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## Nuke 'em

"Think of all the benefits that nuclear energy can bring to bear on a growing civilization." The author of those words, which appeared on March 7 on the AOL Energy Web site, was none other than Patrick Moore, the Canadian co-founder of Greenpeace. Readers of a certain age must have doubted their senses—once upon a time, the environmental movement would just as soon plumped for coal as for nukes—but the doubters were reading it right. Now begins a bullish appraisal of uranium and of the principal company that mines it.

Cameco Corp. (CCJ in New York, CCO in Toronto) is that company. Widely followed, admired and owned, valued at 15 times the 2014 earnings estimate, Cameco is not, on its face, a contrarian idea. But the share price has been sawed in half over the past six years, and a long-delayed, flood-plagued Cameco property is slated to go into production this summer. Nuclear power is on the defensive, though the demand for energy continues to grow. The price of uranium is down, though there are reasons to expect a recovery.

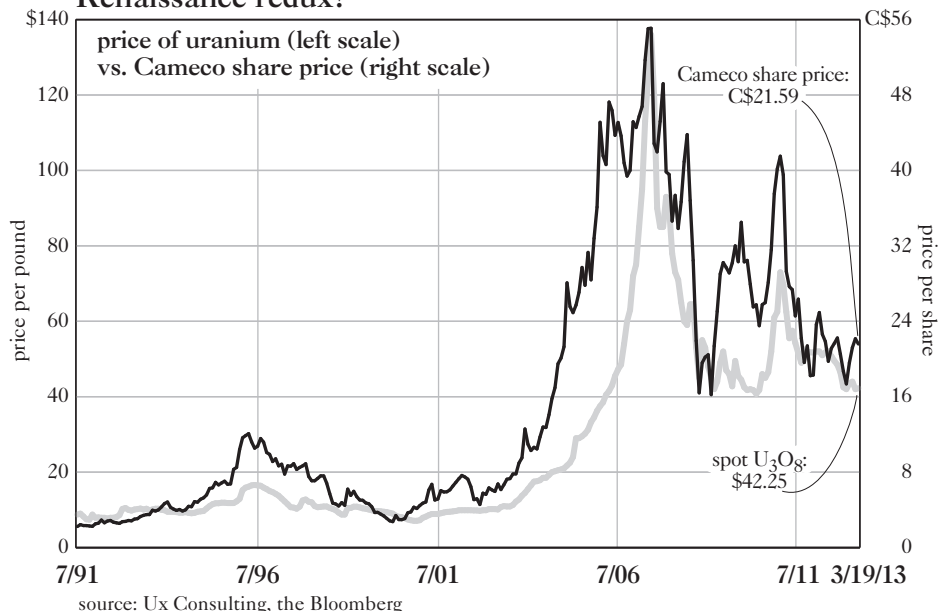
Bulls sigh a wistful sigh when they recall the beautiful alignment of the stars in 2007. Natural gas was trading at \$8 per million Btus. Tokyo Electric Power's reactors were trouble-free. Wind power and solar power were dim, 40-watt bulbs on the Great White Way of electrical generation. Uranium changed hands at a price as high as \$136 a pound. There was serious talk of a "nuclear renaissance."

Lately, for the nukes, what could go wrong has gone wrong. Natural gas prices have broken to less than \$4 per million Btus, while the disaster at Fukushima has discredited the very concept of nuclear power in Japan. In 2012, a \$25 billion capital spending program boosted the capacity of American wind-power producers by 28%. "Right now, natural gas and wind power are more economic than nuclear power in the Midwestern electricity market," Howard Learner, executive director of the Environmental Law and Policy Center, a Chicago-dwelling advocate of cleaner energy, tells Bloomberg. "It's a matter of economic competitiveness."

"Exactly so," colleague David Peligal continues. "But we are talking about a world market. In Europe and Asia, natural gas can be three or four times more expensive than it is in the 50 states. In many countries, including Japan, nuclear power is a relatively cheap alternative to fossil fuels."

