developed infrastructure. The Key Lake Mill is located 50km north of Fission 3.0's projects. Ore material from the McArthur River Mine is processed there.

### Karpinka Lake

One of these three projects is called Karpinka Lake. It covers 2,743 hectares and is located south of the southeastern boundary of the Athabasca Basin directly on the Wollaston-Mudjatik Transition Zone. Several important uranium projects like the McArthur River uranium mine, the Cigar Lake uranium mine and the former producing Key Lake uranium mine are also located within the Key Lake Shear Zone of the Wollaston-Mudjatik Transition Zone. In 2017 a helicopter borne VTEM survey was flown over the area. The results will provide Fission

3.0 indications for potentially high-grade drill targets.

### Hobo Lake

The second important subproject of the Key Lake Projects is called Hobo Lake. It covers 6,946 hectares and is located 40km south of Karpinka Lake on the same geological trend. In 2017 a helicopter borne VTEM survey was flown over the area. The results will provide Fission 3.0 indications for potentially high-grade drill targets. Fission neighbor Forum Uranium identified in samples from the area of the nearby Hobo Zone up to 6.42%  $U_3O_8$ .

### Beaverlodge/Uranium City Projects

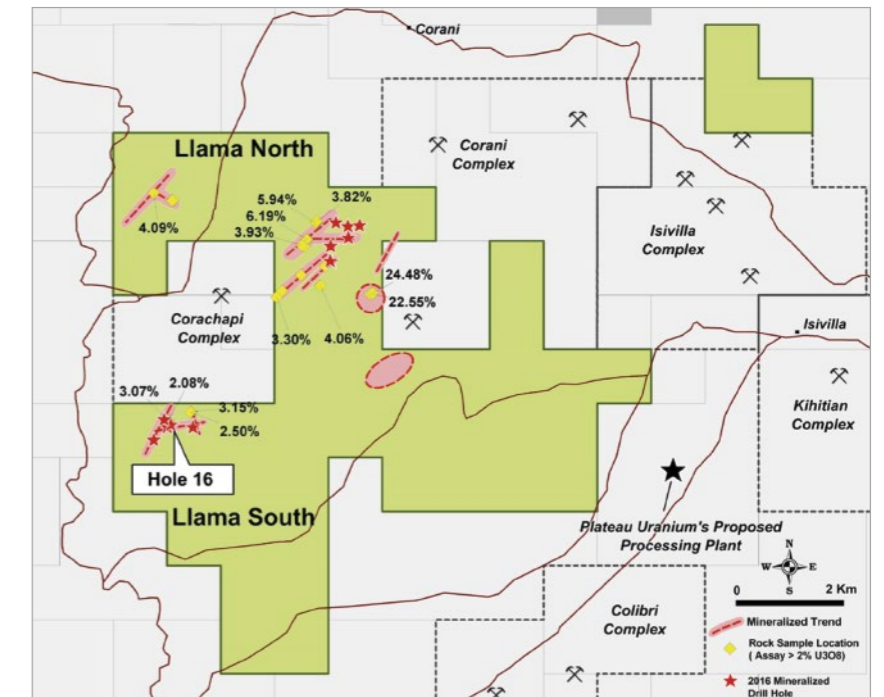
The combined Beaverlodge Projects comprise three single projects with a total area of 58,119 hectares. Although a very well-developed infrastructure is in place due to the proximity to Uranium City and the fact the region hosted over 50 uranium mines during the 1950s and 1960s Beaverlodge is a completely underexplored district.

### Beaver River

Beaver River has already a proven trend which is over 137m long. Uranium grades of up to 1.77%  $U_3O_8$  were found in trenches.

### Macusani Project, Peru

The Macusani Project is located in the Macusani District in southern Peru. The entire district hosts a variety of near surface uranium and lithium deposits which can be mined by heap leaching methods. Fission 3.0's Macusani Project is surrounded by license areas of Plateau Uranium which already have a mega re-



The entire district hosts a variety of near surface uranium and lithium deposits which can be mined by heap leaching methods. (Source: Fission 3.0)

source containing 105 million pounds of  $U_3O_8$  and 179,000 tons of  $Li_2O$  outlined. Plateau Uranium expects to start production in 2019 whereby Plateau Uranium's planned processing plant will be only one kilometer from Fission 3.0's Macusani Project. Fission 3.0's subprojects Llama North and Llama South are in trend with Plateau's Corapachi and Corani Complexes which hosts four independent deposits. Fission 3.0 completed a drill program (16 drill holes) in 2016. 13 drill holes intersected radioactive anomalies, some of them starting only 1.5m below surface. One of the drill holes returned from a depth of 16m a 0.5m long intersection with sensational 1.21%  $U_3O_8$ . Samples from visible outcrops had grades of over 2%  $U_3O_8$  with identified peak values of up to 24.48%  $U_3O_8$ .

### Top management team wants to book the next achievement

Fission 3.0's management team is comprised largely of board members of Fis-



sion Uranium. Fission Uranium made the biggest uranium discovery of the past 40 years at Patterson Lake South in Canada's Athabasca Basin.

Aforementioned Dev Randhawa is an experienced CEO with a wealth of experience in resource expansion, mine exploration and energy companies. The Northern Miner named him "Mining Person of the Year 2013" and Finance Monthly awarded him the "Deal Maker of the Year 2013" award. He is the current CEO of Fission Uranium and Fission 3.0 Corp.

Ross McElroy is a professional geologist with nearly 30 years of experience in the mining industry. He is the winner of the PDAC 2014 Bill Dennis Award for exploration success and The Northern Miner "Mining Person of the Year 2013". Mr. McElroy has held positions with both major and junior mining companies, including BHP Billiton, Cogema Canada (now AREVA), and Cameco. He was a member of the early stage discovery team of the MacArthur River uranium deposit. Ross McElroy was also part of the very successful Fission Energy Corp. team as president, COO and chief geologist. He headed up the technical team that made Fission Uranium's PLS discovery.

### Summary: Property bank with several possibilities for a big discovery

Fission 3.0 is a so called "Property Bank", a company with a variety of potentially high-quality mining projects which the company is developing itself to sell them profitably later or to enter into joint venture agreements. Contrary to Fission Uranium Fission 3.0 is still in an early exploration and development stage. But that is the big share price potential of Fission 3.0. Several potentially high-grade uranium projects are explored for deposits with self-developed methods. At some projects (Patterson Lake North, Clearwater West, Macusani) the location alone is an indication of the great potential and the source of appropriate speculations. Soon Fission 3.0 could like Fission Uranium make a big discovery. In August 2017 the company announced that it will carry out exploration activities on 7 projects during the current year.

Ultimately the strong CEO Dev Randhawa would make a huge success story out of his latest project like he did with Strathmore Minerals, Fission Energy and Fission Uranium.

on. Our Macusani project lies in close proximity to Plateau Uranium's uranium and lithium deposits.

### What are the main catalysts for your company within the next 6 months?

We will be conducting survey-based and ground prospecting work programs at seven of our Athabasca Basin projects.

### What is your opinion about the current conditions of the uranium market?

As mentioned in my answer to this question for Fission Uranium, of which I am also the CEO, uranium is one of the most interesting markets in the resource sector. It is in a unique position because negative sentiment outweighs increasingly robust fundamentals. A period of oversupply and low spot prices has led to the world's largest uranium producer (Kazatomprom) reducing production by 10%

and the second-largest producer (Cameco) shutting down and reducing production in operational mines. Moreover, uranium producers are refusing to sign long-term contracts (through which the vast majority of uranium is sold), until prices increase.

All of this is happening at a time when there are more nuclear reactors being built today than in any point in the last twenty-five years. On top of this, more reactors are coming online in Japan and numerous countries (including the home of big oil) are pushing forward with their nuclear energy plans. The result is that utilities – the primary users of uranium – will soon have to return to full contracting, thus pushing up uranium prices. If you're looking for a contrarian play then it doesn't get much better than uranium.



Dev Randhawa, CEO

## Interview with Dev Randhawa, CEO of Fission 3.0

### What did you and your company achieve within the last 12 months?

Fission 3.0 Corp. is a uranium property bank and project generator with one of the most exciting and impressive portfolios in Canada's Athabasca Basin region. The Basin lies in the province of Saskatchewan, which was ranked by the

Fraser Institute as the number one mining jurisdiction in the world. We also own a project in the Macusani region of Peru – an emerging uranium district. In the last twelve months, we completed two phases of drilling at Macusani, during which we hit uranium mineralization in 13 of 16 holes, near and at surface. We also encountered lithium mineralization

**ISIN:** CA3381241007  
**WKN:** A1W9R9  
**FRA:** 2F3  
**TSX-V:** FUU

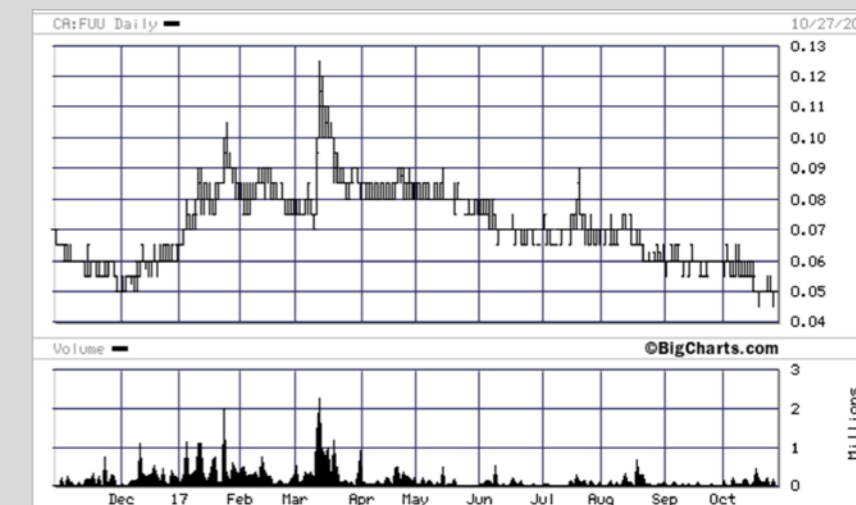
Shares issued: 219.9 million  
 Options 13.6 million  
 Warrants: 22.2 million  
 Fully diluted: 255.7 million

**Contact:**  
 Fission 3.0 Corp.  
 700 - 1620 Dickson Avenue  
 Kelowna, BC, V1Y 9Y2, Canada

phone: +1-778-484-8030  
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 www.fission3corp.com

## Fission 3.0 Corp.



(Source: BigCharts)

# Fission Uranium

One of the largest uranium deposits worldwide and still growing



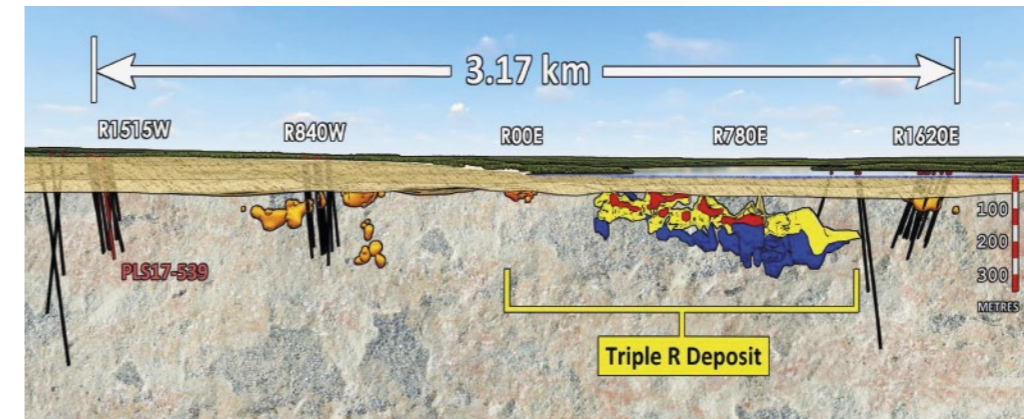
Fission Uranium is a Canadian uranium development company which made one of the biggest uranium discoveries of all time in the past years. The Patterson Lake South Project is not only one of the biggest uranium projects worldwide but also one with the highest grades. It is one of the projects that could be brought to production in the foreseeable future. Further, Fission Uranium is currently the most award-winning uranium developer globally.

