



**July 23<sup>rd</sup>, 2018**

## **An investment with short- and long-term potential...**

I want to step away from the day-to-day / week-to-week grind of opining on the latest data and news cycle and instead conduct a deeper dive into an investment opportunity that could potentially be one of the most compelling I've come across in my career.

At the moment, the current set-up in the capital markets and economy appears to be rather predictable:

- U.S. economic growth is as strong as it's been at any point since the recovery began back in 2009. We are set to get Q2 GDP at the end of the week with consensus estimates looking for a number north of 4% and some whispering that a 5% print isn't out of the cards. Unfortunately, the strength in Q2 doesn't look as though it will be sustainable given it's being bolstered by a couple of one-off items, and what we've seen thus far in the data kicking off Q3 is that momentum has already started to turn down.
- Corporate earnings are also white hot with Q2 earnings set to put another 20% EPS growth rate in the record books. There isn't much shade I can throw on this burst of sunshine as revenue growth flirting with 9% is even more impressive and substantiates the earnings backdrop. However, like the upbeat GDP print,

corporate earnings will have to contend with some headwinds in the second half of the year with input costs rising in almost every area (transport costs, wage pressures, and supply chain pressures due to trade tensions).

- Even in the face of last week's comments from President Trump that the Fed's tightening policy was negating the potency of this administration's growth policies, the Fed appears steadfast in the gradual course it has guided markets to expect over the next 18 months. So for now, uncertainty about the Fed's future path with rate hikes and balance sheet reduction is discounted into market prices. My expectation is that they will have to change course sometime prior to year-end (whether it be adjusting the balance sheet reduction schedule or postponing rate hikes), but that element of uncertainty and

volatility will likely materialize later in Q3 / early Q4 when/if the economic data in the U.S. starts to turn down in a more material way. Add to this the likely material pick-up in inflation data that looks set to meaningfully pick up in the second half of the year and we have ourselves a recipe for an eventful second half on many fronts.

Such an environment will be sure to create volatility in many markets – namely currencies (ironically the capital market segment that has experienced some of the most volatility so far this year), interest rates (it will be interesting to see just how far rates can rise with a corresponding increase in inflation readings and in the face of the most indebted global financial system in history), and lastly in U.S. equities which through the first seven

