



In order to create a fortune worth any mention, it is necessary to at least do one very important thing. And that is, to **behave differently from everyone else.**

Specifically, to do this in the world of investing, we need to have at least a certain degree of the following:

- a. A different mental model of the world (or “thesis”), relative to everyone else.
- b. (i) Different and better information on the world than everyone else has.
and/or
- b. (ii) A different and better way of analyzing the same information that everyone else already has.

-We can either (i) start with different (better) information, and hence find better opportunities; or, we can start with the same information as everyone else, but then analyse it, and then up acting differently

(c) The mental flexibility to abandon our fixed ideas and prejudices, and adapt to the situation as quickly as possible, usually under uncertain conditions (there are other ways to be successful, such as by having access to particular forms of financing, but we can leave the more niche ideas for now)

All of the above are the analytical traits you need. But there is also one other element, that of psychological toughness.

How would you react to catching a tiger by the tail? Assuming you had a good thesis, it started to be proved right, and your investment is now up significantly – Are you going to bail out or are you going to stay in? Or add to your positions? What information do you use to decide? Can you hold on to a big gain and not fear losing it?

This apparently small difference in thinking under pressure will determine a large portion of your ability to bag that fortune.

Note: it might take a while to read this article in full, and to do so carefully. Try to put yourself in the moment – what would you have done at any given step? Check your emotions – is your investment going well? Please do not read this series carefully unless you are not planning to make a fortune.

Now, let's head back, all the way back to.....the year 2000....

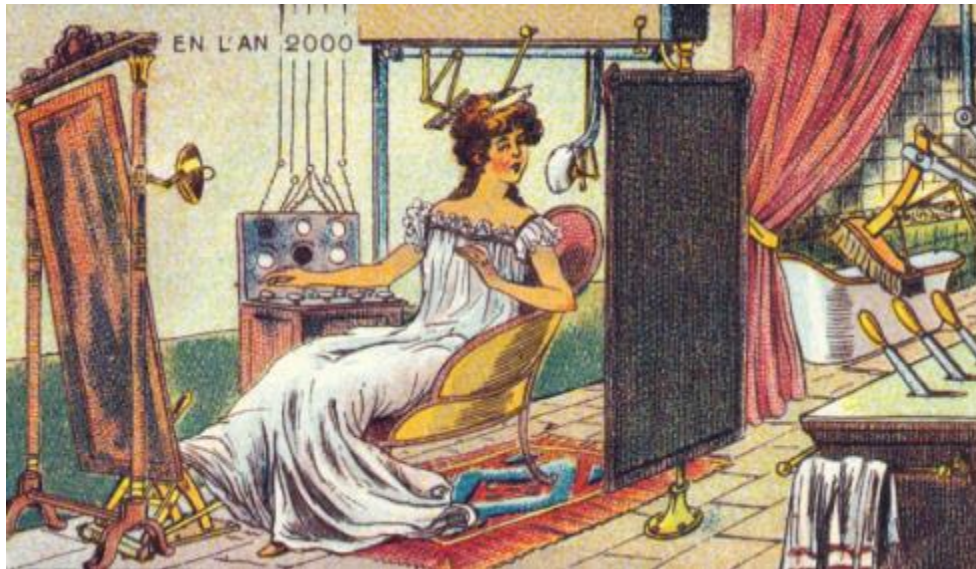


Illustration of French forecast for the year 2000

...when the least interesting thing on the planet is digging on rocks, especially radioactive rocks.

There are some interesting things about the uranium market that have drawn our attention, however, and these are:

It is quite clear that the price of uranium itself is very low. All of the uranium miners have been complaining about it some time, and in fact very few of them can make any money. *An uneconomic price below the cost of the most efficient miner!*

It is a market with long cycles (it takes between 10 and 20 years to build a mine), a history of government interference that has led to a huge overhang of inventory, with **concentrated production dominated by a few miners**, a thinly traded market in the underlying metal, non-transparency in inventories and contracts, and a price that has been declining for ages.

In general, the performance of the rock-digging business depends primarily on how much rocks you dig up, and how much you get for them. For instance, if the cost to dig a bag of rocks is \$8 and the selling price is \$10, then the gross profit will be \$2. If there is \$1 of other costs before pre-tax income, then we get to $2 - 1 = \$1$ of pre-tax income. Now, if the price of the rocks doubles, then the income goes from \$1 to: $\$20$ (selling px) $- \$8$ (digging cost) $- \$1$ other costs = $\$11$ of pre-tax income, which is 11x up, on only a doubling in the rock price!

This is called “operational leverage”.

Although a rock-digger's profits depend on volume of rocks x price of rocks – cost of rocks, since the volumes dug up do not tend to increase hugely until the price justifies

more spending on the digging, by far the most important thing we need to worry about is the price of the rocks.

Uranium is no different, except that the price and inventory cycle is extremely long (knowing this is important)

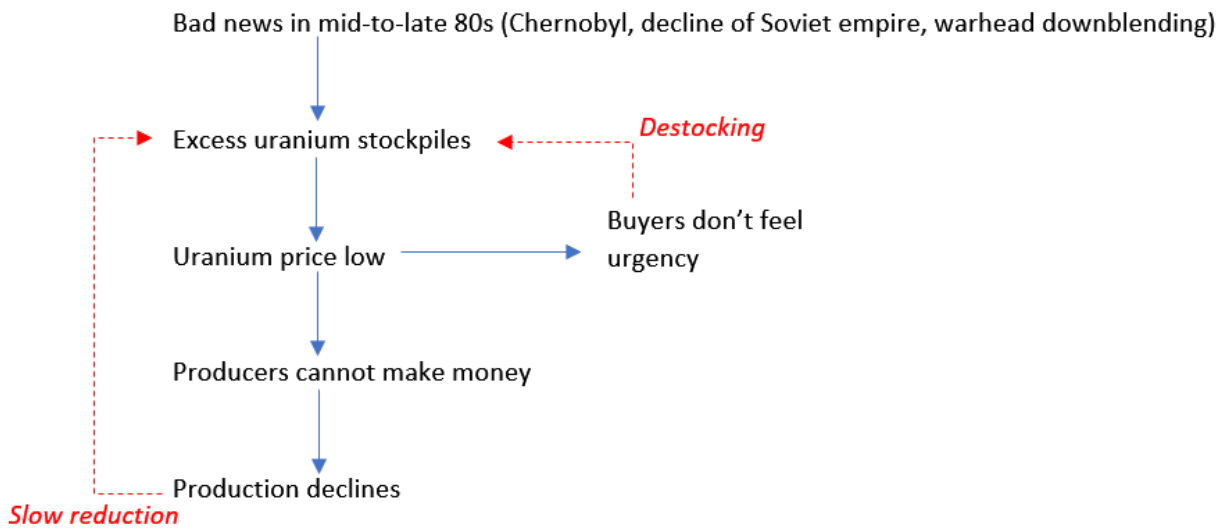
Production was falling off a cliff in the early 90s (triggered by a Chernobyl in 1986 and US-USSR nuke-reduction treaties), bounced in the mid-90s (partly due to the bankruptcy of one trading company that had uranium inventory, leading to an “artificial” tightening of the uranium market), and then resumed falling again until 1999-2000, which is where our story starts.