## Patterson Lake South – Location, Discovery and Infrastructure

The Patterson Lake South (PLS) Project is located in the western part of the Athabasca Basin just outside the (actual) basin margin. One has to know that all of the uranium production is concentrated in the eastern portion of the basin – Key Lake, Rabbit Lake, MacArthur River and Cigar Lake. In contrast, the western part of the Athabasca Basin is very underexplored. The former Cluff Lake Mine, operated by AREVA until 2000, is located

80km north of PLS. Fission Uranium's President, COO and Chief Geologist Ross McElroy worked for AREVA, which discovered the Shea Creek deposit that is located a few kilometers north of PLS and hosts a resource of more than 100 million pounds of  $U_3O_8$ . This discovery was the reason for McElroy to believe in the potential of the western part of the basin.

While most deposits in the Athabasca Basin are so called "unconformity deposits" (hosted in sedimentary rocks) a few are so called "basement hosted" deposits, which are typically found close to the surface because the overlying rocks were eroded over time. This means that the Athabasca Basin was bigger in the past. Therefore, McElroy explored there, where the basin's original outer rim was in the past. After completion of a radiometric survey showing a large area with radioactive radiation, the company discovered boulders containing up to 10%  $U_3O_8$ , very high-grade material. That material was spread over several kilometers by glaciers during the last ice age. Fission Uranium subsequently traced the track of the ice to the source of the uranium.



Since the last resource estimate the company continued drilling along the main trend and could expand the trend to over 3km by several new discovered zones. (Source: Fission Uranium)

All this work resulted in the first discovery in November 2012, when the very first drill hole intersected the PLS deposit. It is interesting that the overburden is only 50m thick. All those findings resulted in an extensive drill program in 2013 leading to the discovery of a one-kilometer long mineralization called Triple R. This mineralization, with uranium grades of over 20%, is located under a shallow lake. Since November 2012 more than 250 drill holes were drilled and over 90% of the drill holes intersected a significant uranium mineralization. PLS is located directly on the road connecting Saskatoon with the former Cluff Lake Mine drastically reducing the costs and ultimately the project risk.

extends down to a depth of 200m with additional underground scenarios. The post-tax Internal Rate of Return („IRR“) would amount to 40% and the capital costs are estimated CA\$1.1 billion. Despite the high capital costs, the repayment period would be one and a half years. Based on the resource estimate from 2015, the mine life is 12 to 15 years. Currently the company is working on a new resource estimate that expands the resource as well as increases the profitability of the project. The announcement of the new resource estimate is expected in the fourth quarter of 2017. Since the last resource estimate the company continued drilling along the main trend and could expand the trend to over 3km by several new discovered zones.

Of particular importance were the drill results published in the summer of 2017. They showed among other things a compound mineralization of over 61m with more than 10,000 cps.

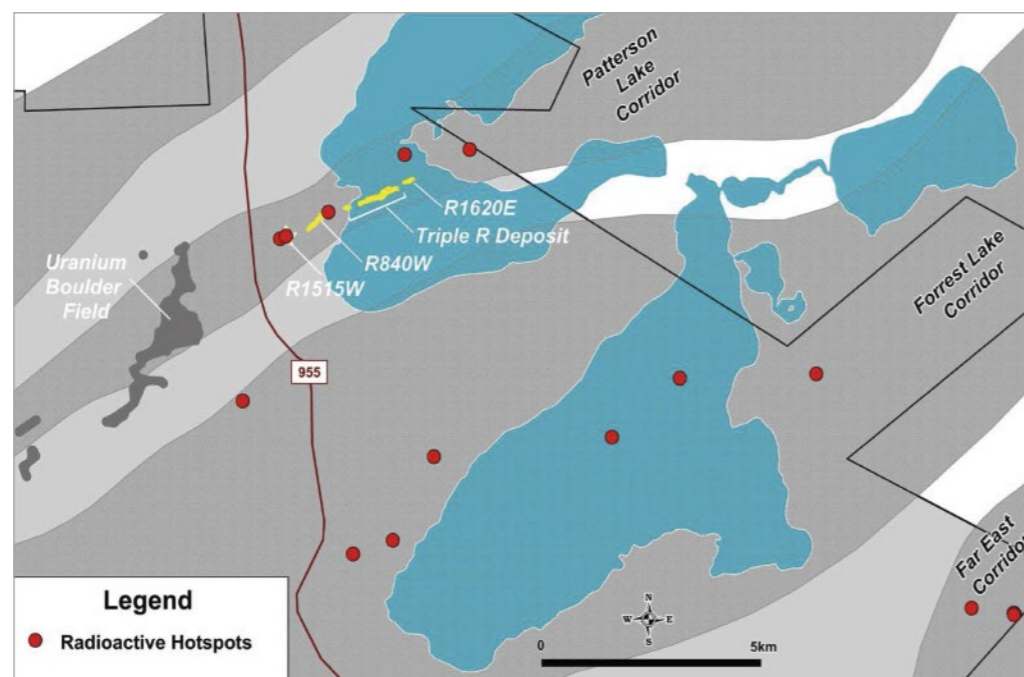
## Patterson Lake South – Resource and Feasibility Study

In 2015 Fission Uranium announced a first resource estimate of about 108 million pounds of  $U_3O_8$  with the majority in the category indicated. Around 59 million pounds of  $U_3O_8$  are contained in the especially high-grade R780E Zone (part of the Triple R deposit) at 18%  $U_3O_8$ . In September Fission Uranium published a Preliminary Economic Assessment (PEA) demonstrating the economical extraction of the deposit. An open pit scenario was assumed because the uppermost part of the resource is only 50m below the surface. This open pit model

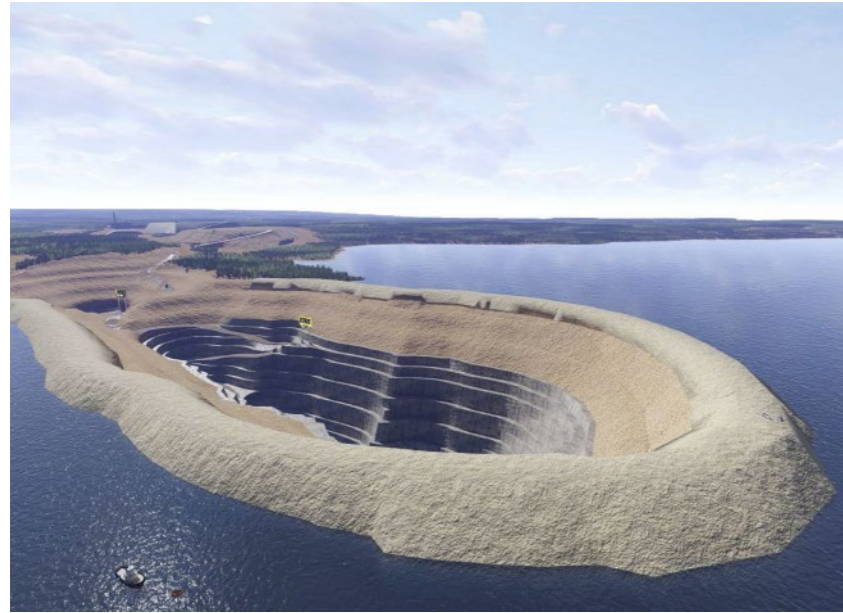
## Profitability improvements due to zones on land

The on land located mineralized zones R840W and R1515W are of special interest because no dike construction is necessary for mining these zones. Fission Uranium could start with a conventional open pit mine on land without any water problems. This would generate a significant cash flow and pay for the se-

Location of the original boulder field, the single uranium deposits and further potential deposits (Source: Fission Uranium)







Schematic view of the proposed pit and dyke  
(Source: Fission Uranium)

### Strategic partner from China

In January 2016, the state-owned Chinese utility company CGN invested in Fission Uranium. It acquired 19.9% of the then issued and outstanding shares at a total price of CA\$83 million. At that time CGN paid a premium of 35% on the appropriate share price. CGN is not an end-user but a company planning far ahead into the future and was searching for projects in Canada to secure the growing nuclear power industry in China. CGN also met Cameco and almost all the other companies with projects in the Athabasca Basin. Ultimately the choice was an investment in Fission Uranium and therefore in PLS due to its enormous size and as well for the mineralization in shallow depth.

### Top management team for maximum success

Fission Uranium has a very experienced and successful management team.

Dev Randhawa is an experienced CEO with a wealth of experience in resource expansion, mine exploration and energy companies. The Northern Miner named him "Mining Person of the Year 2013" and Finance Monthly awarded him the "Deal Maker of the Year 2013" award. He is the current CEO of Fission Uranium and Fission 3.0 Corp.

Ross McElroy is a professional geologist with nearly 30 years of experience in the mining industry. He is the winner of the PDAC 2014 Bill Dennis Award for exploration success and The Northern Miner "Mining Person of the Year 2013". Mr. McElroy has held positions with both major and junior mining companies, including BHP Billiton, Cogema Canada (now AREVA), and Cameco. He was a member of the early stage discovery team of the MacArthur River uranium deposit. Ross McElroy was also part of the very successful Fission Energy Corp. team as president, COO and chief geolo-

gist. He headed up the technical team that made Fission Uranium's PLS discovery.

### Plans for the coming months

For the rest of 2017 the company's goal is to extend the currently known mineralized trend further to the west and east. In addition, Fission Uranium has already conducted some tests outside the known trends. PLS has a variety of additional radioactive hotspots that could host additional deposits. As well, an expansion of the Triple R deposit and test drill holes between the zones is planned. In the fourth quarter of 2017 the company wants to announce a new resource estimate which will include many new data and therefore result in a much larger resource. As a reminder: the last resource estimate was published in January 2015. Many successful drill results were received since then. The company plans the completion of a prefeasibility study by

the end of 2018 and a bankable feasibility study by the end of 2019.