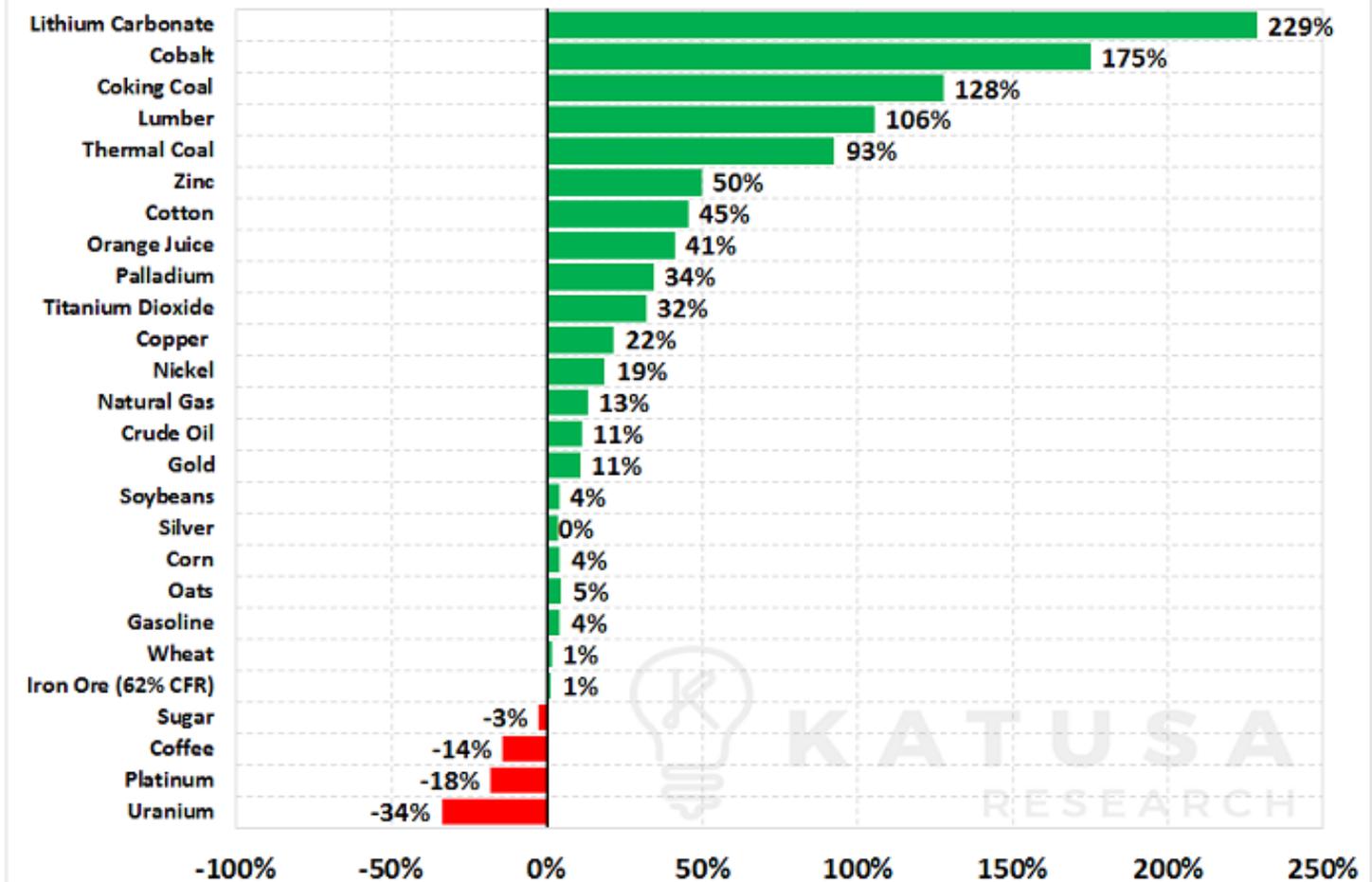
months of this year have taken on the moniker of the ‘safety asset’. Think about that, while we did have a 3-4 week bout of U.S. equity market volatility in late January / early-February, when looking at the balance of 2018 we’re talking about an S&P 500 index that has been magnetized to the 2,800 level for the better part of the year:

- January 16<sup>th</sup>: First time the S&P 500 reached the 2,800 level.
- March 13<sup>th</sup>: Reclaimed 2,800 after the late January / early February correction.
- June 13<sup>th</sup>: Reclaimed 2,800 once again after an April retest of the February low.
- July 20<sup>th</sup>: Reclaimed 2,800 once again last week, but showing more signs of

broad based exhaustion than the prior times it reached these levels.

So let's talk about nuclear energy, and in particular the fuel source and those companies that produce it to create this base load power. I'm talking about uranium, which has been in a decade-long bear market that has taken the resource down nearly 87% from its \$137/lb peak price back in 2007 to just under \$24/lb at the current time. The table below accentuates just how out of favor this resource has been by pulling up the rear in terms of commodity price performance over the last three years.

## 3 Year Commodity Performance



However, a confluence of events have materialized over the last 18 months that appear to be setting the stage for a potentially explosive inflection point over the next 12 – 18 months.

Perhaps the easiest way to simplify and summarize this complex investment

opportunity is through the prism of supply and demand. So, let's start with the demand side of the equation, and before jumping to the conclusion that nuclear energy is a dying industry where the future of carbon free (environmentally friendly) power rests solely on the advancements made in solar, wind, and hydrogen as alternative energy sources, let's take a look at data. Currently there are 450 nuclear reactors in operation around the globe, but where the real growth potential lies is in the 57 reactors currently under construction, 154 reactors in the planning stage, and 333 reactors in the proposal stage of the construction pipeline.

## World Nuclear Reactor Fleet: Operating Through to Proposed



China is at the forefront of the pickup in nuclear energy demand with 19 reactors currently under construction and plans to build 99 reactors by 2030. Should this come to fruition, it will tie the U.S. (99 reactors in operation) for the largest reactor fleet in the world. India has expressed a goal of having 25% of its base load power sourced by nuclear energy by 2050 (keep in mind only 3% of India's electricity comes from nuclear at the moment). It's also interesting to see fossil fuel dependent nations like Russia with 7 reactors under construction (plans to bring on

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one large reactor per year from now through 2028) and Saudi Arabia planning to bring online its first reactor in 2022 (and plans to build 16 reactors by 2030).