One such country is China, about which *Grant's* is comprehensively bearish. According to Cameco, there are 64 reactors under construction worldwide, 29 of which are situated in the People's Republic. To be sure, even empty cities need power, if only to keep up appearances, but it's hardly cheering to the uranium bull to consider how much rides on the continued growth of nuclear

### Renaissance redux?



power in the world's second-largest, and arguably most distorted (by false prices and misdirected credit alike) economy. Then, again, nukes contribute just 2% of China's current electrical-generating capacity, compared to 19% of America's and 50% of France's. Besides, in China's cities, the air is foul and the water quality dubious (what with the dead pigs floating by). The Communist mandarins may need a cleaner environment to prevent domestic upheaval. In that case, they might be inclined to pursue clean energy for the purest of political motives, namely, the preservation of themselves in power. Let us only hope that Chinese reactors are better built than Chinese high-speed trains.

Alas, in the Cameco story, catalysts are few. As Peligal notes, forecasters can predict the demand for uranium whereas they cannot so easily predict the demand for copper or beans or diamonds. "Reactors don't just pop up out of the ground," our analyst observes. "They take seven to 10 years to build—though some have begun to push for smaller and cheaper modular reactors. So you have a pretty good idea, once construction starts, when a reactor might be coming into operation and how much uranium it will need. Doing the sums, Cameco projects that the demand for uranium will grow by 3% per annum over the next decade."

There is, however, at least one potential source of surprise on the demand side of the uranium market. Before the earthquake and tsunami in 2011, nukes produced 30% of Japan's electricity. Just two Japanese reactors have restarted since the disaster. Fifty are off-line and will not be allowed to resume operation until the new Japanese Nuclear Regulatory Authority gives the go-ahead, perhaps this summer. Cameco says it expects six or eight to restart in 2013.

"Whatever the number turns out to be," Peligal speculates, "one would expect that the election of Shinzo Abe and his Liberal Democratic Party would be good for the Japanese nuclear industry—even if polls show that 70% of the Japanese people oppose nuclear power. It wouldn't be surprising if economics had something to do with the LDP energy policy. Imported LNG, the main substitute for nuclear fuel, costs

## Cameco

(in millions of Canadian dollars; except per-share amounts)

Financial snapshot

	<u>2012</u>	<u>2011</u>	<u>2010</u>	<u>2009</u>	<u>2008</u>	<u>2007</u>
Revenue	\$2,321.5	\$2,384.4	\$2,123.7	\$2,315.0	\$2,182.6	\$2,309.7
Earnings from cont. operations*	266.1	450.4	516.4	717.0	366.1	416.1
Diluted EPS from cont. operations*	\$0.67	\$1.14	\$1.31	\$1.84	\$1.04	\$1.13
Cash and short-term investments	799.4	1,202.2	1,259.7	1,304.1	64.2	131.9
Long-term borrowings	1,407.1	926.1	940.3	952.9	1,213.0	717.1
Total shareholders' equity	4,944.3	4,923.1	4,868.5	5,007.9	3,654.6	3,179.7
EBITDA	729.0	804.1	754.4	805.5	891.5	900.4
EBITDA margin	31.4%	33.7%	35.5%	34.8%	40.8%	39.0%
Avg. spot market price of uranium**	\$48.40	\$56.36	\$46.83	\$46.06	\$61.58	\$98.55

\*excludes gains from one-time sales

\*\*\$US/lb U3O8

source: The Bloomberg

Japan \$16.70 per million Btus, or \$63 billion a year. For the same amount of electrical generation, nuclear-derived power would cost substantially less. Furthermore, post-Fukushima, Japanese utilities have spent somewhere between \$12 billion and \$13 billion on safety upgrades. They surely must believe this expense can be justified when many of their units come back into production."

Not so easily read is the supply side of the uranium market. Uranium—atomic number 92 and element symbol U—is quoted today at \$42 a pound, 69% below the peak prices prevailing in the nuclear renaissance boomlet of 2007. The silvery white element trades over the counter in average weekly volumes of not much more than \$40 million. Mining costs vary by country and deposit, but the current spot uranium price stands at a level well below the threshold at which most new mines are economic. Thus, last year brought a spate of write-downs, cancellations and deferrals. "A number of uranium producers decreased their production growth plans," Cameco notes in disclosing 2012 year-end results, "ourselves included when we announced the adjustment to our growth plans from 40 million pounds of annual production down to 36 million pounds of annual supply by 2018." One is reminded of the commodity trader's adage that "the cure for low prices is low prices."