There is not a lot of information available about this market. The major players almost all keep quiet. **There is little information other than from Cameco’s financial documents. However, we are getting our inner detective out, now that we know that prices are unreasonably low.**

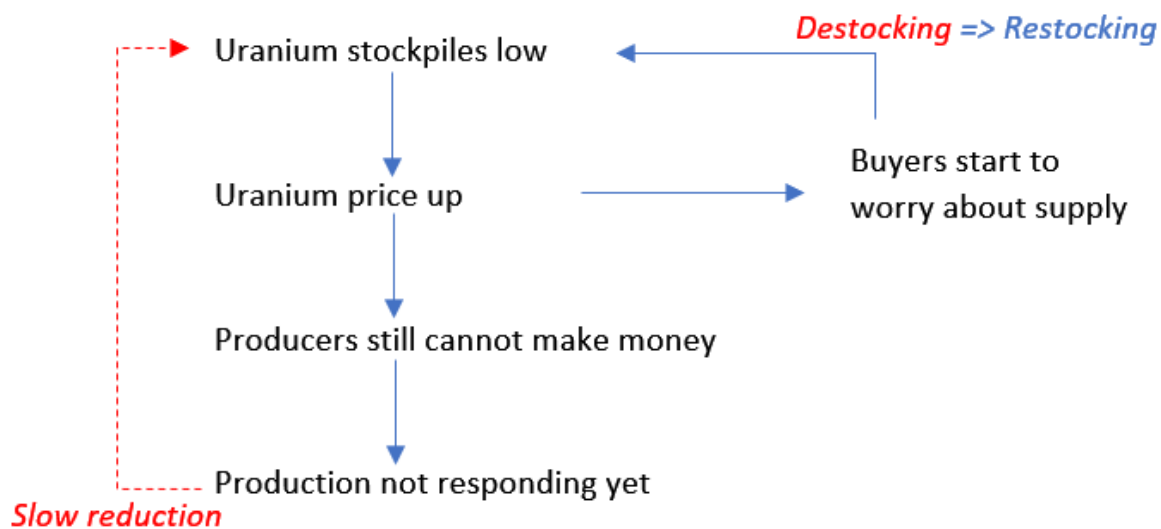


H. Poirot: Is that under-priced uranium with inventories being drawn down?

Essentially, due to the fact that this is a long-run cycle industry, our thesis is that the business should be going from this:



To this:



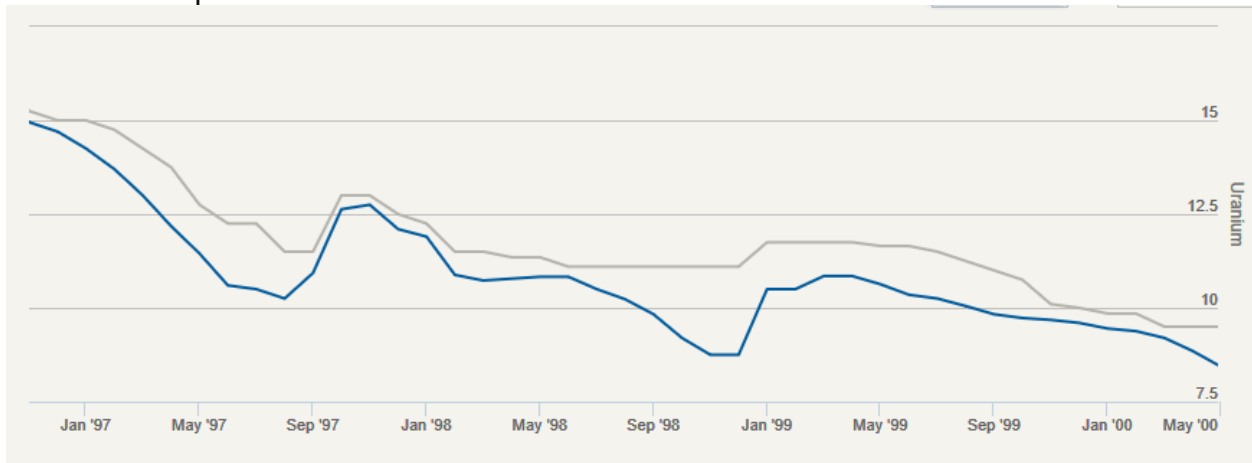
How do we know where we are in this process? We don't. No-one really knows. Everything is secretive. We have a few indicators to go on, however. An excellent overview of the situation we are facing was given by Cameco (CCO CN), in 2000:

First, the former Soviet Union republics entered the western world uranium market and sold large inventories at fire sale prices throughout the 1990s. Uranium was not the only commodity to suffer from these marketing practices in the past 10 years. Second, the cold war ended and suddenly the large stocks of Russian and US uranium from weapons became potentially available and threatened an already weak market. Third, many electric utilities

changed their uranium inventory and procurement strategies as their markets became deregulated in the United States and elsewhere. As the utilities moved to open competition, they naturally looked for every opportunity to decrease their uranium inventories and, more than ever, their cost of uranium.

The simple facts remain that the industry continues to produce half of what utilities consume, that almost no new mines are being developed and that inventories continue to be drawn down at high rates.

And this was, in fact, when the shares of Cameco, the largest publicly-traded producer (second largest producer in the world after KazAtomProm, of Kazakhstan), bottomed:
The uranium price at the time looked like this:



CCO's share price at this time looked like this:



....how ugly!

