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# Down and out and radioactive

"Sometimes you have a bad decade," an aristocratic French investment banker once consoled a value investor who was beating his head against the stone wall of the long-dormant Japanese stock market. The gentleman might have been talking about uranium.

Now in progress is a reaffirmation of the bullish case for the heavy element with the heavier price. Triuranium octoxide, a.k.a. $U_3O_8$, peaked in 2007 at $136 a pound. It's quoted today at $22.65, up from the decade low of $18 in November 2016. *Grant's* likewise reiterates its bullish view on Cameco Corp., the big Canadian uranium miner—CCJ in New York, CCO in Toronto—whose share price, let the fact be spoken, has not always responded to the encouraging analyses in these pages (most recently in the issue dated Jan. 13, 2017).

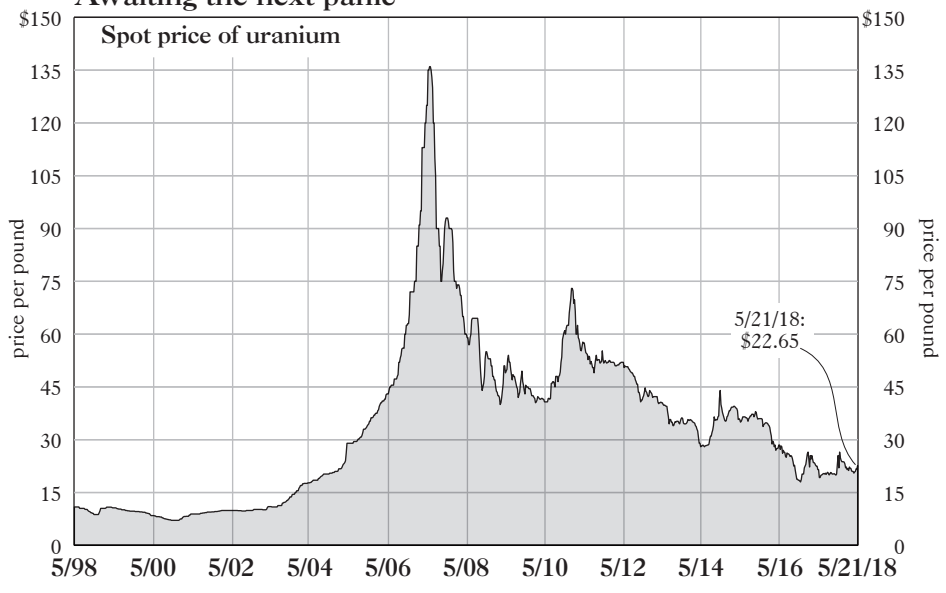
Triuranium octoxide, a.k.a. yellowcake, propels nuclear warships, charges nuclear weapons and fuels nuclear reactors. You can call it a commodity, but it doesn't react to the forces of supply and demand as ordinary commodities do. The "uranium cycle" has a time line all its own. Supply is slow to pick up on changes in demand, and demand is slow to respond to changes in supply. It can take a decade to develop a mine or build a reactor. A decade, too, is sometimes the measure of a complete uranium price cycle, from too low to too high. There is a little-patronized futures market, and the tiny spot market is an avatar of opacity. The slow-motion pace is reminiscent of protracted lawsuits, which also figure in the story.

Word has it that the Tax Court of Canada is close to rendering a decision on Cameco's long-running dispute with the Canada Revenue Agency. The back taxes either owed or not owed could tally to C$2 billion. As mentioned here last year, each side, state and company, impresses knowledgeable observers with the justice and power of its case. Cameco could appeal an unfavorable verdict, if the gods should choose to render one. That would cost another two years, management estimates. As of the March 31 statement date, Cameco held C$813 million in cash and C$870 million in inventory. Debt footed to C$1.5 billion; C$1.25 billion was available through an undrawn revolver.

Litigation can give as well as take. A dispute with Tokyo Electric Power Co., owner of the stricken Fukushima generators, could present the company with $682 million plus interest and legal costs. Invoking *force majeure*, Tepco has refused to pay for the uranium it contracted to buy from Cameco—after all, post-disaster, the utility had no use for it. An arbitration panel is expected to hear the case in January 2019.