Japan also represents a material near-term pick-up in demand as they have already restarted 9 of their previously shutdown reactors with the expectation to have 17 operating by year-end and a target of getting back to 20-22% of the country's energy mix derived from nuclear power by 2030.

As a result of the meaningful increase in nuclear reactors around the globe, uranium consumption is forecasted to increase from 154 million pounds in 2017 to 188 million pounds in 2022, and 222 million pounds in 2030. That's an almost 45% increase in uranium demand over the next decade. Now some will rightly point out that some of this

increase in demand from new reactors will be offset by the decommissioning of some reactors in the developed markets like Germany, the U.S., and the U.K. But the notion that the likes of the U.S. and some of the larger European regions are moving aggressively away from nuclear energy is drastically overstated. In the U.S., legislation was just passed a few months ago to extend the life of three nuclear reactors expected to be decommissioned in New Jersey because of the realization that the infrastructure wasn't in place to replace the power generating capacity these reactors produced.

What is often overlooked in many developed economies, with all the hope and hype that has been placed on the innovation in solar, wind, and hydrogen, is just how much base load power many of these regions generate from nuclear. For instance, 20% of base load

power in the U.S. comes from nuclear – yes, 1 in 5 homes furnishes their electricity from nuclear. These percentages are even higher in many other regions.

### Top Nuclear Power Generating Nations

Country	% of energy from nuclear
France	72.3%
Slovakia	54.1%
Ukraine	52.3%
Belgium	51.7%
Hungary	51.3%
Sweden	40.0%
Slovenia	35.2%
Bulgaria	35.0%
Switzerland	34.4%
Finland	33.7%

Country	% of energy from nuclear
Armenia	31.4%
Korea	30.3%
Czech Republic	29.4%
Spain	21.4%
United Kingdom	20.4%
United States	19.7%
Russia	17.1%
Romania	17.1%
Canada	15.6%
Taiwan	13.7%

Source: International Energy Agency report "Key World Energy Statistic", 2016 edition.

Ken Caldeira of Stanford University's Department of Global Ecology perhaps sums it up best in saying "there's only one technology that we know of that supplies carbon-free power at the scale a modern civilization requires, and that is nuclear

power.” This isn’t to say that nuclear is the only solution, but it is part of the diversified mix of electricity solutions most nations would like to supply to their economies. What is clear is that the societal mood is moving in the direction of less reliance on fossil fuels and environmentally damaging fuel burning sources, which puts a target on the back of coal (no matter what short-term bump this administration gives to this industry) and oil. China is an enlightening case study given the poor air quality they are attempting to improve upon and while they have invested heavily in solar, wind, and hydrogen power sources, they understand that they need a reliable steady current as part of their power grid – this is how nuclear energy works into this diversified portfolio by complimenting these other sources.

So the demand side of the story looks compelling – what about the supply side of the equation?

As is said in commodity markets: high prices are a cure for high prices and low prices are a cure for low prices. In the mid-2000's, uranium took off on a parabolic bull market that took the commodity price from less than \$10/lb to nearly \$140/lb at the peak in 2007. At the peak of the 2007 bull market there were approximately 500 uranium mining companies putting product on the market which ultimately led to over production and an abundance of supply pushing prices lower.