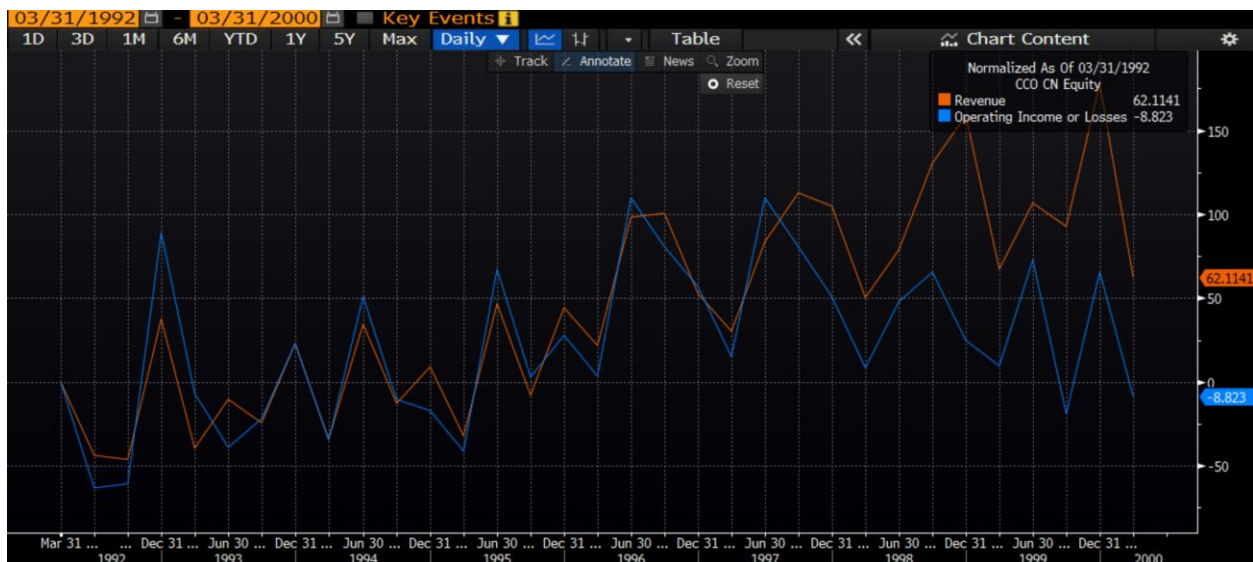
Who would want to buy into a dying dog like that?

Now, let's firstly mention that CCO was supplying about 20% of the global uranium market at the time.

To put that in perspective, Saudi Arabia in 2018 has less than 10% of global oil market share. The difference of course is that uranium is stored in multi-year inventories, because no one wants to find out what it looks like when a power plant runs out of fuel. By contrast, oil is bulky relative to its usage, and at best we can store a few months of use – at the time of writing, OECD oil inventories (called “stocks”) were 2.84 billion bbl and consumption is about 47 m bbl/ day, so OECD oil stocks cover about two months of consumption – note, however, that once this level drops then shortages start to appear, and hence the comfortable level of oil stocks is way above zero.

So CCO has about double the market supply concentration in uranium as Saudi does in oil, but of course the huge inventories out there dampen the price of uranium. Moreover, don't you think that uranium can't go that high anyway, because of its strategic nature, and the fact that governments have big stockpiles? Maybe. But on the other hand, it is a very thin market – only about 15% of volumes go through the spot market (most are on long-term, opaque contracts), and no one really knows what is really going on with those stockpiles. We know that inventories have been falling for years, but how much? This awful market has continued for years – who is to say it won't remain weak for another decade?

This is the sales (brown) and operating income (blue) of Cameco over the period Mar 1992 – Mar 2000:



Sales have been doing fairly well, but not operating income. Analysts have been forecasting continued pain in the uranium sector, and nobody is really that keen on CCO shares.

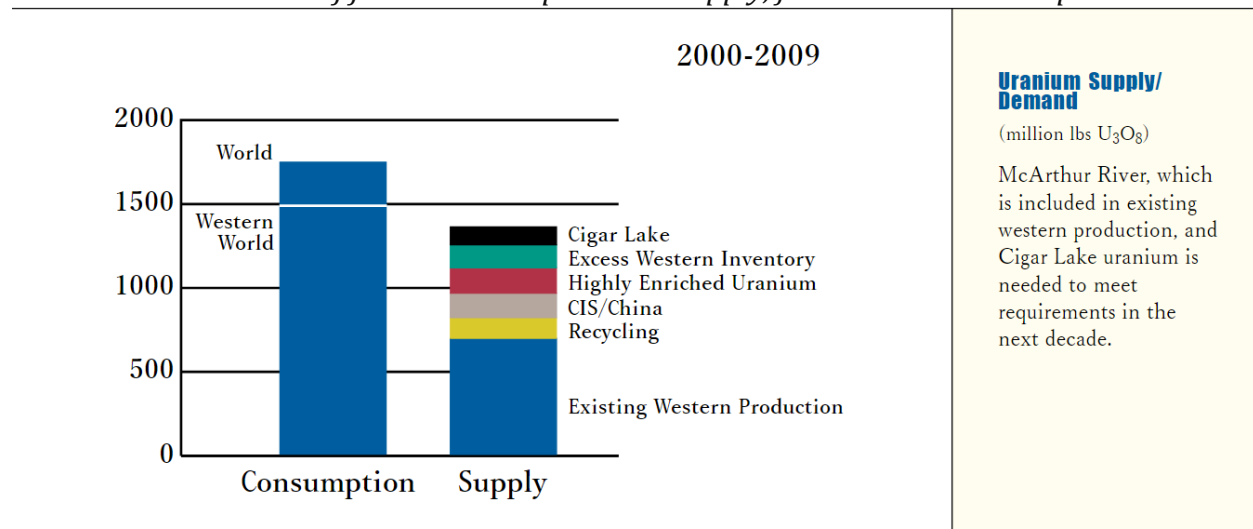
Helpfully, CCO gives an outlook on the uranium market in their annual report (AR).

The below bar chart is a forecast of consumption and production as of 1999 for the next ten years, from their 1999 AR (published at the time of the above chart).