### Summary: Top project, top management, top prospects!

Fission Uranium will continue to focus on the development of PLS and therefore the exploration of the projects. The focus will be especially on the western part of the known mineralization trend because this will have a positive effect on the profitability of the project. Fission Uranium has one of best uranium projects with a mega potential worldwide, enough cash for the development and the best partner from China as well as an absolutely success-oriented management to lift Patterson Lake South to an unprecedented level in 2017. Thus, making the company more and more a takeover candidate for a major (uranium) company looking for easy to mine high-grade near surface uranium resources.

## Interview with Dev Randhawa, CEO of Fission Uranium

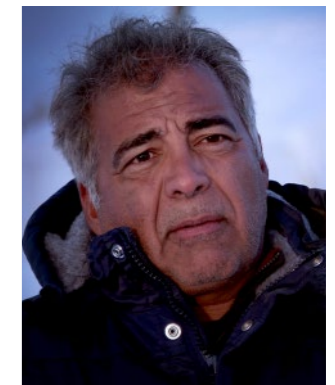
### What did you and your company achieve within the last 12 months?

Fission Uranium owns the multiple award-winning, high-grade uranium deposit in Canada's Athabasca Basin region. In the last twelve months, we have increased the mineralized trend at our PLS project to 3.18km. We also discovered a new, high-grade zone (R1515W), which is the third high-grade zone to be found outside of our Triple R deposit. Importantly, this new high-grade zone shows very strong geological similarities to our deposit's main zone, which hosts

a very large, ultra-high-grade core. In addition to our exploration success, we have made significant progress towards pre-feasibility.

### What are the main catalysts for your company within the next 6 months?

Fission will be conducting a winter drill program, which will combine further drilling of exploration hot spots and expansion of known mineralized zones, in preparation for an updated resource estimate. It is important to note that our initi-



Dev Randhawa, CEO

al resource estimate was released in January 2015 and we have had multiple, successful drill programs since then. The work program will also include further work leading to a pre-feasibility study that is planned for the end of 2018.

**What is your opinion about the current conditions of the uranium market?**

Uranium is one of the most interesting markets in the resource sector. It is in a unique position because negative sentiment outweighs increasingly robust fundamentals. A period of oversupply and low spot prices has led to the world's largest uranium producer (Kazatom-prom) reducing production by 10% and the second-largest producer (Cameco) shutting down and reducing production in operational mines. Moreover, uranium producers are refusing to sign long-term contracts (through which the vast majority of uranium is sold), until prices increase.

All of this is happening at a time when there are more nuclear reactors being built today than in any point in the last twenty-five years. On top of this, more reactors are coming online in Japan and numerous countries (including the home of big oil) are pushing forward with their nuclear energy plans. The result is that utilities – the primary users of uranium – will soon have to return to full contracting, thus pushing up uranium prices. If you're looking for a contrarian play then it doesn't get much better than uranium.

## GoviEx Uranium

### Future low-cost uranium producer with large resource and big leverage on uranium price

GoviEx Uranium is a Canadian mining development company specializing in the exploration and development of uranium projects in Africa. To date the company outlined resources with more than 200 million pounds of U<sub>3</sub>O<sub>8</sub>. GoviEx already has valid mining licenses for the two most advanced projects. The current goal of the company is to reduce the uranium price necessary for the project development and to advance toward production of the most advanced project, Madaouela, parallel to the increasing uranium spot price.

In January 2016 GoviEx received the final mining permit for Madaouela 1 i.e. for one of six license areas (comprised of Madaouela 1 to 4 as well as Eral and Anou Melle). Pursuant to the permit the company can build the appropriate mine including all necessary facilities as well as mine the known deposits.

#### Madaouela – Deposit

Currently the most important deposit is called Marianne-Marilyn and is located within the Madaouela 1 concession. It is a sandstone hosted uranium deposit in a shallow depth of 30 to 120m. The second important deposit is called MSNE and is located four kilometers to the south. The third deposit, Maryvonne, is located right in the middle. A fourth mining area, Miriam, is located in the south of the Madaouela 1 concession. In contrast to the first three deposits, Miriam can be mined by open pit methods. The deposits are only 60 to 80m below the surface and have a thickness of up to 30m. In addition, this deposit contains in part up to more than 1% U<sub>3</sub>O<sub>8</sub> and contributes to a tremendous cost reduction of the total planned mining operation.

#### Madaouela – Location, Infrastructure, Resource

Madaouela (100% GoviEx) is located in Niger, 10km from Arlit and near the mines of Cominak as well as Somair in which AREVA has an interest. The mine of Cominak is in operation since 1978 and is considered to be the largest underground uranium mine in the world. GoviEx benefits from the well-developed infrastructure providing, besides all-season roads, sufficient groundwater and a good power supply. Madaouela has reserves of 60.54 million pounds of U<sub>3</sub>O<sub>8</sub> and total resources of 117 million pounds of U<sub>3</sub>O<sub>8</sub>.

## Fission Uranium Corp.

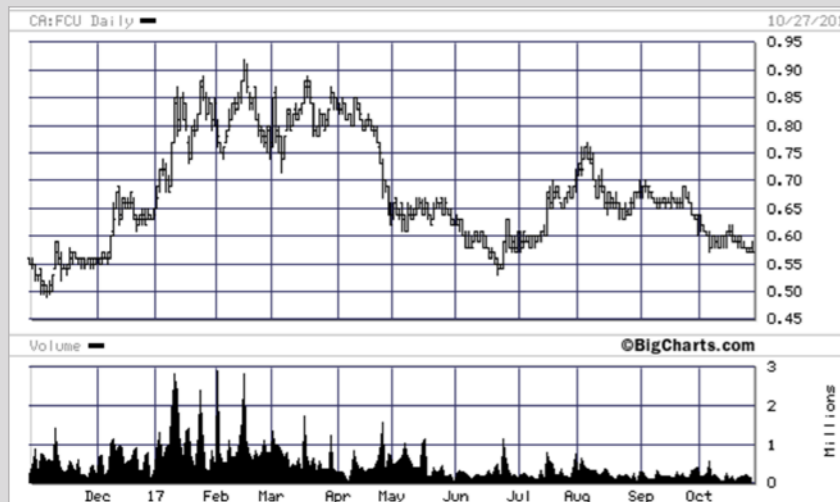
**ISIN:** CA33812R1091  
**WKN:** A1T87E  
**FRA:** 2FU  
**TSX:** FCU

Shares issued: 484.8 million  
 Options: 48.4 million  
 Warrants: -  
 Fully diluted: 533.2 million

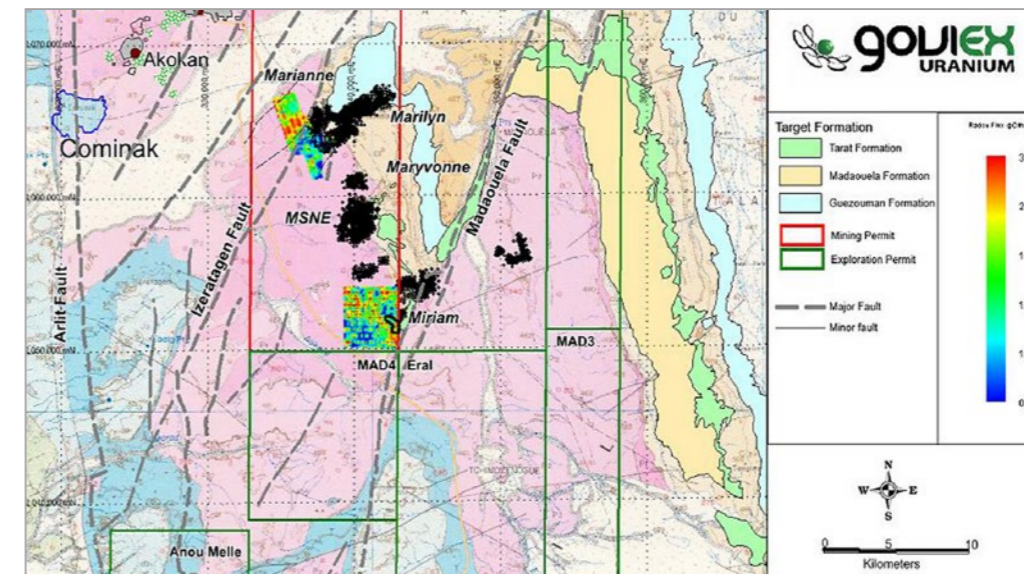
**Contact:**  
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 700 - 1620 Dickson Avenue  
 Kelowna, BC, V1Y 9Y2, Canada

phone: +1-250-868-8140  
 fax: +1-250-868-8493

ir@fissionuranium.com  
 www.fissionuranium.com



(Source: BigCharts)



GoviEx' Madaouela licenses are huge, but the most important deposits lie relatively close together. (Source: GoviEx)



### Madaouela – Feasibility Study

In 2015 a preliminary feasibility study could confirm the profitable production. Based on a long-term uranium price of US\$70 the study indicates, among other things, an Internal Rate of Return (“IRR”) of 21.9% and a Net Profit Value („NPV“) of US\$340 million at an 8% discount rate. The initial capital costs were estimated US\$359 million and the operating cash costs US\$24.49 per pound of U<sub>3</sub>O<sub>8</sub> based on an annual production of 2.69 million pounds of U<sub>3</sub>O<sub>8</sub> over a total mine life of 18 years.

### Madaouela – Exploration potential

Madaouela most likely has more resources as previously known. Although more than 600,000 m were drilled, Anou Melle has a high “blue sky potential” because this license area is located on the same geological structure as Cominak and Somair. In addition, there is the possibility that the Miriam deposit continues on to Madaouela 4 and that a Cominak extension stretches at depth on to Madaouela 1.

### Madaouela – Development strategy

Currently GoviEx is working on a four-staged development strategy for Madaouela. The first stage is a loan financing including the participation of several international export credit agencies. The second stage is the project optimization and the completion of the detailed engineering work. The third is the completion of the appropriate long-term offtake agreements for which Houlihan Lokey EMEA, LLP was engaged as financial adviser in February 2017. The fourth stage will be a share based equity financing in parallel.

### Great interest for a project financing

In September 2017 GoviEx reported that several Export Credit Agencies and banks have signaled the company that they want to provide a debt financing of US\$ 220 million for the construction of the mine. The conditions for the financing are a bankable feasibility study for Madaouela, long-term off-take contracts in place from creditworthy nuclear utilities and appropriate credit insurances.

### Mutanga – Location, Resource, Infrastructure

Mutanga (100% GoviEx) is located 200km south of the Zambian capital Lusaka and immediately north of Lake Kariba. The project contains more than 49.2 million pounds of U<sub>3</sub>O<sub>8</sub> in the deposits Mutanga, Dibwe and Dibwe East discovered to date. GoviEx has a mining license over 25 years for three of the five concessions allowing the production by open pit methods and heap leaching. Mutanga is connected to a road and has sufficient groundwater. A high-voltage-line passes at a distance of 60km. The mineralization starts at the surface and is open in strike.

