Is uranium about to breakout?

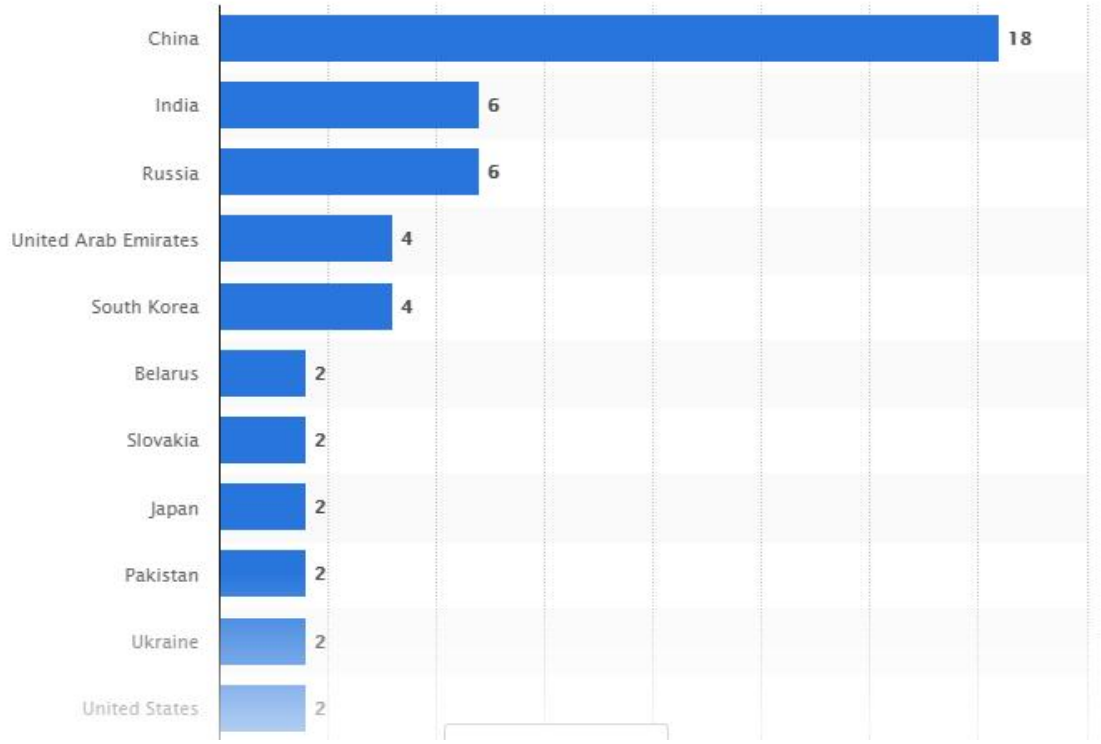
On Friday, September 14, uranium increased to US$ 27.30 a pound. Is this going to be the breakout indicator? Historically, uranium reached an all time high of US$143 in May of 2007 and a record low of US$7.10 in December of 2000.

Uranium price 2018 and 2010-2018

Uranium demand set to increase

A major percentage of all uranium is used in nuclear power plants to generate electricity. With mounting demand for electricity all across the globe and the growing capacity of nuclear reactors, the uranium market is set for significant expansion. China (with 18 reactors under construction) and

Russia are the fastest growing markets for uranium. It is estimated that India, Europe, and the Middle East will also join the uranium party. Over the coming years all these regions are projected to expand their use of nuclear energy and invest in uranium mining operations, which will ultimately drive the global uranium market.



Number of under construction nuclear reactors worldwide as of February 2018

Despite its perceived risks and history, nuclear energy is a relatively green form of power generation, as it is emissions free. New projects are going to be continually needed to meet the increased demand for electricity.

Uranium supply – Low prices fail to stimulate new supply

Current uranium prices are well below what is needed to stimulate new sources of supply. This means we will continue to see global uranium inventories decline. Recent current low prices have made 75% of uranium mines uneconomical, at the same time a few big mines in Australia and Africa are running low on ore. Low ore grades further make the mines uneconomic

causing a further scale back or even a possible closure. Prices are so low, it is actually cheaper to buy uranium from mobile storage than it is to mine it. In addition to this, obtaining mining permits is a lengthy process. These factors are expected to limit near term supply to the uranium market.