Note – This is actually not news as of 1999. CCO has been consistently whining about the excess inventories filling the gap between power plant consumption and primary (i.e. mine) production.

Also note that Cigar Lake is a CCO property, and McArthur River is CCO's biggest mine.

Chart – extracted view of future consumption and supply, from CCO's annual report



Essentially, it is pretty clear that without CCO, the uranium market is going to be massively undersupplied. **The reason why pricing has been so low is the combination of the inventory overhang with the non-transparency of uranium inventories.**

CCO has been cautious on uranium pricing for some time, and in fact they have been investing in a nuclear power plant project.

Here is their comment on prices:

The lower demand, the removal of US trade restrictions on all but Russian uranium and the presence of cash-hungry inventory sellers caused the spot price to soften during much of the year before leveling off in the fourth quarter at its lowest point since December 31, 1973. Long-term contract price indicators published in the industry fell by 8% during 2000 to \$9.25 (US) per pound U₃O₈. This occurred despite a modest increase in total long-term contracting in 2000. A low spot price leads buyers to expect plentiful and inexpensive supplies causing a negative impact on long-term contract prices.

The increase in long-term contracting seems small, but it is significant, because it means that serious buyers are getting more interested, if only at the margin, in securing supplies.

NOTE: the importance of activity on the margin!

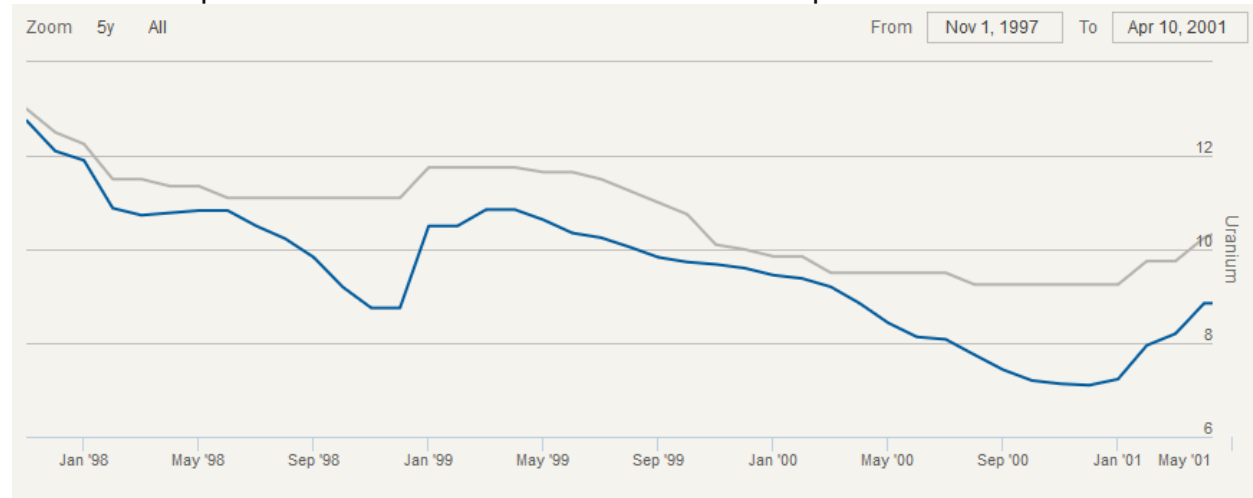
They tell us that excess inventories (excluding e.g. strategic military stockpiles) fell by 35 m lb. in 2000, to 150 m lb. In 1999, the drawdown was 45 m lb., but somehow excess inventories were both 150 m lb. in 1999 and in 2000.

Nonetheless, 150 m lb. of U308 is about one year of use in 1999/ 2000, and this is the level at which utilities really need to wake up and start paying attention to security of supply.

Welcome to 2001!

In 2001, CCO updated their highly-enriched uranium agreement with Russia, and fixed prices at the low level of the time.

The uranium price looked like this as of CCO's annual report:



Note that the long-term contract price (grey) is higher than the spot price (blue)
An IAEA report released in 2001 included the following table:

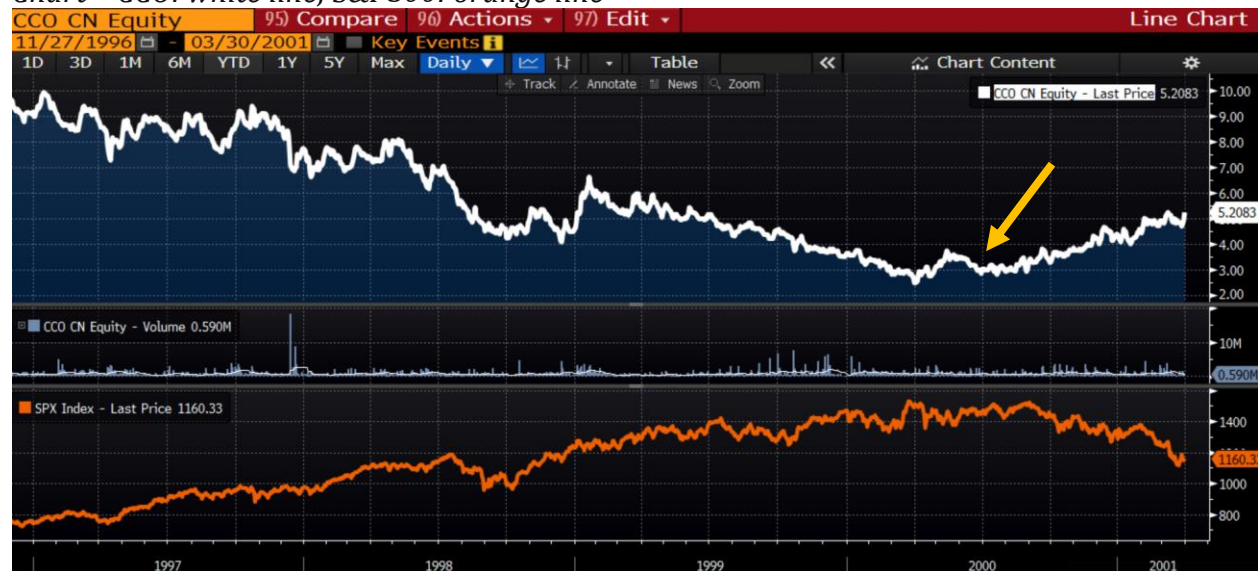
TABLE VII. SUMMARY OF URANIUM SUPPLY-DEMAND RELATIONSHIPS FROM 2000 TO 2050, M

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Demand	61 600	62 200	62 800	63 500	64 100	64 800	65 400	66 100	66 700	67 400
HEU	5 400	6 200	8 000	9 300	10 700	10 600	10 700	11 100	10 900	12 100
Supplier inventory	5 550	5 294	5 289	6 447	7 876	8 210	6 573	1 105	-2 064	-1 364
Russian inventory	7 100	6 300	4 500	3 700	2 900	3 000	2 900	2 500	2 100	900
MOX	1 900	1 900	2 300	2 400	2 500	2 500	2 600	2 800	2 800	3 000
RepU	1 400	1 500	1 500	1 500	1 500	1 500	1 700	1 700	1 700	2 000
Tails reprocessing	4 500	4 500	5 200	4 850	4 250	3 650	3 300	3 000	2 800	2 650
CIS production	6 300	7 300	7 500	8 500	9 300	10 400	10 500	10 600	10 800	11 000
National programmes	950	765	665	565	575	605	625	625	625	625
China	380	380	380	760	760	1 380	1 380	1 380	1 380	1 380
Market based production	28 120	28 061	27 466	25 478	23 739	22 955	25 122	31 290	35 659	35 109

Notice how they expect production to continue declining from 2001 to 2005. This is great news for us, as potential uranium investors!

This is CCO's share price just prior to their earnings release:

Chart – CCO: white line; S&P500: orange line



Just after earnings:



Their results were quite good, and this is what the analyst community and traders are mainly reacting to here.

However, there is something else, in the comments:

From their annual report (Apr 2001):

*When will uranium prices improve? It is impossible to know with certainty and our track record in forecasting price trends has not been good. At year end, uranium spot market prices were about \$7 (US) per pound, near historic lows, compared with about \$16(US) in 1996. **At Cameco, we believe they cannot go much lower as world uranium production is less than half of consumption and most of the world's mines are simply uneconomic at such prices.***

Although they say that they cannot forecast prices, they have, perhaps inadvertently, given a huge **“buy” signal** through these two important facts:

1. Pricing cannot go much lower due to most mines being uneconomic at these price levels.
2. Inventories have fallen to a level that is significant.

These two facts alone should make us establish a position in either CCO itself or, more realistically, some of the more speculative miners that are moving towards production. It is also noteworthy in the charts above that the CCO share price seems to have bottomed just as the S&P 500 (SPX, orange line) has topped out.

Let's hold on to our positions and watch what happens.

Around this time, nuclear power started to be viewed differently due to the combination of [the California energy crisis of 2000-2001](#) (thanks, Enron!), increasing input costs for

competing electricity generation plants (gas and coal), and increasing understanding of global warming:

Before California's electricity crisis, nuclear power was widely regarded as a dead industry, despite the money poured into research and billions more in government subsidies. The cost of building new nuclear power plants is not competitive with other forms of electricity generation.

No nuclear plants have been ordered since 1978, and more than 100 reactors have been canceled, according to a congressional report issued in November.

While public concern over safety and waste disposal have tarnished the industry, the biggest reason nuclear power has fallen out of favor is cost. The price tag for a nuclear-fueled power plant can reach \$6 billion, or \$3,000 per kilowatt of electricity-generating capacity, according to congressional estimates. That compares with \$500 to \$700 per kilowatt for a natural gas-fired plant.

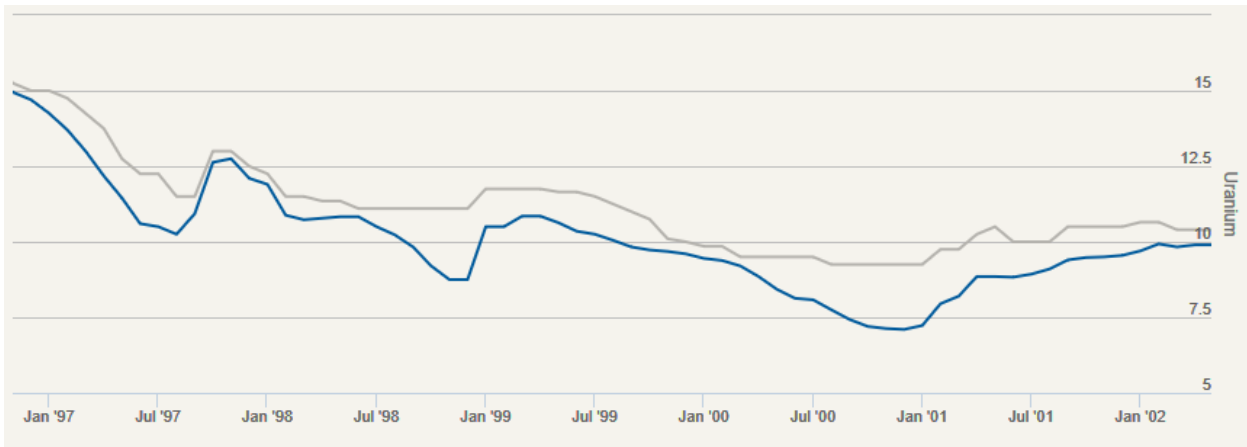
But in the last year, rising natural gas prices and a shortage of generating capacity have given the nuclear power industry a reprieve, as seen in rising sale prices for existing nuclear plants. The industry has received a further boost from concerns over the burning of coal, oil and other fossil fuels, which produces so-called greenhouse gases believed to contribute to global warming.

Welcome to 2002!

This is a comment from CCO's 2001 annual report, published in Apr 2002:
Generally, from a marketing perspective, one should mention two noteworthy developments. In 2001, and for the first time in five years, the uranium price ended the year above its starting point.