### Mutanga – Exploration potential

Although the resource appears to be large, to date not all areas of the concession were explored for possible uranium deposits. Especially the areas near the west and east limits of the license areas offer a high potential for additional significant uranium deposits. New VTEM surveys identified a high exploration potential in the northern section of Dibwe East. The company will test that area for possible additional deposits by means of drilling.

### Njame and Gwabe – potentially top-class expansion possibilities for Mutanga

This northeastern area borders African Energy Resources Ltd.’s concessions Njame and Gwabe. Due to the aforementioned VTEM results, GoviEx has made African Energy Assets an offer which was accepted by African Energy in March 2017. Together Njame and Gwabe contain a resource of 11.2 million pounds of U<sub>3</sub>O<sub>8</sub>. GoviEx has to issue 3 million of its shares and 1.6 million warrants to African Energy for the two concessions. This is a very small price for a project with 11 million pounds of uranium and an apparently high exploration potential in the southwestern part of Njame, which borders GoviEx’s Dibwe East concession.

### Falea

Falea (100% GoviEx) is located in Mali 80km from AREVA’s Saraya East uranium deposit. The project consists of three exploration licenses: Bala, Madini and Falea. To date a resource base of 30.8 million pounds of U<sub>3</sub>O<sub>8</sub>, 63 million pounds of copper and 21 million ounces of silver has been identified. This equals a converted resource of 38.1 million pounds of U<sub>3</sub>O<sub>8</sub>. It is important to know that only 5% of the license area (in total 225 square kilometers) was explored for the appropriate deposits. In addition, the majority of the known deposits are not completely defined. Falea offers a high potential for the construction of an underground mine. The project is accessible by road and plane.

### Strong shareholder base

GoviEx has a very strong shareholder base including Toshiba, which signed the

first offtake agreement for 11% of the planned production, Denison Mines, that provide technical assistance, Cameco, which co-financed the initial exploration program at Madaouela, and Ivanhoe Industries, with its mining expert Robert Friedland as investor. Including the private investment of GoviEx’s Executive Chairman Govind Friedland, these five main shareholders own around 49% of all outstanding shares of GoviEx. In addition, at the end of 2016, Sprott came on board of GoviEx.

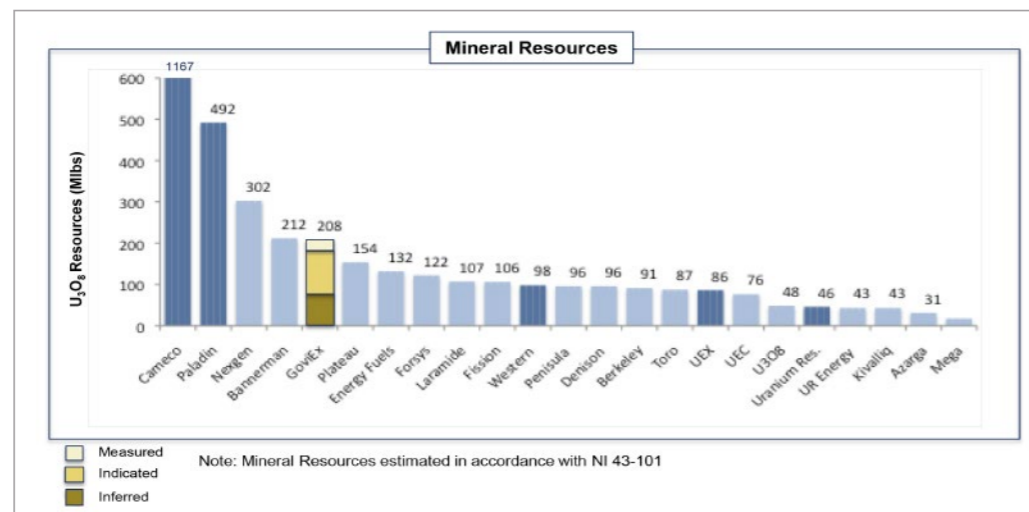
Shareholder	Shares (millions)	% of Total Basic Shares (%)
<b>Identified Insiders &amp; Strategics</b>		
Denison Mines	65	20%
Govind Friedland	32	10%
Toshiba Corporation	28	9%
Ivanhoe Industries	18	6%
Cameco Corporation	13	4%
<b>Sub Total</b>	<b>156</b>	<b>49%</b>
<b>Other Shareholders Basic Shares Outstanding</b>	<b>165</b>	<b>51%</b>
	<b>321</b>	<b>100%</b>

*GoviEx has a very strong shareholder base. (Source: GoviEx)*

### Summary: financing for Madaouela is a game-changer!

GoviEx is, without a doubt, a heavyweight in the uranium industry with a resource base of over 200 million pounds of U<sub>3</sub>O<sub>8</sub>. Madaouela the biggest project by far is ready for production. The commitment of granting a line of credit of US\$ 220 million for the construction of the mine is a milestone in the company’s history and will facilitate the project advancement and the negotiations of off-take agreements. The missing part is an appropriate uranium price which would push GoviEx, due to its large resources, towards unimagined price peaks. An additional advantage: contrary to many other African countries, Niger and Zambia are

GoviEx has one of the largest resource bases worldwide (Source Eight Capital / GoviEx)



considered as political stable. Mining companies are not faced with obstacles for example Cominak whose mine is in operation since the 1970s. In addition, GoviEx has a very experienced and successful management team as well as strong major shareholders which will ensure that GoviEx will become a real success story.



Daniel Major, CEO

## Interview with Daniel Major, CEO of GoviEx Uranium

**What did you and your company achieve within the last 12 months?**

We have negotiated two acquisitions and doubled our U<sub>3</sub>O<sub>8</sub> resource. GoviEx now holds one of the largest mineral resource bases within our peer group, and we have two mine-permitted projects. We have developed a strategy for making a production decision at our keystone Madaouela Project in Niger:

1. We are structuring our debt financing.
2. We are working on acquiring the adjacent Agaliouk license, and are looking

to test alternative processes that could potentially reduce operating and capital costs.

3. We appointed the experienced Houlihan Lokey team as off-take advisors.
4. Project equity financing will be developed as the debt program becomes clearer.

We completed a successful equity raise, moved from the Canadian Securities Exchange to the TSX-V, and enabled GoviEx's shares to be traded on the OTC-QB.

**What are the main catalysts for your company within the next 6 months?**

We want to reduce operating and capital costs at Madaouela, in order to reduce the incentive uranium price required to justify a decision to start construction. The acquisition of the Agaliouk license would allow us to pursue lower-cost, open-pit mining. The Madaouela Project's mine-life might then be prolonged beyond projections.

We also will continue to refine our process for separating uranium from sandstone host rock.

At Mutanga, we expect to complete the acquisition of the mine-permitted African Energy properties.

**What is your opinion about the current conditions of the uranium market?**

It appears that we have come off the November 2016 low in the uranium price, but while the price has risen 10% to 15% since the trough, it continues to search

for the catalyst that could get the bull market underway.

The uranium market is estimated to be in surplus now, but this surplus is likely to revert to a deficit.

China and India are continuing the substantial development of new reactors, and Japanese nuclear reactor restarts have commenced. The new production required to meet added uranium demand cannot be incentivized without a much higher uranium price. We expect to see declining production as some substantial, older mines come to the end of their operational lives. Further, major players have announced production cuts in response to low prices.

At GoviEx, we are forecasting that uranium prices will rise over the next two to three years, so we are preparing our already-permitted projects for development.

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

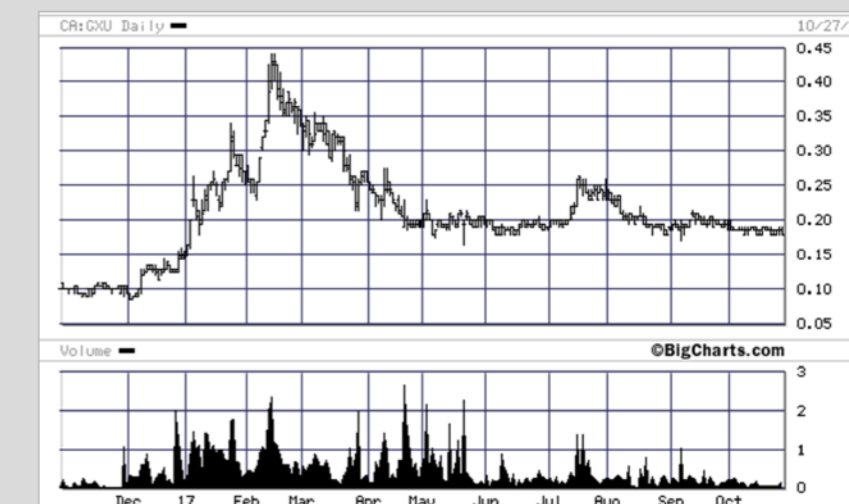
Shares issued: 321.9 million  
 Options/Warrants: 160.8 million  
 Fully diluted: 482,7 Mio.

**Contact:**  
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phone: +1-604-681-5529

info@govix.com  
 www.govix.com

## GoviEx Uranium



(Source: BigCharts)



# Laramide Resources

One of the ten largest uranium deposits in Australia and the highest ISR grades in the USA



Marc Henderson, CEO

Laramide Resources is a Canadian mining company specializing in exploration and development of uranium deposits in Australia and the USA. The shares of the company are listed at the TSX in Toronto as well as the ASX in Sydney giving the company exposure on both continents. Laramide Resources has a large resource base.

## Westmoreland Uranium Project – Location, Resource and Infrastructure

In Australia, Laramide Resources' flagship is Westmoreland, located in Queensland directly on the border to the Northern Territory. The project is comprised of three contiguous licenses previously in possession of Rio Tinto and are located 400km north-northwest of the famous Mt. Isa copper, zinc, lead, silver deposit. Via a subsidiary, Laramide Resources has a 100% interest in the total project (548.5 square kilometers). The Westmoreland Uranium Project contains a very

large resource base of 36.0 million pounds of  $U_3O_8$  in the category indicated and additional 15.9 million pounds of  $U_3O_8$  in the category inferred making it to one of the ten largest uranium projects in Australia. These resources are located within a 7km long trend. It is important to know that 80% of these resources are contained within a depth of 50m hence Westmoreland could be mined with open pit mining methods.

Regarding the infrastructure, sufficient electricity as well as trained workers and road connections are present.

## Westmoreland Uranium Project – Economic Assessment

In 2016 Laramide Resources published a Preliminary Economic Assessment (PEA) for Westmoreland. According to the study, processing of the rocks is possible by conventional acid leaching and solvent extraction.