Cameco the Canadian producer has closed down mines, but still has supply commitments in long term contracts with utilities. Cameco Vice President David Doerksen said Cameco expects its share of the 2018 production to be 9.1 million pounds with purchases of 8-9 million pounds. With sales deliveries of 33 million pounds. “We will have to rely on our inventories, or make opportunistic purchases, to meet these commitments. It seems that many in the industry are relying on inventory. I would suggest that only a relatively small portion of the inventory overhang is truly mobile.”

Uranium demand now exceed supply (but there is a large inventory overhang)

Uranium mines will only produce around 135 million pounds in 2018, compared to demand of about 190 million pounds, leaving a 55 million pound shortfall. Annually the US uses approximately 50 million pounds of uranium but only produces 2.5 million, so it needs to import the balance. To put this in perspective the US has 99 nuclear reactors but produces only enough for one reactor, thus making them the most vulnerable country to the supply risk of uranium.

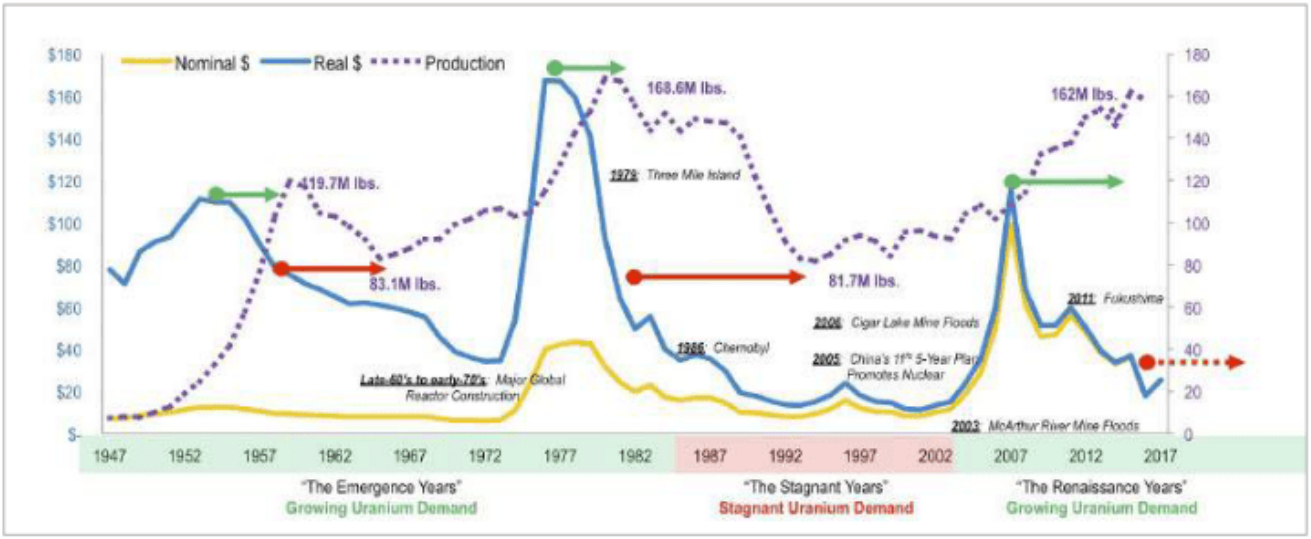
Uranium inventory

As of February 2018, global uranium inventory is said to be around 1.79 billion pounds. Most of this inventory is not for sale and held for strategic purposes. In fact, less than 10% (~179m) is available (“mobile”) to the market. Given the current 55 million pounds per annum deficit the world may have a uranium shortage within the next few years, especially with new demand from the 57 reactors currently under construction.

In conclusion, the world is going to continue to build more and more nuclear power plants to meet future electricity demand. With constrained future uranium supply, speculators are betting on a rising uranium price. Most uranium companies are currently very cheap, as sentiment has been terrible the past 5 years. However the past 4 months are showing strong signs of a uranium turnaround. Investors should take note and take a fresh look at the uranium sector.