As for uranium prices, Mr. Market long ago gave his verdict: "Very low." In the past decade or so, according to Arthur Hyde, partner and head of research at Segra Capital Management, LLC, which is raising a special-purpose vehicle devoted to uranium, the stock-market capitalization of global uranium-mining companies has shrunk to $6 billion or $7 billion from $125 billion. Over the same span, Hyde adds, the roster of

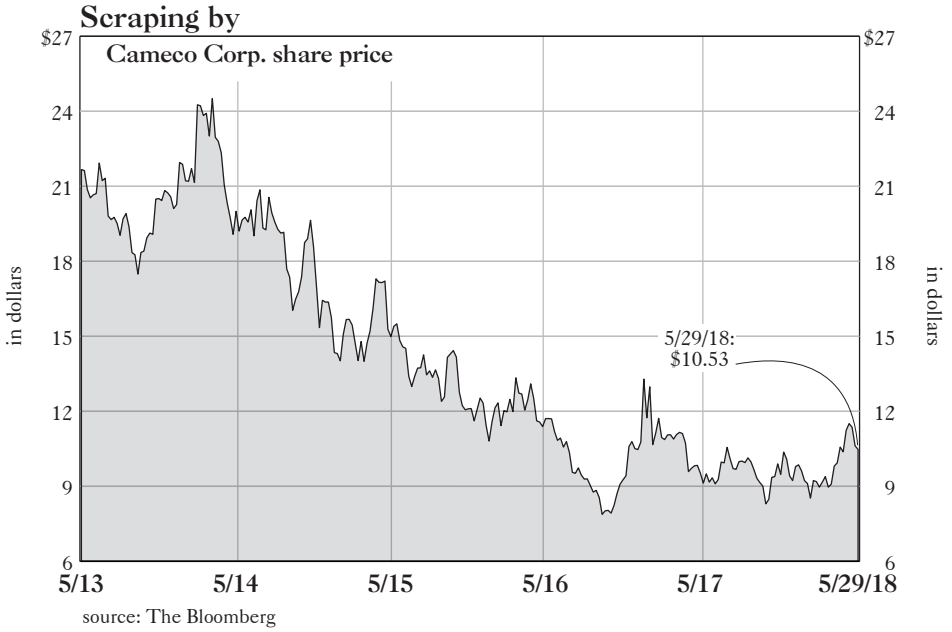
**Awaiting the next panic**




source: Ux Consulting Co., LLC

investable uranium miners has dropped to 40 or so from 500.

Uranium is a quirky market. Cameco of Canada, which is investor-owned, and NAC Kazatomprom JSC of Kazakhstan, which is state-owned, generate more than half of world mine supply. Each major uranium-consuming country—the United States is far and away the biggest—is a net uranium importer. In the past, most transactions of consequence were sealed in long-term contracts. Ultra-low interest rates have contributed to shortening time horizons. Increasingly, utilities lock in low spot prices by committing to pay interest and storage costs until they choose to accept delivery, say, in one to three years. The buyers are playing for nickels and dimes. While you can't run a nuclear reactor without uranium, the cost of that fuel hardly registers in a reactor's profit-and-loss statement.



source: The Bloomberg

In commodity investing, it's proverbial that price tends to oscillate around the marginal cost of production. It's why, as they say, "The cure for high prices is high prices, and the cure for low prices is low prices." The adage applies only loosely to uranium, as Hyde and Segra's founder and chief investment officer, Adam Rodman, relate: "Since the majority of uranium is sold in long-term contracts, producers typically do not scale back production until their contract portfolio runs down—creating a long delay between pricing movements and supply responses." And because fuel counts for so relatively little in the economics of nuclear-energy generation, low prices do little to stimulate incremental demand. Reciprocally, high prices do little to depress incremental demand.

After hitting the 2007 peak, the spot price of $U_3O_8$ fell to the range of $40 to $50 per pound in 2009 and 2010. Anticipated growth in demand from new reactors in the context of stable uranium production lifted the price to $73 per pound in February 2011. Weeks later, disaster struck.

The earthquake and tsunami at the Fukushima nuclear-power facilities in northern Japan, quite apart from their horrific toll in life and property, crystallized latent problems on both the demand and supply sides of the uranium market. Japan instantly shuttered its 54 nuclear reactors. Germany closed eight of its 17 reactors. The political constituency for cheap and green nuclear power evaporated. The demand of the uranium market virtually did, too.

Nor did the supply side contribute to the bullish case. Cameco had been ramping up production at its two best mines just before the Fukushima catastrophe. Kazakhstan, freed from sanctions by the U.S. International Trade Administration at the turn of the 21st century, became an export power house; from a 6% share of the world market in 1999, the former Soviet republic has come to claim 40%, according to the World Nuclear Association. Striving for (and securing) the biggest share of the market, the Kazakhs produced with nary a thought to the plunging uranium price.

The end result is a massive uranium-supply overhang, or so holds a popular line of bearish argument. One respected analyst, Nick Carter, executive vice president of Ux Consulting Co., LLC, informs colleague Fabiano Santin, "It is probably going to take a few years for our uranium inventories to be drawn down much closer to an equilibrium level." Especially is this so, says Carter, because European and American utilities hold an average of three years of fuel inventory, instead of the two they'd probably prefer. Uranium enrichers and Japanese utilities likewise carry vendable stocks.