8 million pounds of  $U_3O_8$  are contained in the area of Section 8, where a feasibility study was completed in 2012. This study confirmed that Section 8 can be mined by the low cost ISR method. (Source: Laramide Resources)

The initial capital costs for the construction of the mine and the processing facilities amount to US\$268 million plus US\$49 million contingency which is sufficient construction of a 2 million tons per year mill with a nameplate capacity of 4 million pounds of  $U_3O_8$  per year. Additional costs are estimated US\$58 million over the estimated mine life of 13 years. The operating cash costs were estimated at US\$21 per pound of  $U_3O_8$  during the first 5 years and US\$23.20 per pound of  $U_3O_8$  over the whole mine life. The Net Present Value („NPV“) at a 10% discount rate is US\$400 million after tax. A very good Internal Rate of Return of 35.8% after tax was determined.

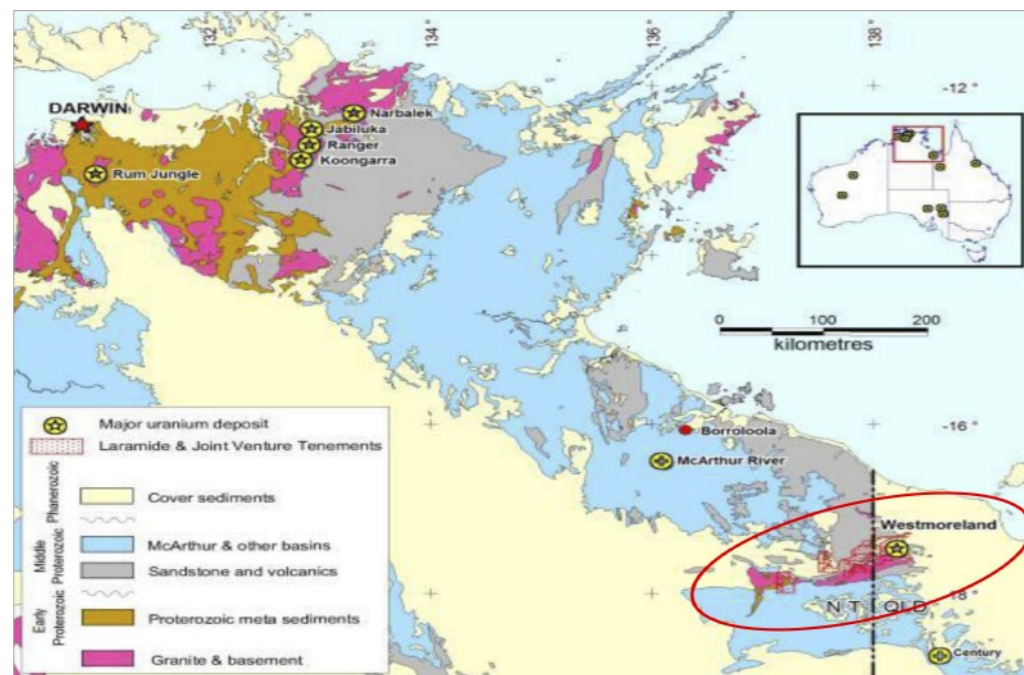
According to company estimates, this would allow for a production of 3.5 million pounds of  $U_3O_8$  per year. The metallurgical studies confirmed a recovery rate of up to 97% with relatively low acid consumption. Currently the mine life is 13 years but with the project having a much higher exploration potential it could extend the mine life for over 15 years.

## Westmoreland Uranium Project – Expansion potential

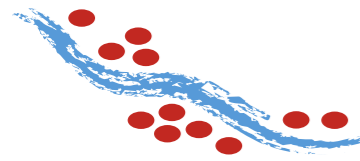
Laramide Resources holds three contiguous joint ventures situated along strike from Westmoreland Project in the Northern Territory, for an additional land package of 1,531 km<sup>2</sup>. The company has besides joint ventures with Gulf Manganese and Rum Jungle Resources one joint venture with the resource giant Rio Tinto. Initial sampling confirms that these joint venture licenses have a big exploration potential. Additional exploration activities on the Murphy joint venture were already decided.

## Churchrock and Crownpoint – Acquisition

In January 2017 Laramide Resources acquired from Uranium Resources Inc. the two ISR projects Churchrock and Crownpoint. The two projects in New Mexico were consolidated into one project due to a distance of only 25km.



The Westmoreland project lies in the Australian provinces Queensland and Northern Territory. (Source: Laramide Resources)



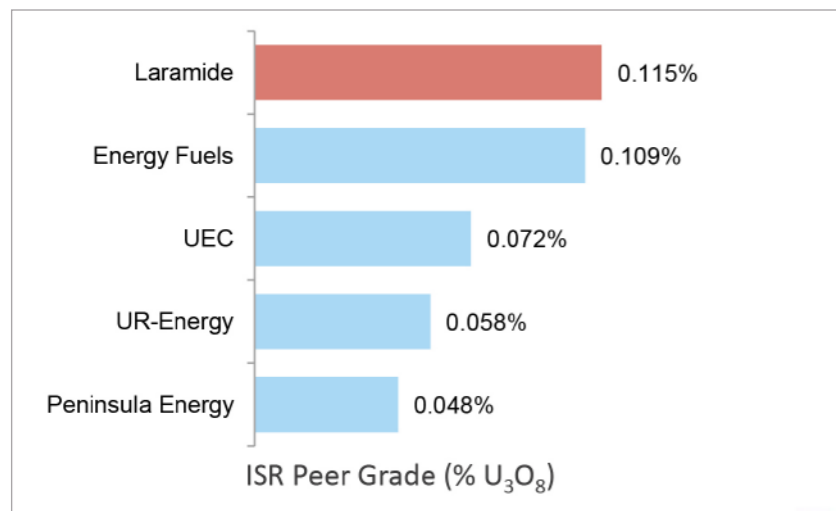
Laramide Resources Ltd.

For the 100% acquisition of Churchrock and Crownpoint, Laramide Resources paid and has to pay US\$2.5 million in cash and transfer a note payable of US\$5 million to Uranium Resources. This debt will be paid back over a period of three years beginning in 2018. In addition, Uranium Resources will receive 2,218,333 shares of Laramide and will keep a Net Smelter Royalty with a value of US\$4.5 million.

### Churchrock

Churchrock is comprised of 7 sections including the deposits Mancos and Strathmore. In the past, over US\$100 million were invested in the exploration of the area. At Churchrock, a resource was confirmed containing 50.82 million pounds of  $U_3O_8$  in the category inferred. A feasibility study from 2012 confirmed that Section 8 can be mined by the low cost ISR method. The capital costs for an initial production of one million pounds of  $U_3O_8$  per year are an estimated US\$35 million and the operating costs are US\$20 to 23 per pound of  $U_3O_8$ . The Internal Rate of Return would be 22% at a uranium price of US\$65 per pound of  $U_3O_8$ .

*The average grades in Section 8 are the highest in the peer-group.  
(Source: Laramide Resources)*



The company could produce 6.5 million pounds of  $U_3O_8$  within 6 years. It should be noted that the average grade of 0.115% is the highest within the peer group.

Section 8 and the adjoining Section 17 in the south where the old Churchrock mine is situated would be the starting point in case of a production. Most of the licenses and permits were granted for that scenario.

West of Section 8 are Sections 7, 12 and 13 where the Mancos mine is located. Mancos contains a historic indicated resource of 11.3 million pounds of  $U_3O_8$ . Northeast of Churchrock (Section 8) lies Section 4, where the Strathmore deposit is located.

### Crownpoint

Crownpoint is located 25 miles northeast of Churchrock. The project contains a historic resource of 15.3 million pounds of  $U_3O_8$  in the category indicated. Although no feasibility study was completed on Crownpoint to date, Laramide Resources holds the majority of the necessary production permits.

### Churchrock and Crownpoint – Development plan

Laramide Resources is currently working on the completion of the mining permits for Section 8 and Section 17. Thereupon a pre-feasibility-study is planned for Section 8 including review and assessment of expansion opportunities including the deposits Mancos and Strathmore. Afterwards, from today's perspective the construction of a satellite facility in the area of Section 8 and 17 is under consideration. A central processing plant will be built at Crownpoint.

### Other projects

Besides the aforementioned ISR projects, Laramide Resources has two other hard rock projects in the USA.

The La Jara Mesa Project is located in New Mexico, 40 miles southeast of Crownpoint. La Jara Mesa contains a NI 43-101 resource of 10.4 million pounds of  $U_3O_8$ . The final operating permits are already in the works.

The La Sal Project is located in Utah, 100km northeast of the White Mesa Mill. A toll milling agreement for the processing of ore from La Sal in the White Mesa Mill was signed with its operator Energy Fuels. Both projects offer a big exploration and expansion potential.

### Summary: diversified developer with enormous resource base and prospect of fast production start

Laramide Resources has a diversified portfolio of large and high-quality uranium projects in the USA and Australia. The company benefits from the not so technologically challenging, and at the same time, low cost production possibilities of open pit mining and ISR mining. The newly acquired projects Churchrock and Crownpoint especially provide the possibility of relative fast production start which would position Laramide Resource in a top position in the case of an expected uranium boom. The stock has good liquidity due to the membership in a top ETF (Global X Uranium ETF). The long-term oriented and supporting main shareholders make Laramide Resources a top pick in the uranium sector.



Laramide Resources Ltd.

**ISIN:** CA51669T1012  
**WKN:** 157084  
**FRA:** L4R  
**TSX:** LAM  
**ASX:** LAM

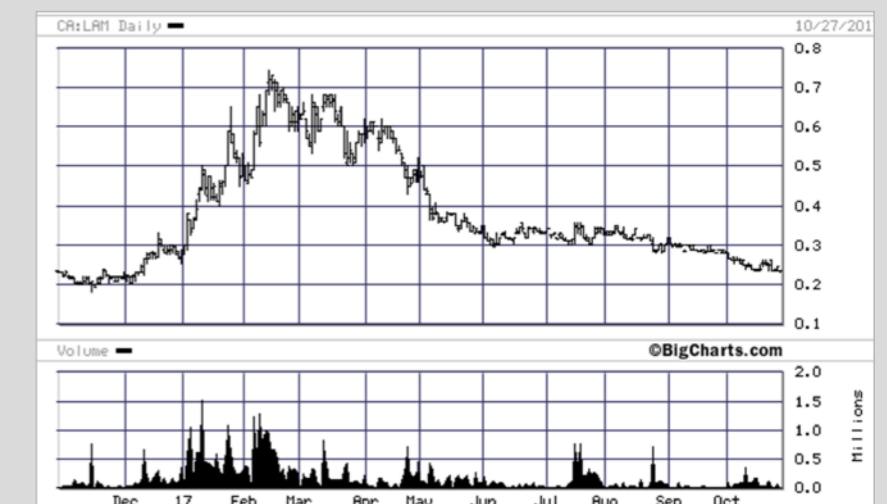
Shares issued: 114.8 million  
 Options: 8.8 million  
 Warrants: 23.5 million  
 Fully diluted: 147.1 million

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## Laramide Resources Ltd.