Is the Uranium sector about to come back to life?

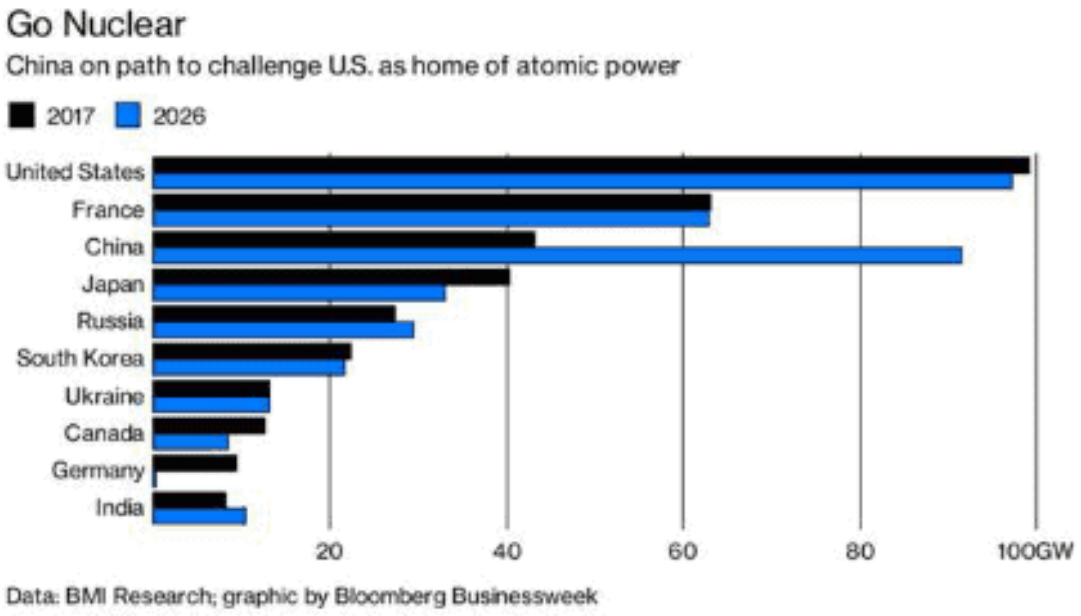
Nuclear Power is currently a much needed source of global base load power. After the Fukushima disaster in 2011 the industry has had a severe slowdown; however signs of life are emerging as the world moves to a safer nuclear solution. The uranium metal price is accordingly showing some early signs of recovery. The chart below gives a great long term perspective, also showing uranium prices are still near historic lows.



Uranium price and production graph 1947 to 2018

Global nuclear demand and supply forecasts

Currently in more than 12 countries, 71 nuclear reactors are under construction, 165 are planned, and 315 are proposed. China plans to spend $2.4 trillion to expand its nuclear power generation by 6,600%. Demand side growth in new nuclear reactors continue to grow with ‘first fills’ for new reactors requiring three times the uranium up front as annual burn. Japan is restarting idled capacity, and the primary producers are cutting back on production. The graph below shows the large increase in nuclear power plants that are expected to come from China.