The United States is the largest source of nuclear electricity in the world. American reactors produced 848 terawatt-hours in 2016, representing 20% or so of U.S. electrical output and one-third of all nuclear electricity generation, according to BP plc's "Statistical Review of World Energy 2017." France, in second place, produced 403 terawatt-hours. China, No. 3, was the source of 213 terawatt-hours.

If forecasts of the growth in the world's reactor fleet are well-founded, future uranium demand must also be on the upswing. Fifty-five reactors are under construction in the Eastern world: China leads the pack with 19, followed by India, Russia and other Asian and Middle Eastern countries, which, combined, are building 27, according to Cameco estimates. Japan, which has restarted seven reactors since 2015, says it means to add 17 more; it will need to restart 30 to achieve its goal of powering 20% of its domestic grid through nuclear means by 2030. Which suggests that Japan will be using a big chunk of its uranium inventory—to restart a reactor, you need an extra helping.

So it is that generation capacity from nuclear energy is set to increase to 384 gigawatts in 2022, from 359 gigawatts in 2017, according to a World Nuclear Association publication, "The Nuclear Fuel Report: Global Scenarios for Demand and Supply Availability 2017–2035." Nuclear-derived electricity output is slated to reach 438 gigawatts in 2030, the same source projects, with China by then having overtaken the United States, 110 gigawatts to 93.

Such forecasts give rise to great expectations for uranium demand. From 154 million pounds in 2017, consumption will reach 188 million pounds in 2022 and 222 million pounds in 2030, according to UxC. The question before the house is who will mine the required $U_3O_8$ at 2018 prices.

"If you look at the consultant projections, they overstate production," Hyde contends. "They say that McArthur [River, the 70%-owned Cameco mine in the Canadian province of Saskatchewan] is coming back even if prices stay low. . . . They do have juniors coming online which are attractive and low-cost, even though they probably couldn't fund the capex needed to build the mine at today's levels and they have assets in places like Africa with a very high cost of production ramping up to full production, even though their cost of production is three times above the current spot price."

In fact, in November, citing "continued price weakness," Cameco ordered the temporary suspension of production at McArthur River (which accounted for 11.3 million pounds of uranium attributable to Cameco last year). The spot price of $U_3O_8$ thereupon ticked higher, to $22.65 from $20 and change.

"People need to realize this: Just the impact of Cameco shutting down McArthur River production is the equivalent to Saudi Arabia saying it will stop producing oil," Marcelo Lopez, founder and portfolio manager of L2 Capital Partners and another uranium bull, tells Santin. "Thirteen percent of the market is McArthur River. Saudi Arabia is 13% of the oil market. Therefore, the impact [of the announced cuts] should have been much higher. It just wasn't because of this hanging inventory. But that inventory is starting to disappear, and soon enough it will be over." Kazatomprom and Paladin Energy Ltd., which operates in Namibia, have climbed on the production-cut bandwagon, pledging a combined reduction of about 10 million pounds in 2018.

According to UxC, something like 25% of 2017 uranium consumption was produced at a cost below the $22.65 spot price. Cameco, one of the lowest-cost producers, realized $36 per pound in 2017, thanks to the long-term contracts it booked in high-cotton days (and which will soon be rolling off).

The uranium market may be slow to respond to price signals, but it does ultimately get the memo. Today's prices provide no incentive to explore for new deposits, let alone to begin the long, drawn-out business of making new mines. "Several mines are approaching the end of their reserve life," Santin relates. "Cameco's Cigar Lake, for instance, will run out of reserves in 2027, absent more exploration spending. Utilities will be consuming 20 million pounds of uranium (which equals 14% of 2017 production) more than what mines produce by 2022, according to UxC. The deficit rises to 80 million pounds, or 52% of 2017 production, by 2030. That is assuming, however, that McArthur River's 18 million pound-a-year mine will be back in production next year, which may not happen if uranium prices fail to rally."

Uranium bulls eagerly await the results of Cameco's pledge to meet 2018 delivery commitments in part through purchases in the cash market. "I think it's a good litmus test to see exactly how tight the market is and sort of probe and test the market a little bit," Adam Rozencwajg, managing partner of natural-resource investing specialist Goehring & Rozencwajg Associates, LLC, which owns Cameco shares, tells Santin. "Remember," adds Leigh Goehring, Rozencwajg's partner, "the spot uranium market is really small. People think that it trades between 10 to 20 million pounds a year and Cameco is trying to go in there to buy 10 million pounds to satisfy their sell obligations. We're going to a get a good test of how much inventory is out there."