Comparing the uranium demand with our best estimates about potential supplies, we at Cameco believe that new uranium production capacity will be needed, in addition to what is planned, including Cigar Lake. **We also believe that the uranium price will have to move well above its present level for this to happen.**

This is what uranium price looked like:
NXE



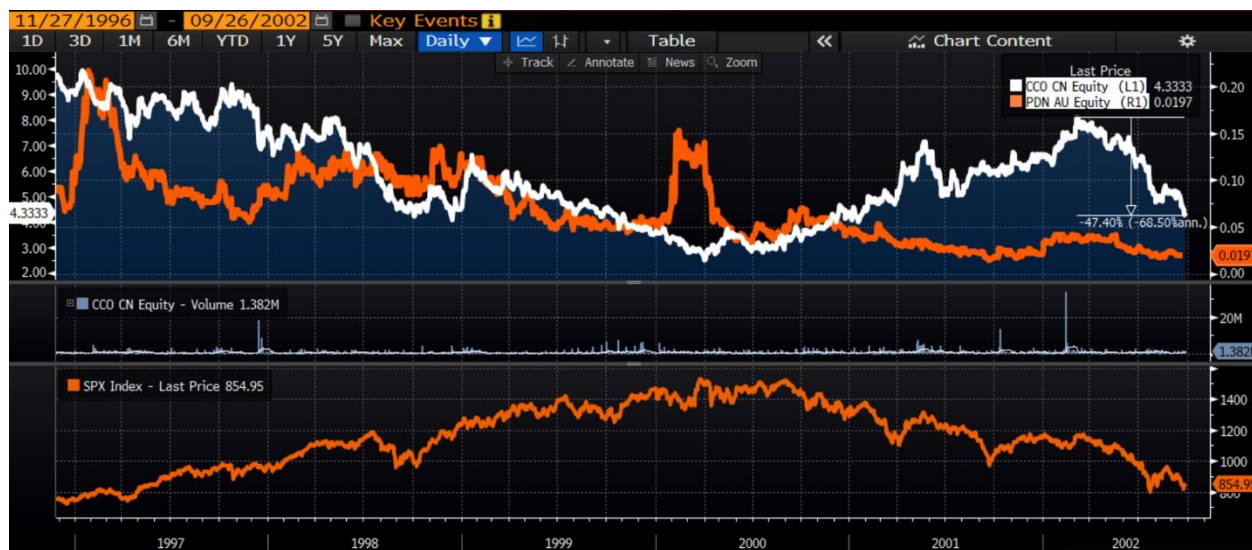
At this was CCO's share price at the time of the earnings :



Everything is looking great, right? How do you feel about your new investment?

Well done, you can sit back and relax.
Until.....wait...something bad is happening...

Chart – White line is CCO, orange in top panel is another uranium company. Bottom panel – S&P500.



Perhaps you should get out of this investment? Just take your losses and run. The overall stock market is falling, and the newspapers are full of negative stories. Just because the uranium market may have bottomed does not mean that the stock cannot fall another 50% from here. Are you going to sell?

Maybe we should think a bit about what caused the decline.

This decline was due to Bruce Power, a nuclear power company that was then 15% owned by CCO. It had 4 reactors at the time.

The other 85% was owned by British Energy, which was at risk of going bust (this would be bad for CCO).

However, the British Government stepped in and loaned a lot of money (c. 400m GBP) to British Energy to make sure that it had enough working capital to keep operating (good for CCO).

However again, part of the deal at the time was that the British Government needed financial guarantees from Bruce Power.

This meant that if British Energy continued to screw things up, then Bruce Power could go bankrupt and CCO's ownership in it would be worthless (bad).

On top of that, two genius analysts decided that this would be a great time to downgrade the stock.

Obviously, it is typical for an analyst to downgrade when the stock is down, and then upgrade when the stock is up – and this is what happened during this period with CCO.

The analysts, Victor Lazarovici and Ian Howat (at two different banks), decided to respectively downgrade the stock to CAD 37 (from CAD 45) and from CAD 30 (from

unknown), which is about where the stock was at the time (the above chart is adjusted for splits). Well done guys!

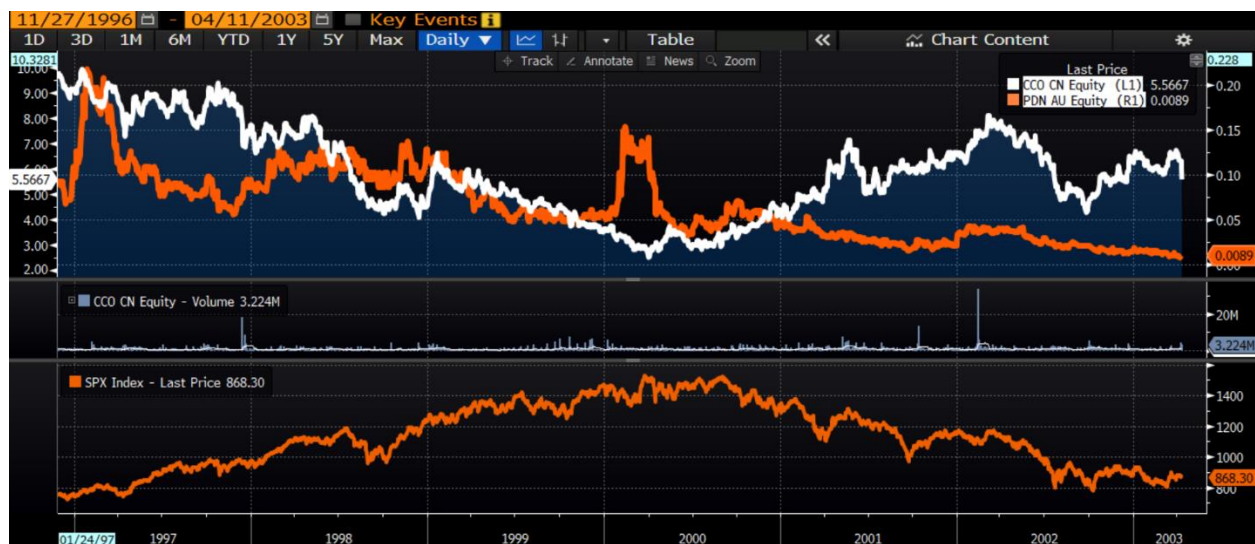
Note that, in the above chart (top panel, orange), Paladin Resources is shown as an example of another uranium company, and it has received essentially zero interest lately.

CCO's stock manages to recover when the market figures out that the uranium mining operation is worth a lot more than Bruce Power, so a 50% decline is too much.

Then, in Apr 2003, together with their annual results, CCO announce the flooding of their massive McArthur River mine (the mainstay of their uranium production).