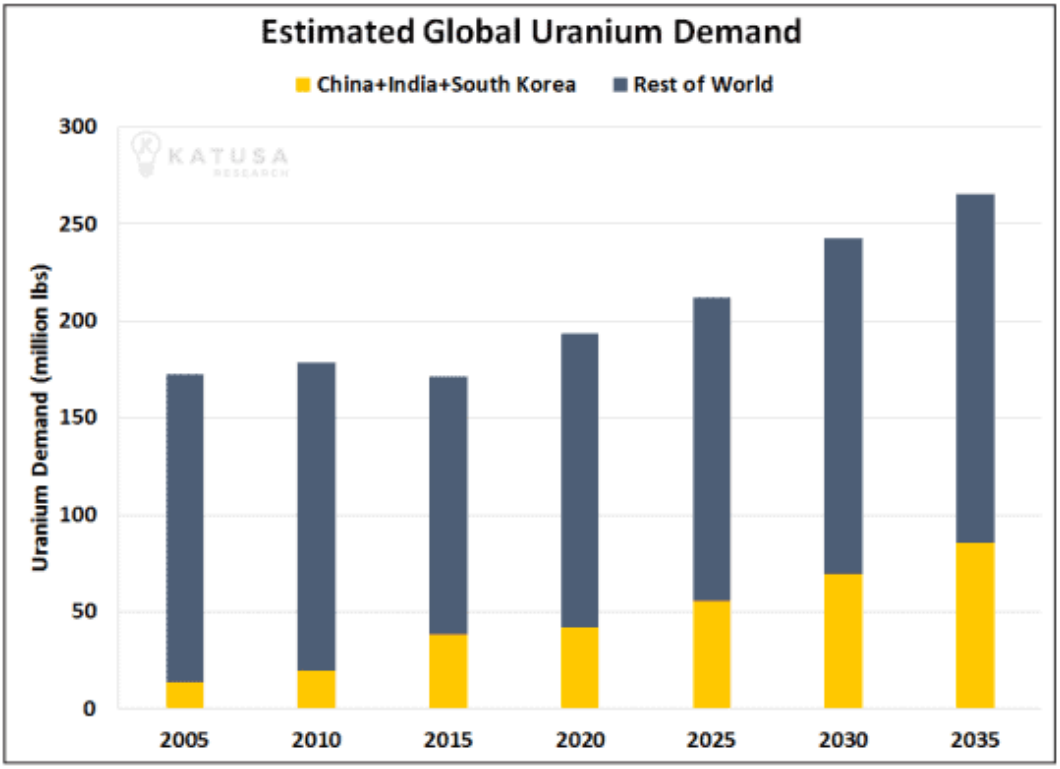
Nuclear forecast growth 2017 to 2026

World Nuclear.org quotes the International Energy Agency (IEA) 2017 report which states: “In the Sustainable Development Scenario, low-carbon sources double their share in the energy mix to 40% in 2040, all avenues to improve efficiency are pursued, coal demand goes into an immediate decline and oil consumption peaks soon thereafter. Power generation is all but decarbonised, relying by 2040 on generation from renewables (over 60%), nuclear power (15%) as well as a contribution from carbon capture and storage (6%) – a technology that plays an equally significant role in cutting emissions from the

industry sector.” Nuclear is currently about 11% of electricity supply. “The IEA’s ‘New Policies Scenario’ sees installed nuclear capacity growth of over 25% from 2015 (about 404 GWe) to 2040 (about 516 GWe). ”

Global uranium demand

Morning Star expects global uranium demand to rise roughly 40% by 2025. They forecast that low secondary supplies will cause shortfalls and that this will affect price negotiations by 2019. To encourage new supply, expected price should rise to around $65 per pound. Marin Katusa’s research, shown below, forecasts a steady increase in global uranium demand, mostly due to China, India and South Korea.



Katusa Research: Estimated global uranium demand.

Global uranium supply

In 2017, Cameco and Kazatomprom announced production cuts in an attempt to reverse the past oversupply problem. This is starting to have an impact on the market now.

According to the uranium report 2018 by Swiss Resource Capital AG: “Today only 90% of the global uranium demand can be satisfied by producing mines.”

As the uranium price starts to rise this confirms the above research thesis. That is, rising demand and falling supply is resulting in an increasing uranium spot price.

CNBC: Uranium 5 year spot price graph

The recent upturn in uranium prices has many analysts and industry experts asking the question: “Is the Uranium sector about to come back to life?” An increasing group is beginning to build a strong case for a uranium price recovery, especially when given most uranium producers struggle to be profitable at today’s low uranium prices.

It appears to me that if demand continues to grow strongly then we may well be witnessing a recovery in the uranium sector after a nasty bear market since 2008. Politics will no doubt play a crucial role, as the various Governments decide if nuclear is appropriate for their country. Investors would be wise to take an interest now, as legendary mining investor Rick Rule said: “Bear Markets are the authors of Bull Markets.”