*(Source: BigCharts)*



# Skyharbour Resources

## Top uranium projects in the Athabasca Basin Region and strong development partners on its side



Skyharbour Resources is a Canadian uranium and thorium development company specializing in exploration projects in the Athabasca Basin. The company holds the majority rights to five projects comprising in total 230,000 hectares in the Athabasca Basin.

### Moore Lake Uranium Project – Location and Deal

Skyharbour Resources' current flagship project, Moore Lake, is located in the southeast of the Athabasca Basin 10km southwest of Denison Mines' Wheeler River mega project and between Key Lake Mill and the producing McArthur River Mine. In July 2016 Skyharbour Resources acquired from Denison Mines the Moore Lake Project comprised of 12 contiguous claims with a total area of 35,705 hectares. For the acquisition of the 100% interest in Moore Lake Skyharbour Resources issued 18 million Skyharbour shares to Denison Mines making Denison the largest single shareholder of Skyharbour. In addition, the company had/has to pay CA\$500,000 in cash and CA\$3.5 million in exploration expenses over a period of five years. An absolute bargain price considering that to date, over CA\$35 million were invested into the exploration at Moore Lake. This amount was used, among other things, for 370 drill holes with a total length of over 135,000m.

### Moore Lake Uranium Project – Historic exploration successes

Since 1969, the Moore Lake Uranium Project has undergone episodic exploration by several companies including Noranda, AGIP, BRINEX, Cogema, Kennebecott/JNR Resources and IUC/Denison. The focus was, among other things, on airborne and ground electromagnetic and magnetic surveys, ground gravity, seismic, and geochemical surveys, map-

ping, sediment sampling programs and the drilling of 370 drill holes in total. From mid-2000 onwards, the primary focus of exploration has been the 3.5-kilometre-long Maverick structural corridor in the southwestern part of the license area where pods of high grade uranium mineralization have been identified. Some of the best intercepts were 4.03%  $U_3O_8$  over 10m including 20%  $U_3O_8$  over 1.4m at a depth of 264.68m. Two additional drill holes returned intercepts with high-grade uranium mineralization of 5.14%  $U_3O_8$  over 6.2m and 4.01%  $U_3O_8$  over 4.7m. In addition, drilling in several other areas has intersected structural disruptions, alterations and anomalous uranium and pathfinder element concentrations.

### Moore Lake Uranium Project – recent exploration successes

After completion of the transaction with Denison Mines, Skyharbour started an initial drill program comprised of 3,500m in February 2017. Three of the five initial drill holes returned high-grade radioactivity and uranium mineralization. The first drill hole in the so called Main Maverick Zone contained 20.8%  $U_3O_8$  over 1.5m within a 5.9m long interval with 6.0%  $U_3O_8$  at a depth of 262m. The fourth drill hole returned 5.6%  $U_3O_8$  over 1.8m with in an interval with 1.4%  $U_3O_8$  over 10.7m at a depth of 267m. The special fact: the fourth drill hole was drilled 100m to the east of the high-grade Main Maverick Zone and returned a new discovery!

Due to the initial drill success, the original drill program (3,500m) was expanded two times for a total of 5,450m in 15 drill holes. In May 2017 Skyharbour Resources announced additional significant drill results. Drilling in the Main Maverick Zone returned 2.25%  $U_3O_8$  over 3.0m and in the area of the new discovery named Maverick East Zone 1.79%  $U_3O_8$  over 11.5m including 4.17%  $U_3O_8$  over 4.5m and 9.12% over 1.4m. In August 2017, Skyharbour Resources

started an additional 2,500m drill campaign focusing on the eastern area of the Maverick Structure. To date only 1.5km of the at least 4km long corridors were drill tested.

Currently the company continues to work on the compilation of historical airborne and ground electromagnetic as well as magnetic surveys, gravitation and seismic surveys as well as geochemical programs, mapping, sediment sampling and data from 370 drill holes in total to integrate in a modern database. This will allow for better identifying and defining priority targets.

In January 2018 an additional 5,000m drill program will follow.

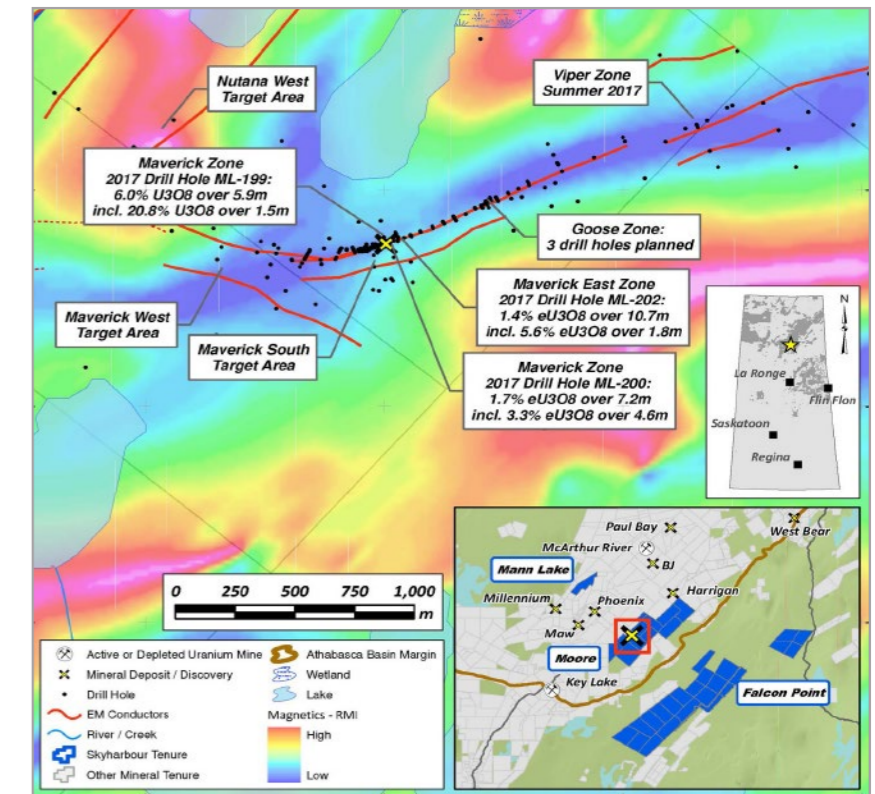
### Preston Uranium Project – Location and exploration work

The Preston Uranium Project is located in the southwest, just outside of the Athabasca Basin in the Patterson Lake Region. To the north it borders Fission 3.0's and NexGen's project areas. The 121,000-hectare Preston Project (50% Skyharbour Resources; 50% Clean Commodities Corp., Skyharbour's partner) is not far from the top-class discoveries of NexGen (Arrow) and Fission Uranium (Patterson Lake South).

To date the two partners have spent CA\$4.7 million for the exploration of the vast license areas. They identified 15 areas with similar indicators as at Patterson Lake South and Arrow. In addition, many other drill targets provide a high exploration potential.

### Preston Uranium Project – Option agreement with AREVA

In March 2017 Skyharbour Resources and its partner Clean Commodities Corp. signed an option agreement with AREVA Resources Canada which provides AREVA an option to acquire up to a 70% interest in the 49,600-hectare western porti-



Skyharbour Resources reported fantastic drill

results from Moore Lake

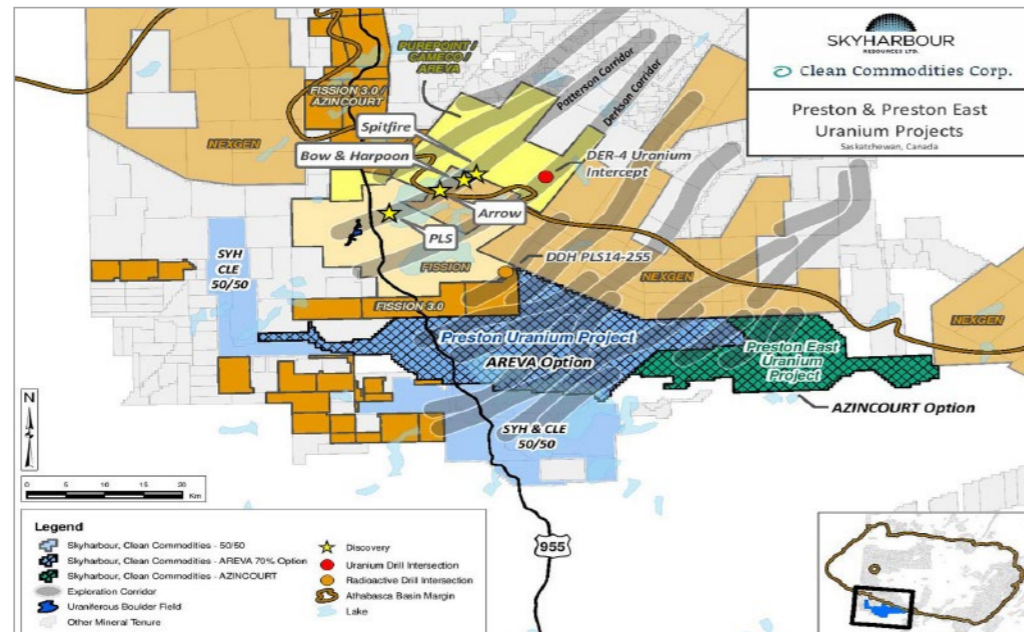
(Source: Skyharbour Resources)

on of the Preston Uranium Project by investing CA\$7.3 million into the exploration of the project within 6 years and contributing an additional CA\$700,000 in cash. AREVA may acquire an initial 51% interest by funding exploration expenditures in the total amount of CA\$2.8 million over a 3-year period and making cash payments totaling CA\$200,000.

### Preston Uranium Project – Option agreement with Azincourt Uranium

Also in March 2017 Skyharbour Resources signed a second option agreement with Azincourt Uranium Inc. for the so called East Preston Uranium Project which is located in the eastern part of the overall Preston Project and comprises an area of 25,300 hectares. Azincourt can acquire a 70% interest in the East Preston Uranium Project by issuing 4.5 million shares to Skyharbour Resources and

The Preston Uranium Project is located in the southwest, just outside of the Athabasca Basin in the Patterson Lake Region.  
(Source: Skyharbour Resources)



the partner Clean Commodities Corp. as well as paying CA\$1 million in cash within three years and investing an additional CA\$2.5 million in the exploration and development of the project area. Due to these top deals (in total CA\$9.8 million in development expenditures from AREVA and Azincourt) Skyharbour Resources and partner Clean Commodities Corp. can be reassured that the exploration of the project area continues whereas they don't have to bear the exploration costs and can focus on Moore Lake. In addition, they will receive CA\$1.7 million (50% for Skyharbour Resources) at their free disposal.