The headline reaction was obviously bad. McArthur River is their main mine, and their second source of income was their Bruce Power investment.

They said it would take several months to dewater the mine. Maybe now is the time to sell?

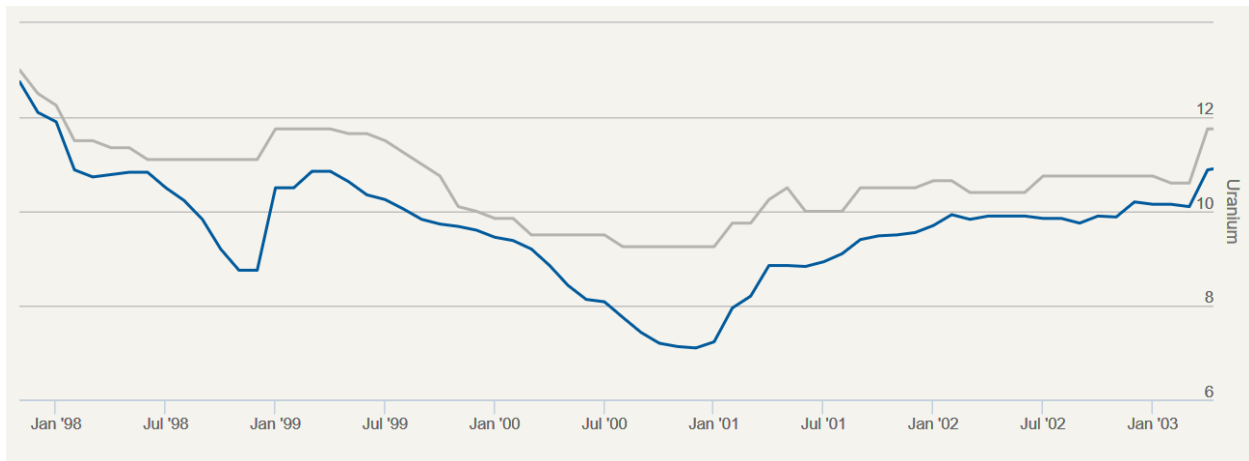


This time another analyst, Greg Barnes, lowers his target price due to this issue. However, since McArthur River is such a large contributor to world production, this is **actually bullish for the uranium price, and hence positive for the stock.**

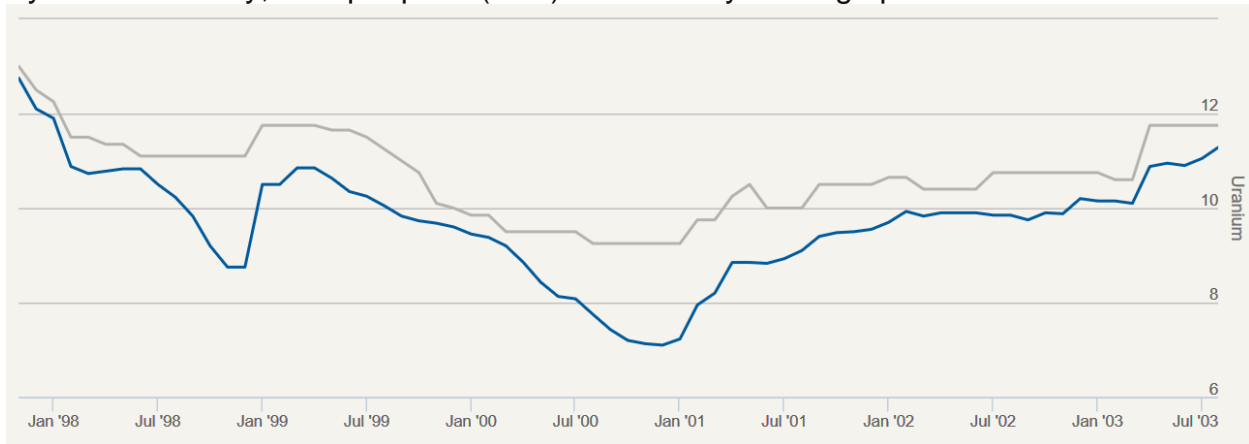
A simple cause-effect mode of thinking would lead to an expectation of the gains in the uranium price to reverse. However, this is not what happened – the market for the metal and for CCO's (and other miners') stock started to take on a momentum of its own.

Identifying this sign was extremely important, considering that we already knew that we were either past or near the end of the inventory-liquidation stage of uranium inventories, and even slight tightening of supply may lead to higher prices.

This is the uranium price at the time of the mind-flooding announcement:



By the end of July, the spot price (blue) was already moving up:



And CCO's share price had not only recovered all the decline due to the mine flooding, but was already up past that point (the sharp drop in mid-2003 is the mine flooding):



This was extremely positive for the whole sector, even though share prices of companies such as Paladin and Denison had yet to react.

Moreover, the comments from the CCO annual report included important messages about their view of prices needed to incite new supply, and also on their view of inventories:

*The long-term outlook for improved uranium prices remains positive. The past year saw **continued drawdowns of excess inventories by nuclear utilities**. The numbers tell the story. Over the past 10 years, utilities in the western world have contracted for about 1.1 billion pounds of U3O8 **and used 1.4 billion pounds**. Over the same period, the world's production capability declined sharply from 142 million pounds U3O8 annually to 109 million pounds U3O8 last year. Much of that production is not sustainable at current market prices. For production to increase to the level necessary to meet future demand, **prices must rise substantially**.*

***We estimate that prices of at least \$12 (US) per pound on a sustainable basis** are necessary before Cameco would commit to the development of the Cigar Lake deposit.*

You can see in the uranium price chart above that \$12/ lb is yet to be reached, and for it to be reached on a “sustainable basis”, we still have quite a way to go. They also have a comment mentioning continued inventory drawdown.

Both of these were very good for the uranium price. The “sustainable basis” comment is saying “we want more commodity inflation”, while the inventory drawdown comment is saying “better get your hands on these rocks while they are still around”.

Further, the fact that the uranium price was reacting so strongly meant that either inventories were already getting thin, or at least the perception of the utilities was one of a lack of product. **Either way, the technical position of the market for the metal was extremely favourable** (uranium price moving up on lower supply expectations, and a sustained increase despite expectations of mine flooding to be fixed in 6 months), and the same is true of the CCO share price (share price moving up despite the company doing worse on mine flooding).