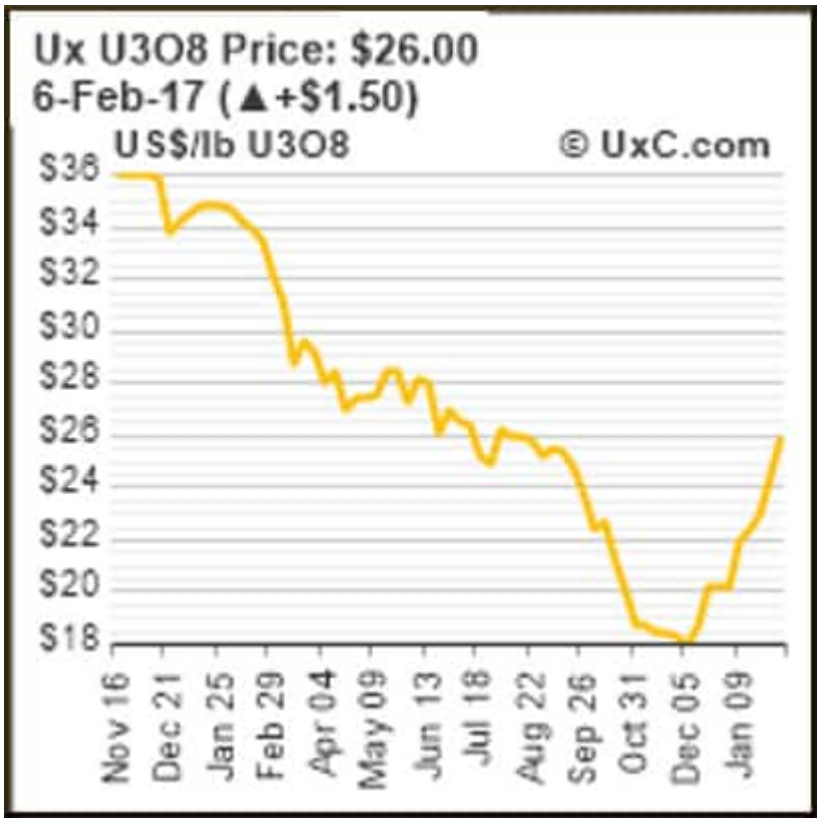
Hallelujah – Uranium is Risen

In what was a bad four years for the mining space, special punishment was reserved for the uranium sub-space where every time it tried to stagger to its feet it was dealt a new, low-blow that sent it reeling. Even as mining markets picked up in 2016, uranium was, relatively, left behind as the spot price wallowed, with that acting as an anchor holding the sub-space from moving forward. Only the Rare Earth space was doomed in 2016 to share in this “cruel and unusual” punishment.

However, the persistence of those that believe in the long term attractiveness of nuclear power has kept the space afloat and allowed even a few hardy near-producers or those holding past-producing properties, like Western Uranium, to soldier on through the tough times. Now it seems the reward is at hand, but Uranium has a long way to go before many projects will cross any sort of line between loss and profit.

Price – First Swallow of Summer

The spot price of Uranium has been on a steady rise in the last month.



The term price of uranium increased from $30/lb to $35/lb in the last week of January. The reason this is important is most utilities transact at the term price, not the spot price of uranium. In fact over 80% of the uranium sold is at the term price.

The driving forces behind the increase of the higher term price are:

- Traders and intermediaries are now buying in anticipation of higher prices
- Also, South Africa received very strong support from companies interested in building new nuclear power plants. In fact, 27 companies submitted information on helping roll out the South African nuclear power program. This is a positive sign to the market that Africa is open for nuclear reactor business
- Ten spot transactions have been reported for a total of 1.5m lbs of yellowcake in January 2017
- At the beginning of February, three addition transactions were reported. One was from a US utility

for 4.8m lbs to be delivered in 2023-2030 period. A non-US utility has just concluded a purchase for more than 6m lbs to be delivered in the 2018-2027 period. Then an undisclosed buyer concluded a purchase for U3O5 delivery for the 2020-2012 period

Supply Crunch

Hard core Uranium bulls have come to know how Moses felt when he was doomed to wander forty years in the desert and never get to see the Promised Land. The great hope had been that the Japanese reopening would help matters and yet it hasn't (at least not yet). The second hope (quite a vain one) was that the Germans would see the light on their unilateral closure actions (and they have not). The one consolation being that everyone else in Europe regards the Germans as crazy for taking the action they did while still mouthing platitudes to low carbon emissions and ramping up coal-fired power at the same time!