According to UxC, utilities signed long-term contracts for an average of 207 million pounds a year between 2005 and 2010; they committed to just 77 million pounds per year in the past three years. The data provider estimates that uncovered requirements will rise to about 38 million pounds in 2022, which—to compare one distant projection to another—would represent nearly 40% of estimated worldwide 2017 uranium production. That uncovered requirement is expected to soar to 116 million pounds in 2026.

"The uranium supply," Santin observes, "could be further constrained by politics. Since President Donald Trump came to office, several developments have raised bulls' hopes:

On Jan. 16, Energy Fuels, Inc. and Ur-Energy, Inc. filed a petition for relief from imports of uranium products that threaten national security under Section 232 of the Trade Expansion Act of 1962. The hardy two, among the five surviving U.S. uranium miners, allege that state-sponsored entities in Russia, Kazakhstan and Uzbekistan have flooded the United States with subsidized yellowcake. So doing, the petitioners contend, they have wounded domestic producers that today produce only 2.5 million pounds of uranium a year out of annual domestic consumption of nearly 50 million pounds.

On March 20, Energy Secretary Rick Perry suspended the practice of selling excess uranium from U.S. strategic reserves for the rest of the 2018 fiscal year, removing an estimated 1.6 million pounds from the market, with a possibility to extend the restriction longer.

In response to President Trump's April 6 imposition of sanctions against Russian businessmen and government officials, a draft bill on April 13 was introduced in the Russian parliament to ban trade between Rosatom, Russia's state-owned uranium monopoly, and U.S. nuclear-power companies, among other measures.

On May 18, responding to a Dec. 20, 2017 Executive Order, the Department of the Interior named uranium on a list of 35 minerals "considered critical to the economic and national security of the United States." Interior has until Aug. 16 to submit a report proposing strategies for securing such critical minerals.

On May 21, the Supreme Court agreed to hear a case on the state of Virginia's 36-year-long mining restriction of a 119 million pound uranium deposit in Pittsylvania County which is owned by Virginia Energy Resources, Inc. In an April 9 brief to the Supreme Court, Noel Francisco, the U.S. Solicitor General appointed by President Trump last year, expressed support for removing the ban. Although this mine could bring new supply to the market, it surely wouldn't happen overnight. Seven to 10 years typically elapse between the conception and production of a proposed uranium mine (assuming that, at a price of $22 and change, the proprietors decided to get the ball rolling). The important thing is that this administration seems aware of the problem of relying on uranium from Russian and Kazakh sources.

On May 22, the House Energy and Commerce Subcommittee held a hearing to discuss proposed bipartisan legislation, including one bill and three drafts that would lower

costs to nuclear power-plant operators and support the U.S. nuclear-power industry to compete globally, among other measures.

The controversial sale of Uranium One to Rosatom, the state-owned Russian uranium monopoly, in 2010 is another carrot in the political stew. U.S. government approval of the transaction—necessary because Uranium One, though a Canadian enterprise, owned significant American assets—has become a cause célèbre on the political right, whose spokespeople denounce it as a blow to American security. We mention it because, on the 2016 presidential campaign trail, Donald Trump condemned it. As the security of uranium supply is a topic that might well concern any commander-in-chief, there can be no ruling out the possibility of some future fusillade of presidential uranium-themed tweets. In any case, the uranium bulls would seem to have city hall on their side again.

Cameco's market cap stands at C$5.4 billion, slightly higher than its C$4.9 billion book value for the quarter ended on March 31. Over the past two decades, the shares have fetched an average of 2.2 times book value (in 2007, they touched seven times book). Lower prices have brought adjusted operating income down to C$230 million in 2017, down from C$461 million in 2015.

"Assuming," Santin observes, "that selling volumes return to 30 million pounds per year and long-term uranium prices rise by $13 to $45 a pound to 2015 levels (when Cameco was realizing C$58 per pound and cash production costs of C$28), the company could return to making C$790 million in adjusted earnings before interest, taxes, depreciation and amortization. Such a set of fundamentals imposed in the context of today's share price would value the company at 7.7 times adjusted EBITDA, far below the 21 times multiple at the end of 2010, prior to Fukushima (and below, too, the average 18 times multiple in place in the past two decades).

The uranium market is just different, Hyde observes. "I think it is kind of hard to understand if you are a financial-markets person," he tells Santin. "You sit here and say, 'Adam and Arthur, you're making the argument that all of these sophisticated utilities that are running reactors, each of which is an $8 billion to $10 billion asset, are so unsophisticated as to allow their future inventory position to dwindle down just because they don't want to be the first person to buy.' I guess what I'm telling you is, yes, as crazy as it is to lay it out, that is what is going on. This is going on not only today but has happened every time that a contract cycle has turned. It is difficult to get your head around it as a financial person, but this is a market that does not have opportunistic buying. Buying is always herd mentality."

And by the time you hear the pounding of hooves, the price move will already have started.

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