### Other top projects

Besides Moore Lake and Preston Skyharbour Resources holds other top projects. Among those is the Falcon Point Uranium & Thorium Project. This project, totaling 79,000 hectares is located 55km east of the Key Lake Mine. In 2015 Skyharbour Resources announced a NI 43-101 resource for Falcon Point containing 6.96 million pounds of U<sub>3</sub>O<sub>8</sub> and 5.34 million pounds of ThO<sub>2</sub>. The geological

and geochemical features of the project show distinct similarities to some of the best projects in the Athabasca Basin such as Eagle Point, Millennium, P-Patch and Roughrider. Recent sampling at the north end of the property returned up to 68% U<sub>3</sub>O<sub>8</sub>. Another top project is Mann Lake which borders directly the joint venture project of Cameco, Denison and AREVA with the same name. Mann Lake is located strategically 25km southwest of Cameco's McArthur River Mine and 15km northeast of Cameco's Millennium uranium deposit. In 2014 a drill campaign of Cameco returned, among other results, 2.31% U<sub>3</sub>O<sub>8</sub> over 5.1m including 10.92% U<sub>3</sub>O<sub>8</sub> over 0.4m.

### Upcoming catalysts

For 2017 we can expect several drastic developments at Skyharbour Resources and its partners. Skyharbour Resources will conduct a summer drill program to, among other things, make a discovery in the eastern part of the Maverick Structure and at Moore Lake. AREVA and Azincourt Uranium will start the explora-

tion and development work at the Preston Project. In addition, Skyharbour Resources plans to find additional partners for its projects within its "Prospect Generator Models" to have on the one hand these projects advanced and on the other hand to generate additional funding for the advancement of the flagship project Moore Lake.

### Summary: top projects, strong partners and a good business model

Due to its top projects, strong partners and the good business model Skyharbour shines. The flagship project Moore Lake speaks for itself. Top grades and a tremendous exploration potential in the immediate vicinity of some of the best

uranium deposits in the world. Some top news can be expected! The company could attract two top development partners for the huge Preston Project. They will not only pay the exploration costs during the coming years and quickly advance Preston, they will also pay a lot of cash to advance Moore Lake. Therewith, Skyharbour's Prospect Generator Business Model is paying off. With the largest single shareholder, Denison Mines, who's CEO David Cates has a seat in Skyharbour Resources' Board of Directors, the company has a technical development partner on its side. Therefore, Skyharbour Resources is one of the top picks in the uranium sector for years which could possibly make several big discoveries.

## Interview with Jordan Trimble, CEO of Skyharbour Resources



Jordan Trimble, CEO

### What did you and your company achieve within the last 12 months?

The last 12 months have been transformative for Skyharbour starting with the deal to acquire our flagship property, the Moore Uranium Project, from Denison Mines (TSX: DML), one of the world's largest publicly traded uranium companies and Skyharbour's largest strategic shareholder. During the winter of 2017, the company completed its first drill program at Moore, which successfully yielded high-grade results including 21% U<sub>3</sub>O<sub>8</sub> over 1.5 meters within 5.9 meters of 6.0% U<sub>3</sub>O<sub>8</sub> at shallow depths (265m). In addition to its core strategy as a discovery-driven exploration company, Skyharbour employs the prospect generator model to fund exploration at its other projects in the Basin. In March of 2017,

Skyharbour announced two option agreements on its Preston Project, one with industry leader AREVA, that total over \$10,000,000 in exploration and \$1,700,000 in cash payments.

### What are the main catalysts for your company within the next six months?

The major catalysts over the next six months for Skyharbour will be multiple fully-funded drill programs. The company is currently carrying out a 2,500m summer program at Moore followed by a planned 5,000m program starting in January at Moore both of which have the potential to yield additional high-grade discoveries. Furthermore, Skyharbour's option partners AREVA and Azincourt are planning exploration programs soon on



the Preston property located proximal to Fission and Nexgen's world-class deposits. Lastly, the company is in negotiations with other strategic partners to option some of its other secondary projects to ensure the project base is advanced and consistent news flow is generated.

**What is your opinion about the current conditions of the uranium market?**

The current \$20/lb spot price for uranium is unsustainably low in the long run. Looking at the supply side, the lowest cost producing mine globally, located in Kazakhstan, has an all-in cost of approx. \$22/lb and the global average production cost is double the current spot price at approx. \$40/lb. For meaningful new supply to come online, most analysts are forecasting a \$50-\$60/lb uranium price to incentive new mine builds. We are now starting to see meaningful production cutbacks and development curtailment because producers simply can't make

money at these prices including the swing producer Kazakhstan announcing a 10% production cut earlier this year. Excess secondary supply has put pressure on the spot price, but once these supplies subside, there will be a significant supply deficit and prices will rise quickly. On the demand side, there are 58 new reactors under construction (21 of those in China), the Japanese are restarting their reactors (5 have been turned on since Fukushima with 21 more in the approval process), and we are entering a new contracting cycle with the utility fuel buyers as 80% of the existing long-term contracts expire by 2025 (uncovered demand of 174mm lbs by 2025). These factors are all bullish for the price of uranium going forward.

## Skyharbour Resources Ltd.

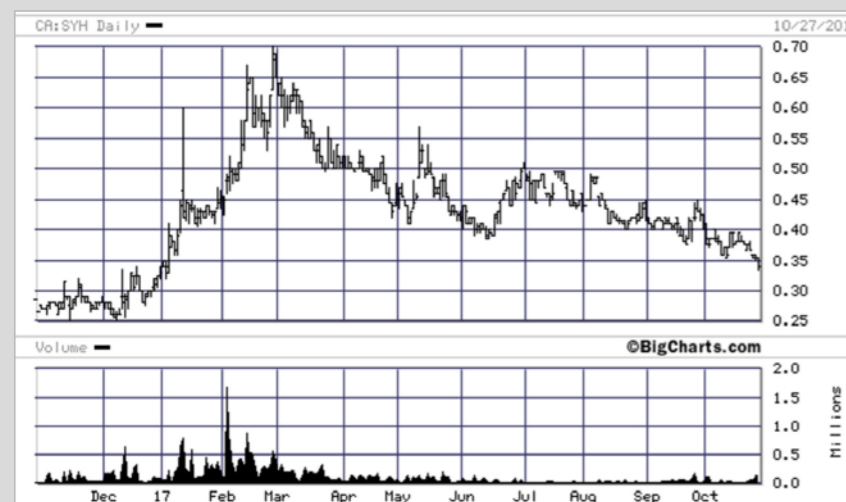
**ISIN:** CA8308166096  
**WKN:** A2AJ7J  
**FRA:** SC1P  
**TSX-V:** SYH

Shares issued: 53.5 million  
Options: 4.2 million  
Warrants: 25.0 million  
Fully diluted: 82.7 million

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(Source: BigCharts)

## Uranium Energy

### Four permitted mining projects and a central processing plant provide large leverage

Uranium Energy, a former U.S. uranium producer, is within a small circle of a few companies that will revive the dormant U.S. uranium industry in the case of the most likely rebound of the uranium sector. Besides the former producing Palangana mine, Uranium Energy will produce from the Goliad Project and the recently permitted Burke Hollow Project in the future. The recently acquired Reno Creek Project and the Alto Paraná titanium project will add additional resources.

### Palangana Project is ready at any time

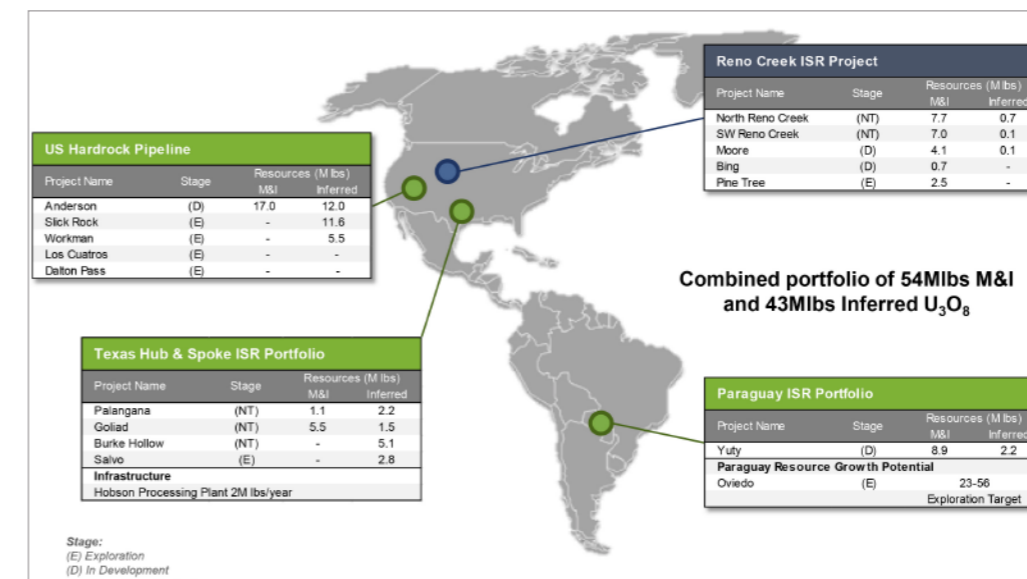
"Former U.S. uranium producer": because the company did operate its Palangana Project, Texas, in the past. The Palangana ISR Project is completely licensed and received the final production permit in 2010. The production began in December 2010 and was halted due to the uranium price development in July 2014. The Palangana Project contains a resource of 3.3 million pounds of U<sub>3</sub>O<sub>8</sub>. The company estimates capital costs of US\$10 million to re-commission Palangana within 6 months. The production cash costs are below US\$22 per pound of uranium, according to the company.

### Uranium friendly Texas

Texas is one of the few U.S. states which environmental agency can grant mining permits independently from the U.S. federal agencies. The Texas Commission on Environmental Quality granted a mining permit for the Goliad Project, which is the only one of its kind granted to a corporation during the past 10 years. Within the past 35 years all applications for production licenses were granted in Texas. The southern Texas uranium trend extends over 300km crossing 54 counties in Texas. 26 of 31 deposits within this trend were or are amenable for the low cost in-situ recovery (ISR) mining.

### Goliad Project fully permitted

The second advanced ISR Project, Goliad, has had a final production license since December 2012. The Goliad Project, like Palangana, is near the Hobson processing plant and is the biggest ISR uranium project in Texas. It hosts a NI 43-101 resource of close to 7 million pounds of U<sub>3</sub>O<sub>8</sub> with 5.5 million pounds in the category measured and indicated. The remaining 1.5 million pounds are in the category inferred. This independent esti-



Uranium Energy owns a diversified uranium resource base.  
(Source: Uranium Energy)

mate is based on a total of 487 historic drill holes and 599 drill holes drilled by Uranium Energy. The Goliad Project provides additional potential because the mineralization is open to all sides. It is expected that the actual resource can be largely expanded.

### Permit for Burke Hollow

The third top ISR project, Burke Hollow, received the complete mining permit in December 2016. Burke Hollow contains a resource of 5.12 million pounds of  $U_3O_8$  and is located 54km from Hobson. In total five independent uranium trends were identified on the license area. Only half of the license area was explored for uranium deposits to date.