To the dismay of many that see nuclear as a "green" solution to rising global energy demand, some have pitched nuclear as competing against wind and solar, with Germany being a particularly egregious example of "kooky" thinking on this front. Ironically though the German decision has prompted the country to buy nuclear-sourced electricity from France, the paragon of nuclear users with around 80% generated from this source.

This table shows the countries with the strongest potential capacity additions in nuclear generation.

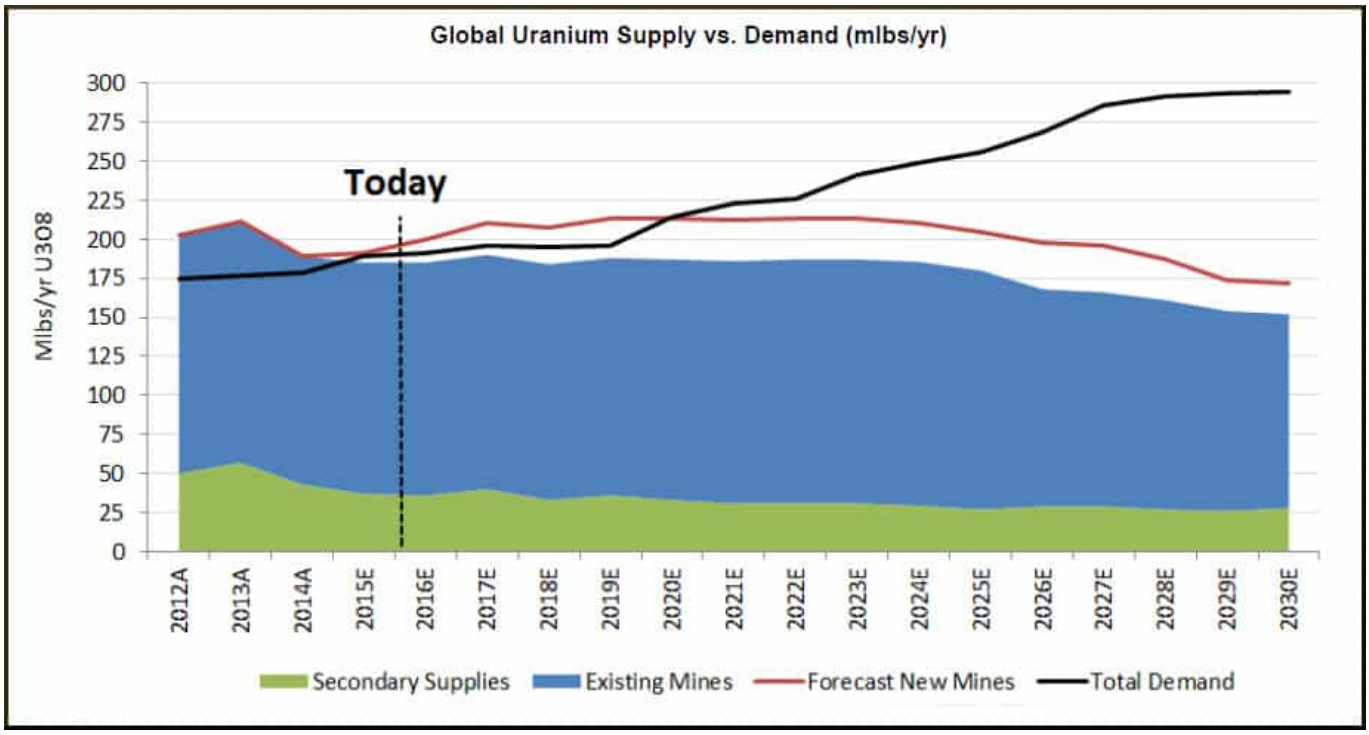
COUNTRY	NUCLEAR ELECTRICITY GENERATION 2014		REACTORS OPERABLE (1 Dec 2015)		REACTORS UNDER CONSTRUCTION (1 Dec 2015)		REACTORS PLANNED (1 Dec 2015)		REACTORS PROPOSED (1 Dec 2015)	
	Billion kWh	% e	No.	MWe net	No.	MWe gross	No.	MWe gross	No.	MWe gross
China	123.8	2.4	30	26,849	21	23,483	43	49,990	136	153,000
India	33.2	3.5	21	5,302	6	4,300	22	21,300	35	40,000
Japan	0	0	43	40,480	3	3,036	9	12,947	3	4,145
Russia	169.1	18.6	34	25,264	9	7,968	25	27,755	23	22,800
WORLD	**2411**	**c 11.5**	**439**	**382,248**	**64**	**67,797**	**159**	**180,015**	**329**	**374,020**