"Without a higher uranium price, the uranium supply-demand balance

is likely to tighten," Peligal goes on. "This year, Cameco expects global uranium consumption on the order of 170 million pounds, substantially higher than global production of 158 million pounds. Secondary supplies, mainly from decommissioned Soviet and Russian nuclear weapons, help to bridge the gap. However, after 20 years of de-accessioning, the old Soviet arsenal appears to be spent, and the 'Megatons to Megawatts' treaty between Moscow and the United States is, in any case, expiring this year. If the ghost of the U.S.S.R. has given all it has to give, the uranium market will lack an annual contribution of 24 million pounds. For perspective, that's more than the 21.9 million pounds Cameco dug up out of the earth in 2012. So the company estimates that roughly 20% of yearly supply must come from new sources. Barring a rise in the uranium price to at least \$60 or \$70 a pound, it seems doubtful that anyone will spend much money to expand production."

Maybe the world doubts that the old Soviet ammo dump has given its all. Or perhaps it worries that deferred and cancelled reactor projects will punch a hole in future demand, or that Japan will drag its feet in restarting its nuclear fleet. In any case, buyers are conspicuously not queuing up to lock in today's low uranium prices. Not typically ones to wait till the last minute, utilities secure the bulk of their uranium requirements (and fuel services, too) in long-term

contracts; the balance they acquire on the spot market. Over the past 12 months, the price of uranium has fallen by 20%. If professional uranium buyers are anywhere as human as professional bond and stock buyers, they might be expecting another leg down. Why try to catch a falling radioactive knife?

Like gold, uranium is usually found where bright city lights aren't. Principal deposits are buried in Kazakhstan, Australia, Niger, Namibia—and in the northern reaches of the Canadian province of Saskatchewan, Cameco's stomping ground. The McArthur River property, which Cameco operates and in which it holds a 70% equity interest, is the world's largest high-grade uranium mine. Key Lake, which Cameco operates and in which it owns an 83% equity interest, is the world's largest uranium mill. Ore grades at McArthur River are rated 100 times higher than the world average. In the ordinary uranium mine, one must dig 15,000 to 20,000 tons of rock a day to produce 18 million pounds of uranium a year. At McArthur River, 150 to 200 tons of rock per day will do the trick. Estimated cost of production is \$19.23 a pound, a little less than half of the currently depressed uranium price.

Then there's Cigar Lake (as seen from the air, the less than one-square-mile body of water resembles a giant Macanudo), also in northern Saskatchewan, which Cameco operates and in which it owns a 50% interest. The world's second-largest high-grade uranium deposit, with grades also 100 times the average, Cigar Lake is an underground mine with a long and telltale history. While mining shares may be bought and sold in fractions of a second, the tempo of mine construction is measured in years or, as in the case at hand, decades.

Cigar Lake was discovered in 1981. Surface construction started in 1987. A successful box-hole boring test was completed in frozen ore in 1991. Cameco selected the jet-boring method of ore extraction, in which high-pressure water is used to dislodge the rock, in 1992. This followed a decade's worth of testing. Assembly of the various parts of the jet-boring apparatus—high-pressure pumping system, in-hole jetting tools, custom-designed tunneling machine, etc.—

proceeded from 1993 to 1997. There was a jetting tools test in 1999.

If all had gone according to the 2004 plan, Cigar Lake would have been producing uranium as long ago as 2007. But the floods of 2006 and 2008 were on no planner's time line. Production is now expected to begin in the middle of this year, with annual output reaching nine million pounds by 2018—37 years after the first Geiger counters started madly clicking. Cameco's share of the post-2005 capital costs runs to C\$1.1 billion.

A good thing, then, that triple-B-plus rated Cameco has a good balance sheet. At year-end, cash and short-term investments of C\$799 million compared to total debt of C\$1.5 billion; net debt divided by overall capitalization amounted to 12%. The income statement bears scars attesting to the risks inherent in mining (as if further proof were needed). Thus, last year net income plunged to C\$266 million, or C\$0.67 cents a share, from C\$450 million, or C\$1.14 a share in 2011.