## Uranium Price



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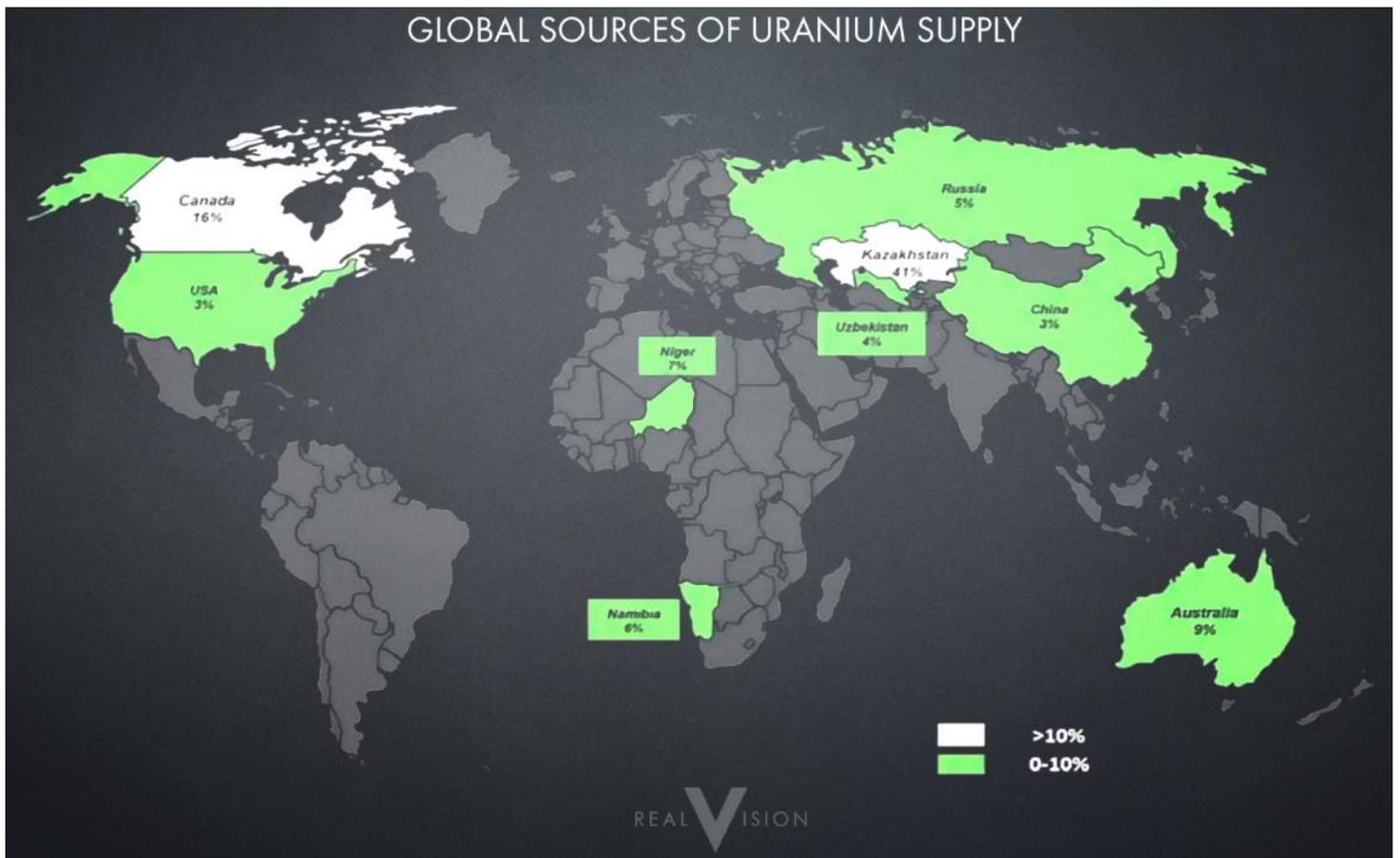
Source: Cameco

Then in 2011 the world witnessed the nasty nuclear reactor meltdown in Fukushima, Japan that in one fell swoop led to all of the 54 nuclear reactors operating in Japan being taken off-line shortly thereafter. It was a perfect storm: an industry that was oversupplied with uranium having just lost one of its largest demand sources in the world. That event caused the whole world to take a

step back on assessing the risk/reward proposition of nuclear energy. But, like with many things, time heals most wounds and over the last several years – punctuated with the advances in technology and safety metrics in modular reactor construction – nuclear energy has gone through a renaissance.

It was just last year that the constructive long-term demand story for uranium linked up with a changing of the tide on the supply side of the equation. The uranium supply market really comes down to a duopoly of two suppliers controlling over 50% of annual uranium supply. Cameco, based out of Canada, is the largest publicly traded uranium mining company which is estimated to provide about 15% of annual supply. Kazatomprom is a state-owned mining company in Kazakhstan and is estimated to be responsible for over 40% of annual uranium supply. So, we are

talking about two entities responsible for over 50% of the world's uranium supply which should provide some context when one considers that the OPEC cartel is believed to have a large influence on oil prices with a little more than 40% of annual oil supply.