Source: Western Uranium

Probably all one needs to know is encompassed in the preceding table, which says more than any number of price charts. There is massive future demand baked into construction schedules that, with the amounts of money expended, will not be derailed.

The advocates of nuclear are looking past the mere showmanship of the German chancellor and the temporary shutdown of the Japanese generating capacity towards an uplands where this rising fleet of nuclear plants in emerging economies will be creating the added demand for yellowcake, rather than static or declining markets like those of Germany.

Current production (and even planned production) is not even vaguely able to meet this demand as the graph below demonstrates.



Parsing the Uranium Universe

We would divide the universe of Uranium stocks into three categories these days. There were hundreds of listed uranium plays in the heyday of the space last decade but this has now been whittled down by a brutal process of attrition driven by initially low prices, then a cycle of despair driven by seemingly secular revisionism triggered by Fukushima and then finally by the sheer lack of finance for virtually any mining space and particularly this one.

In the wake of this process we see the survivors divided into the following groups:

- Producers
- Near producers and former producers
- Advanced exploration and juniors

Normally we would put advanced exploration with near producers but the problem is that many of this category are merely wanting to be sold rather than getting into production. There will be a moment for them, a “day in the sun”, but it is not now. There are quite a number of those companies out there

with sizeable reserves proved up but no real plan to move forward. When the turn in the U price comes they will be hoping to be bought by one of the producers, but there are more advanced explorers than producers so inevitably some attendees at the ball will be without partners for the dance.

Junior “juniors”, the moose pasture merchants, are basically not needed or wanted for probably the rest of this decade. If there is no resource, or a puny one, then it’s a case of “don’t call us, we’ll call you”.

The ideal place to be positioned now is in either producers or the near/former producers.

Producers will obviously be first movers, but near- and ex-producers should swiftly follow with the added advantage that they do not come freighted with long term contracts at low prices. That said, companies needing funds to go the final mile to production may be tempted to commit to contracts at revived, though still low, prices with offtakers/traders to grab that all-important final funding to make it across the production line.

Names to Conjure With

Our old favorite in the Uranium space is the physical ETF, Uranium Participation Corp., which is effectively managed by Denison. This is the quick way to get direct exposure to the metal.

In the most advanced developer category we tend to focus on Western Uranium Corporation (CSE:WUC | OTCQX:WSTRF) and then after that Peninsula Energy has appeal. Berkeley Energy has excited comment by forging out a mine in Spain of all places, not the typical territory for Uranium hunters.

In the up and coming explorers, there is the Friedman satellite, GoviEx, which is run by Govind Friedland and has an extensive position in Africa. With Argentina’s (re)opening to

the world (and prominent position in nuclear technologies as well as adding more reactors) it is worth keeping an eye on U3O8.

Conclusion

In our outlook for 2017 for metals we posited that the year would be the Year of the Infrastructure Metal but also that the outperformers would be the two laggards of 2016, Tungsten and Uranium. Tungsten still remains in the doldrums but Uranium is making a break for the upside, probably faster than we would have imagined.

The real action will be in the term price, not the spot price, but unfortunately the spot price is what the wider world of Uranium investors look at for guidance. Now that too has started a march upwards. For better or worse Uranium has been a favorite of the speculative classes in the past (the distant past, we might add) but many people made a lot of money from it in its heyday(s). Therefore while many may have been sitting on their hands through the successive false dawns, we now may see investors who have not touched Yellowcake in a long time dusting off their chequebooks. Like other sectors long out of favour the number of available listed plays has shrunk over the years and thus the task of choosing what to invest in is made easier by having less choice. Companies that are either in production or with short lead times (such as Western Uranium) are obvious first movers. Greenfield stories will have less to offer because they are, well, greenfield.