In 2017 Uranium Energy commenced a new drill campaign which rapidly delivered initial promising results (average uranium grades of 0.67%) and therefore was expanded from the original 90 drill holes to 120 drill holes. The trend was extended from 1.7km to 4km.

### Hobson production plant an ace up the sleeve!

The Hobson production plant is a completely permitted, and for the production, a licensed production facility that originally could produce one million pounds of "Yellow Cake" per year. The facility was completely refurbished in 2008 and is up to date. The production was doubled by a vacuum dryer and the fully licensed Hobson production facility has now a production capacity of two million pounds of  $U_3O_8$  per year.

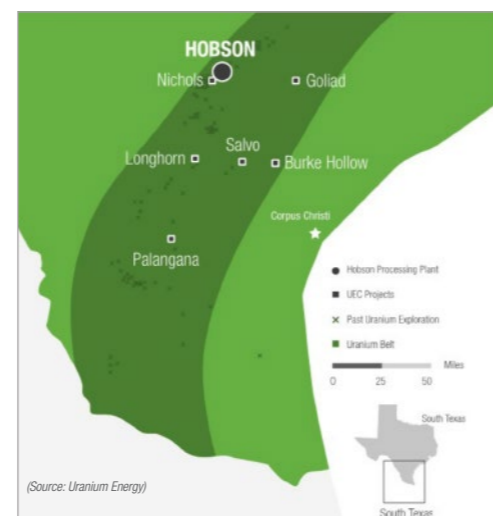
### Reno Creek Project

In May 2017 Uranium Energy announced the acquisition of Reno Creek Holdings Inc. and thereby, 100% of its fully permitted Reno Creek in-situ recovery ("ISR")

uranium project located in Wyoming. In February 2017 Reno Creek was issued a Source and By Product Materials License from the U.S Nuclear Regulatory Commission in connection with a Final Environmental Impact Statement and Record of Decision, the last important production license! Now Uranium Energy can start the construction of the ISR fields and a central processing plant to mine and produce up to 2 million pounds of  $U_3O_8$  per year!

Reno Creek contains a large NI 43-101 resource of 21.98 million pounds of  $U_3O_8$  in the category measured and indicated plus 930,000 pounds in the category inferred. Uranium Energy increased its resource base by approximately 70% with this acquisition! A pre-feasibility-study from the year 2014 confirms a high profitability at low capital and operating costs. Uranium Energy issues to the controlling shareholder of Reno Creek, the Pacific Road Resources Funds holding 97.27% of all shares, only 14 million of its shares (value of US\$17 million) plus 11 million warrants and a 0.5% royalty capped at US\$2.5 million.

Including the remaining 2.73%, which Baywater Uranium Corporation is conceding to Uranium Energy, Uranium Energy is paying less than US\$20 million for a fully licensed ISR project with a resource of over 20 million pounds of  $U_3O_8$  and a



much larger exploration potential! Although the previous owner of Reno Creek has paid more than US\$60 million for the exploration and development! Uranium Energy is working on a new optimized pre-feasibility-study.

### Alto Paraná Titanium Project

In July 2017 Uranium Energy acquired CIC Resources (Paraguay) Inc. and thereby over 70,000 hectares land in Paraguay were the Alto Paraná Titanium Project and its pilot plant is located. Until then CIC Resources and its former joint venture partner Tronox had invested about 25 million dollars in the project.

In accordance with the terms of the share purchase and option agreement, Uranium Energy had to issue to the Vendor 664,879 restricted common shares of the company, at a deemed issuance price of US\$1.5363 per share, for aggregate consideration of US\$1,021,453. In addition to the consideration, the Company has granted the Vendor a 1.5% net smelter returns royalty on the Property. Uranium Energy previously had acquired all of the issued and outstanding shares of JDL Resources Inc. pursuant to the terms of the share purchase and option agreement, in June 2016. The Company acquired JDR in exchange for a cash payment of \$50,000 and the issuance of 1,333,360 shares to the vendor. JDR holds additional titanium mineral concessions that border the property.

The Alto Paraná Titanium Project is an advanced exploration stage project located in eastern Paraguay, within the department of Alto Paraná, approximately 100 km north of Ciudad del Este. The property covers an area of 70,498 hectares under five mining permits. The project is near Itaipu, the second largest hydro-electric dam in the world and a source of cost-effective power. Work to date on the Property has included an extensive program of pitting and auger drilling, development of a small test mine,

construction of a pilot plant to evaluate the proposed beneficiation flow sheet, bench scale smelting tests, production of approximately 110 tons of concentrate for a large-scale smelting tests and associated engineering, marketing, logistical and environmental work.

In September 2017 Uranium Energy released its own resource estimate for Alto Paraná. The total inferred resource has been estimated at 4.94 billion tons grading 7.41% titanium oxide ("TiO2") and 23.6% iron oxide ("Fe2O3") at a 6% TiO2 cut-off, making Alto Paraná one of the highest-grade and largest-known Ferro-Titanium deposits.

### Other potentially top projects in the pipeline!

Besides the projects in Texas and the Reno Creek Project Uranium Energy has the majority in a series of additional potentially top projects.

The Anderson Project in Arizona contains over 29 million pounds of  $U_3O_8$  and a positive economic assessment was completed giving an Internal Rate of Return (IRR) of solid 63% before tax based on a uranium price of US\$ 65.

The Slick Project in Colorado contains over 15.7 million pounds of  $U_3O_8$  and has a pre-tax IRR of 33%.

Uranium Energy has two prospective projects in Paraguay. Yuty contains resources of over 11.1 million pounds of  $U_3O_8$  and Oviedo's exploration target is 23 to 56 million pounds of  $U_3O_8$ .

### Top CEO as guarantor of success

President and CEO Amir Adnani is an entrepreneur with excellent contacts within the mining and financial world. He founded, among other things, Blender Media Inc. a company considered as fastest growing company in Canada. Besides Uranium Energy he manages Gold-



Mining Inc. a so called “Mineral Bank” with a resource base of over 24 million ounces of gold.

**Summary: solid project pipeline, strong leverage on uranium price**

Contrary to five years ago when Uranium Energy was a uranium producer, the company can now mine instead of one (Palangana), four projects in the future and use to capacity its Hobson processing plant. The highlight is the fact that the Palangana Project has a mining permit already, meaning a production can be started in a very short time frame. In addition, the Palangana Project, Uranium Energy’s second and third licensed uranium projects Goliad and Burke Hollow are located in close proximity to the Hobson production facility.

Together with the recently acquired Reno Creek Project that is also fully licensed, the company has close to 100 million

pounds of U<sub>3</sub>O<sub>8</sub> and the possibility to produce 4 million pounds of U<sub>3</sub>O<sub>8</sub> per year in the future instead of 2 million pounds of U<sub>3</sub>O<sub>8</sub>.

As a final touch the company could secure a well-advanced titanium project for little money which offers future potential. Uranium Energy combines all expected advantages of the supply deficit at the uranium market, of a low-cost mining method, central processing plants and a uranium friendly environment.

In Texas, we expect our RML to be issued in the next 6-months which remains the last major permit for Burke Hollow. Similarly, we have further completed a 130-hole drill program at Burke Hollow, looking to increase our 43-101 resources. At Reno Creek, we are working towards an updated PFS while continuing to make accretive, counter-cyclical acquisitions.

Nuclear energy continues to expand globally due its ability to deliver large amounts of reliable, 24/7 baseload energy without carbon emissions and can do so at competitive generating costs. China is the leader in this growth story moving from the currently installed 31 gigawatts of capacity from 30 reactors to close to 100 gigawatts within 10 years. The Chinese have increased their emphasis on nuclear energy in policy and actions as a way to deliver vast amounts of electricity without adding to severe crisis level air pollution in Chinese cities.

**What is your opinion about the current conditions of the uranium market?**

Recent market activity has been speculative purchases by traders and not utility procurement for reactors. Resumption of more robust utility procurement levels is key, which was something which evaded the market in 2016-17. Currently, off-market and public tenders from end-users outside the U.S. is increasing- perhaps signaling a longer-term trend. The substantial level of uncommitted uranium requirements in the coming years would point to not “if” but “when” that procurement cycle will return in substantial volumes to test the emerging improved supply dynamics.



Amir Adnani, CEO

**Interview with Amir Adnani, CEO of Uranium Energy**

**What did your company achieve within the last 12 months?**

UEC recently acquired the fully permitted Reno Creek in-situ recovery project. Reno Creek hosts an NI 43-101 Measured and Indicated resource of 27.47 million tons grading 0.041% U<sub>3</sub>O<sub>8</sub> yielding 21.98 million lbs. Reno Creek is located within the Powder River Basin in Wyoming, a uranium mining-friendly state with excellent infrastructure and an experienced labor force. The project has been permitted for production of 2 million lbs. U<sub>3</sub>O<sub>8</sub> per year.

A Pre-Feasibility Study completed in 2014 has also demonstrated strong project economics with low capital and operating costs consistent with ISR projects in Wyoming. A new and optimized PFS is in progress. In return for increasing our ISR M&I resources by over 100%, UEC paid \$18M for the acquisition for only 9% dilution while gaining Pacific Road as a new shareholder who had invested \$60M in the project.

**What are the main catalysts for your company within the next 6 months?**

**ISIN:** US9168961038  
**WKN:** A0JDRR  
**FRA:** U6Z  
**NYSE:** UEC

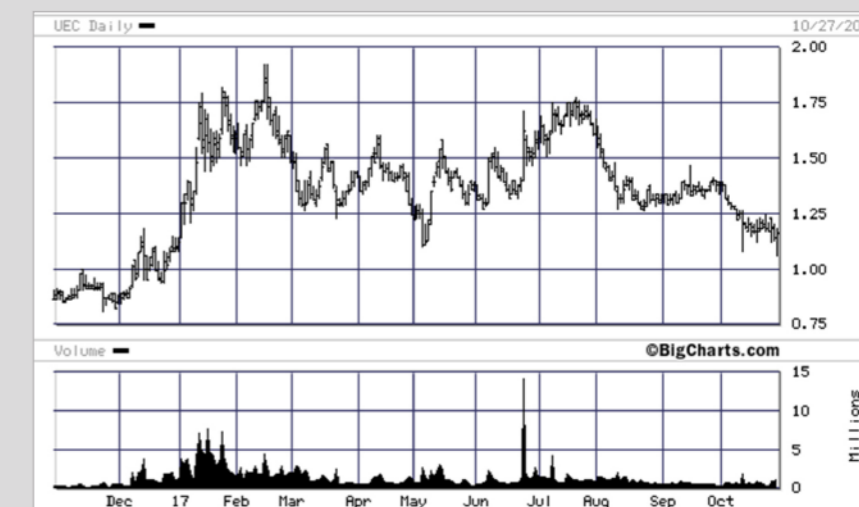
Shares issued: 154.9 million  
Options: 12.2 million  
Warrants: 31.0 million  
Fully diluted: 198.2 million

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**Uranium Energy Corp.**



(Source: BigCharts)





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