It's safe to assume that when these two key suppliers take action to influence the price of uranium that investors should take notice. This is what happened late last year when

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Cameco announced the shutdown of the largest producing single uranium mine in the world (McArthur River Mine) and just a few weeks later Kazatomprom followed suit with an announcement to take 20% of their annual uranium production offline by 2020. The rationale behind Cameco's decision was very easy to understand from an economic standpoint as they clearly laid out that it costs them on average roughly \$60/lb to extract the uranium out of their mines and bring it to market, yet the spot price of uranium was trading at around \$23/lb. As for Kazatomprom, they have their sights set on listing the company publicly through an IPO later this year which in order to maximize the value of the shares they are selling, they want the uranium price to be higher.

## Summarizing the big picture perspective:

- Estimated uranium demand for 2018 is 175 million pounds and is expected to grow by 2.5 – 3.0% per year through 2030.
- Estimated uranium production for 2018 is approximately 150 million pounds with the number of uranium mining companies plunging from over 500 (with a collective market cap of \$125 billion) in 2007 to less than 50 mining companies today (with a collective market cap of less than \$6 billion).
- The average breakeven cost of production for a pound of uranium today is approximately \$60 which makes it uneconomic to produce uranium with the spot price trading at \$24/lb.
- Research from Segra Capital Management's Adam Rodman estimates that there hasn't been any money invested into a new uranium mine since 2013. The

life cycle of a uranium mine from start to finish (contract, permitting, construction, extraction, refinement...) is approximately 7 – 10 years, so there is marginal risk that an abundance of new supply can enter the market in a short period of time should the price of uranium move back to the average cost of production.

So while the 30,000 foot view of the industry and potential investment opportunity looks compelling on a long-term basis, what has frustrated many investors in this space over the last several years (myself included over the last eight months) is the timing of when this constructive set-up starts playing out in the capital markets. Well, it appears as if there are several potential catalysts afoot at the current time that could mark an inflection point in the second half of the year.

For starters, spot uranium prices (after a mild slide into early April) are hitting their highest level of the year (up nearly 16% since the low in April). A possible driver of this price rise is the recent listing over in London of Yellocake, PLC, a holding company that raised \$200 million dollars to buy 8.1 million lbs of uranium inventory from Kazatomprom. This was a speculative purchase on the part of this Special Purpose Vehicle (SPV) which is going to do nothing more than take this existing supply of uranium off the market and hope to profit at a later date by selling it a higher price. What's more is that this SPV also has an agreement to purchase 25% of Kazatomprom's annual production in future years. The fact that institutional money has been raising capital to invest in this space – from both Wall St. and Silicon Valley – is a noteworthy development given the lack of

participation from these groups over the last decade.

Another potential positive catalyst on the horizon is an announcement from Cameco on the shutdown of its McArthur River mine. It was originally slated to be shut down for 10 months with the hopes that it would allow excess inventory to be removed from the market and force prices higher. However, prices are little changed over this time period and given the criteria Cameco laid out for what would determine whether they bring it back online or put it into ‘care and maintenance’ (extending the shutdown) – it looks more likely that they decide on the latter.

Lastly, the Department of Commerce just announced last week that they have started the Section 232 investigation that was submitted

to them by two domestic uranium miners back in January – arguing that it was in the United States’ interests to label uranium imports as a “threat to impair U.S. national security”. The timeline for any clarity on this decision is not likely to come anytime in the near future given the DoC has 270 days to conclude its decision, and should it decide action is necessary then the President has 90 days to devise a course of action. The U.S. nuclear reactor fleet consumes roughly 50 million pounds of uranium per year with less than 1 million lbs of uranium expected to be produced from domestic miners this year – said another way, nearly 95% of U.S. uranium consumption is imported with almost 45% of those imports coming from former Soviet Union sources (Kazakhstan 24%, Russia 14%, and Uzbekistan 4%) – it’s more probable than not that the DoC would conclude in favor of