Primacy these days will be best obtained by showing the market that one is dedicated to the old mantra of production, production, production.

Massive closure of nuclear power plants may result in energy crisis in France

The government of France, the EU's largest producer of nuclear energy, has recently announced that it plans to significantly reduce the country's reliance on nuclear energy in the coming years according to the new President Francois Hollande, despite sharp criticism from local analysts.

According French government palns, there is an acute need to change the country's state policy in the field of energy, because, according to numerous surveys, many local citizens are unhappy with the dominance of nuclear power within the French energy distribution balance.

The plans have a purely political purpose in view of recent decisions of the governments of neighboring Belgium, Switzerland and Germany to shut down old nuclear reactors and to suspend implementation of many projects in the field of nuclear energy.

France adopted a vigorous nuclear energy development program after the Second World War, as part of its efforts to recover industrial production and ensure national security.

Another reason for the development of nuclear power was the oil embargo, imposed by the OPEC countries against France and other countries that supported Israel in its conflict with Egypt and Syria in 1973. At that time, the global price for oil increased by four times, triggering the need to look for other sources of energy.

Forty years later France has become one of the world's leaders in the field of nuclear energy, exporting electricity, produced by its nuclear power plants abroad at relatively low

prices. In the case of the domestic market, the French government continues to subsidize electricity costs, resulting in increased power consumption. France uses electricity for heat generation and to heat buildings in the winter months, which allows the country to save on hydrocarbons, significantly reducing the volume of CO2 emissions.

Currently, the share of nuclear energy in total power generation in France is estimated at 75%, but, should the current French leadership's plans go ahead, that share will be reduced to 50% by 2025. Instead of nuclear energy, the government believes that it can make up the shortfall by developing renewables.

To date, the country has 58 nuclear power units with a total installed capacity of 63 GW, of which at least 26 units should be closed by 2025. Many of the reactors are getting old, given that they were built more than 20 years ago.

At the same time local analysts believe that Hollande's plans will be difficult to implement as this will lead to a sharp rise in prices for electricity in the country.

According to Christophe Behar, Director of Nuclear Energy at the French Atomic Energy Commission, the cost of energy production from French nuclear reactors is almost 40% lower, compared to other EU countries, which translates to high competitiveness of the French nuclear industry in the global market, easing the burden on the French economy.

Clearly, the development of renewable energy, as a replacement of nuclear power, would not allow current electricity usage trends to continue; these could be cut back by half, at increased cost. France would also have to accelerate its activities in the development of other traditional energy sources, such as coal in order to make up the shortfall. Coal was the main source of energy in France in the past, however

since 1960s its production has significantly declined. In 2002, coal production in France amounted to only 2.1 million tons and its current share in the country's energy balance is estimated at only 2%.

At the same time, the situation with other traditional energy sources, such as oil and gas also, is even more complicated, as their reserves in the country are extremely small.

In the meantime, President Hollande's government plans have already prompted sharp criticism from many French analysts and public associations. According to analysts from the French Electrical Union, France's professional association in the field of electric power, massive closure of nuclear power units will result in a signficant increase of energy prices in the country with a corresponding increase of carbon emissions.

A similar position is shared by the French Accounts Chamber, according to which the best way for the country is to extend the service of existing nuclear power plants.

French analysts believe that amid the current negative economic conditions in the EU, Hollande will probably suspend the closure of nuclear power plants. He has already agreed to complete the construction of the third unit of Flamanville plant, which will be equipped with the EPR reactor and said that would not prevent the construction of another EPR at the Penly plant.

At the same time, if Hollande's government (noting, however, that it is a shaky coalition of Socialists and Greens – who have been pressuring Hollande to cut nuclear power) manages to go ahead with plans to shut down some nuclear plants, even if only in part, French nuclear industry lobbying at the international level would lose strength, leaving Russian nuclear lobbyists can remain alone in the world.