The major cause of the year-to-year plunge in net income was a C\$168 million impairment charge on Cameco's interest in Kintyre, an advanced-stage uranium project in the East Pilbara region of Western Australia. It's informative to hear management—bullish as it professes to be on the future of uranium—explain its reasoning for acknowledging the write-down: "Due to the weakening of the uranium market since the asset was purchased in 2008, no increase in mineral resources in 2012 and the decision not to proceed with the feasibility study, we concluded it was appropriate to recognize an impairment charge for this asset. Kintyre remains an important asset in our portfolio. However, given the current state of the market, it was necessary to reduce its carrying value at this time." Happily for a prospective new owner of Cameco, the state of the market is depressed.

As for 2013 and 2014, the sell side expects Cameco to produce net income of C\$1.22 and C\$1.36 a share, respectively. At 15 times the 2014 guesswork, the company is a far sight richer than BHP Billiton, at 12 times, or Rio Tinto, at seven times. But if the valuation is defensible—as we submit it is—it is defensible in the light of

politics and economics alike. Natural-gas-fired electrical generating plants emit only half the carbon emissions of coal-fired ones, but nukes emit none. How important is this difference? In Sunday's *New York Times*, the inevitable Thomas L. Friedman talks up a carbon tax. Such a levy would constitute a windfall for nuclear. Is it so far-fetched to imagine the enactment of a carbon tax in exchange for federal approval of the Keystone XL pipeline? A different question: Is it so far-fetched to imagine that the cost of natural gas might have reached a cyclical ebb and be poised to rally if only because low gas prices have stifled exploration activity? "The number of rigs drilling for natural gas in the United States has collapsed in the last 12 to 18 months—from about 900 rigs at work in late 2011 to about 400 today," Richard Myers, a vice president of the Nuclear Energy Institute, pointed out in a Feb. 26 address to a home-team crowd. "The experts tell me that sustaining current natural gas production takes about 600 rigs, so we can expect to see production start to drift down and expect to see gas prices testing \$5 per million Btu in 2014 and 2015." Well, Myers's guess is as good as ours.

The bull case for Cameco admittedly requires some assumptions about the forever surprising future. One is that China begins to turn away from coal, that cheap and abundant fuel that is not under the thumb of any cartel. Yet, who knows? Over the weekend, China's new premier, Li Keqiang, told the closing session of the People's Congress that the smog chronically smothering eastern China gave him a "heavy heart." As for his lungs, *Bloomberg* reported as follows: "Outside the Great Hall of the People, where Li spoke, the level of PM2.5, the small particulates that pose the biggest risk to human health, was 364 as of 6 p.m. [on March 16], according to Beijing city government readings. The World Health Organization recommends 24-hour exposure to PM2.5 of no higher than 25."

So the uranium bull will necessarily be rooting for a greener China—yet, equally, for a growing world economy. As to the latter, the 2012 *World Energy Outlook*, a production of the International Energy Agency, projects that by 2035, electricity con-

sumption will be 70% higher than it is today, thanks to the vim and vigor of the developing economies. America's electricity consumption, by contrast, is slated to grow by only 16.6% in those 22 years, implying an annual increase of a mere 0.7%, compared to 2.4% for the rest of the world. Yet, even at that anemic rate of expansion, the United States would still require another 248,000 megawatts of new generating capacity by 2035, some 40% of which will replace obsolete structures. If nukes did no better than to retain their existing share of U.S. generating capacity, some 30 new reactors would have to be built. They would require about

15 million pounds of uranium at the time of commissioning, or 83% of the projected full annual production of the Cigar Lake mine.

An intriguing article entitled "Rise of the Nuclear Greens," by Robert Bryce, appears in the winter 2013 edition of the *City Journal*, a publication of the Manhattan Institute. Patrick Moore, the Greenpeace co-founder quoted in the first sentence of this essay, is far from the only environmental activist turned pro-nuke. "For decades," Bryce relates, "groups like the Sierra Club and Greenpeace have pushed an antinuclear agenda and contended that the only energy path for the future is

the widespread deployment of wind turbines and solar panels. But fear of carbon emissions and climate change has catalyzed a major rethinking. As Stewart Brand puts it in a new documentary, 'Pandora's Promise,' which explores the conversion of antinuclear activists to the pronuclear side: 'The question is often asked, 'Can you be an environmentalist and be pronuclear?' I would turn that around and say, 'In light of climate change, can you be an environmentalist and *not* be pronuclear?'"

Al Gore, say hello to Homer Simpson. Like us, each should be bullish on uranium—and on Cameco, too.



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