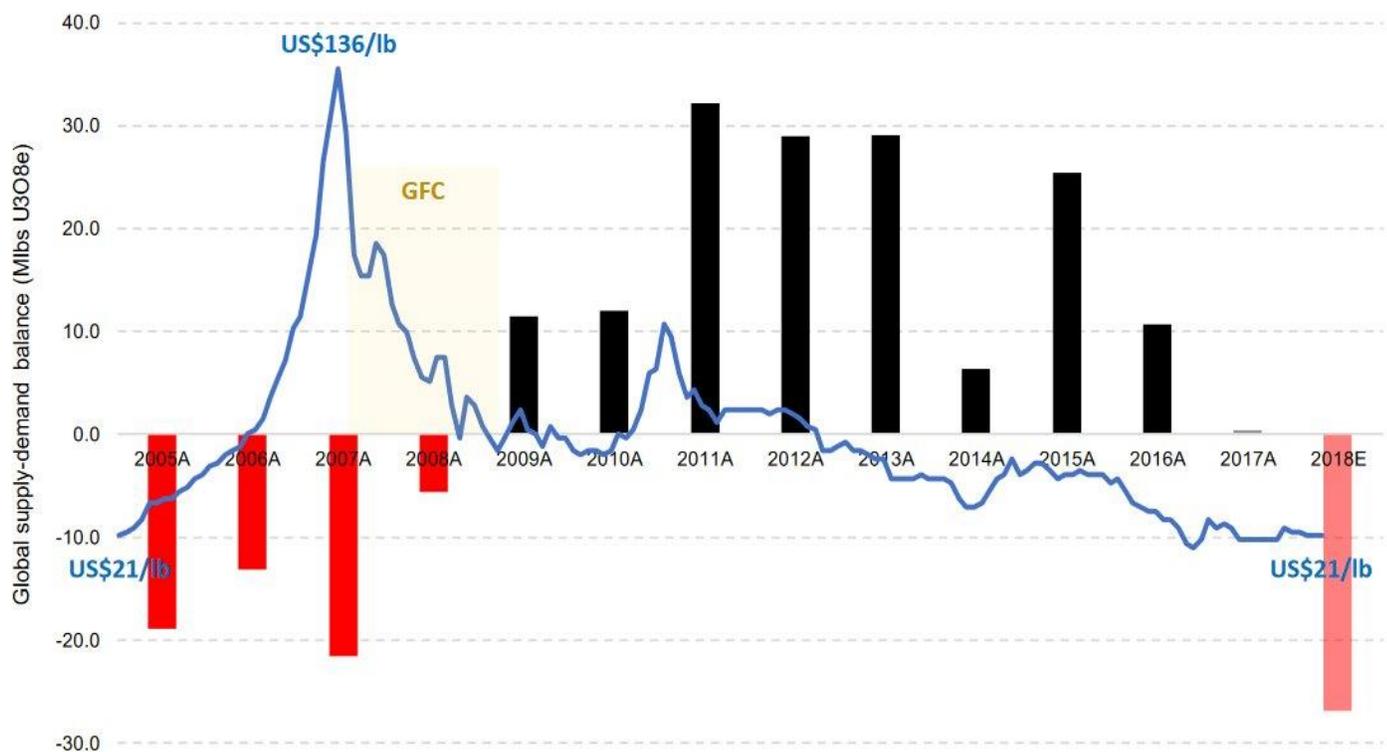
supporting domestic uranium sources on the grounds of national security.

At the end of the day, in an investment world where asset prices across the board (stocks, bonds, and real estate) are trading at or near their all-time highs, it's refreshing to come across an investment opportunity where the fundamental thesis checks out. After all, we're talking about a natural resource that has an inherent economic value and meets the needs of the growing demand for electricity and base load power around the globe.

Furthermore, we're talking about an industry that for the first time in a decade is expected to transition from being in a state of over supply to one in deficit. Not only that, but there is reasonable basis to assume (given the lack of investment over the last five years) that this market could remain in a material deficit for an extended period of time. A cursory look at

the chart below overlays the price of uranium (blue line) against the supply / deficit imbalances and provides some context for how violently the price of uranium can move when a sustained transition into an undersupplied situation takes shape.

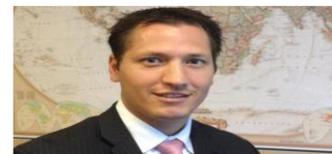
...and from a similar starting point, look what happened last time!



Source: Cameco, UxC, BMO Research, May 2018



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