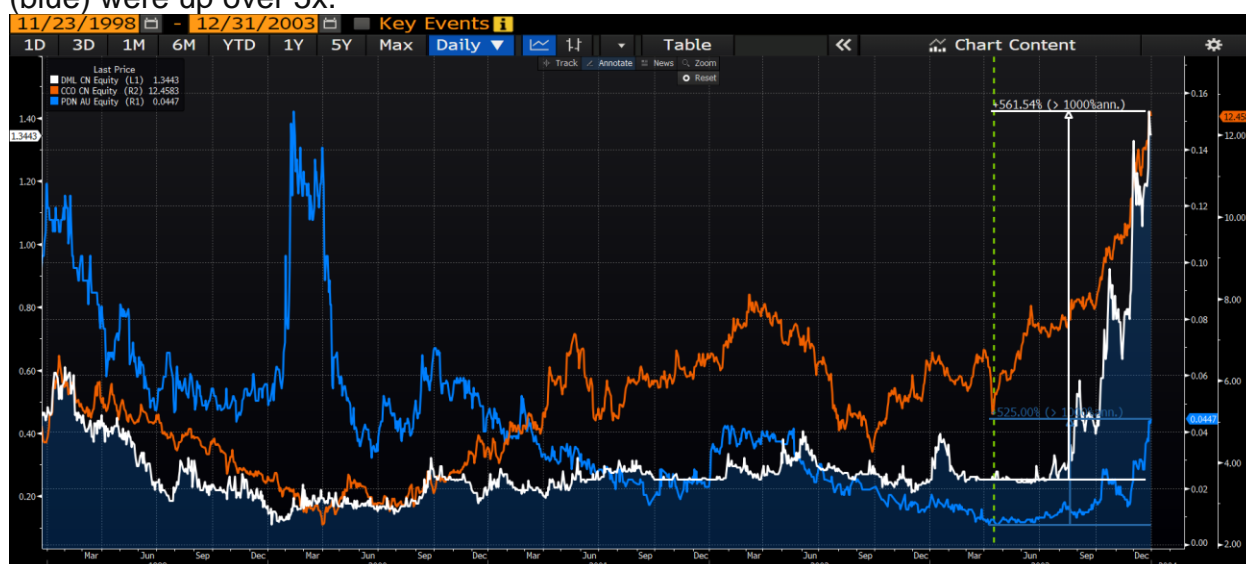
The above strong factors plus the fact that the inventory drawdown had been going on for a very long time should have been sufficient to push us to buy more.

The share price is higher now in July 2003, but so what?

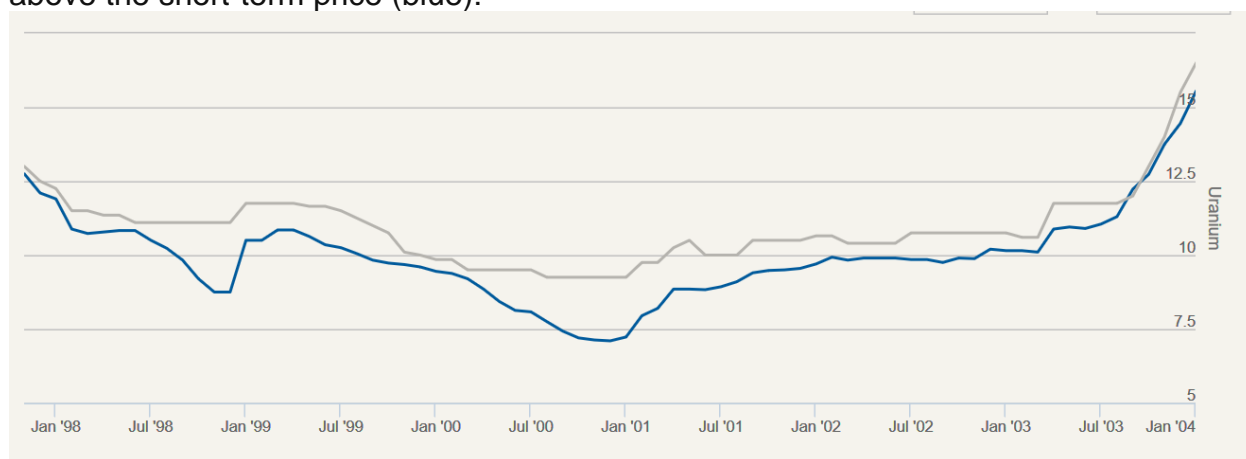
The situation has improved dramatically from two years ago, when, even though the **share price bottomed out, fears of a continued overhang of inventory kept the uranium price low**. At present the uranium price is indicating to us that the availability of the metal is a lot tighter. If speculators who are not following uranium start to understand this, then they will buy. **We should get ahead of them and increase our positions now.**

And not just the “safe” play of CCO itself – we all know that if CCO is performing this strongly, then the smaller companies will do much better. Buying early-stage companies that have little to show but holes in the ground is difficult as we are responsible people, not just unwashed homeless gamblers, **but if we are buying CCO on an intelligent speculation, then we should extend the logic to its full extent, and buy the small miners that will react more strongly.** Since CCO believes that the uranium price cannot fall much more, we should maximise our gains by buying companies that have the most leverage to the underlying price.

In the chart below, the green dotted line indicates the timing of CCO’s financial results and concurrent mine flooding announcement. CCO roughly doubled from the bottom of the mine-closure sell-off until the end of the year, while Denison (white) and Paladin (blue) were up over 5x.



This is the uranium price at the time – note that the contracting price (grey) remains above the short-term price (blue):



Ok, great, you made a killing, maybe 5x if you were bold enough – do you sell here and go home, or are you staying?

A hard decision to make.
Cameco said this in Dec 2003:

“The company estimates uranium prices would have to rise to \$17 a pound and \$20 a pound to spur the discovery and development of new deposits”

– this is very positive.

But, in Jan 2004, CCO said that while it has consistently expected *“uranium spot prices to increase significantly over the next several years, some of the recent and unexpected market developments have resulted in prices rising more quickly than anticipated”*.

– this is a bit cautious.

Most people would at least trim their positions. Amateurs would get the hell out, and then have bragging ammunition for the rest of their lives.

What happened next? Move on to [Part 2](#).



Welcome to 2004!

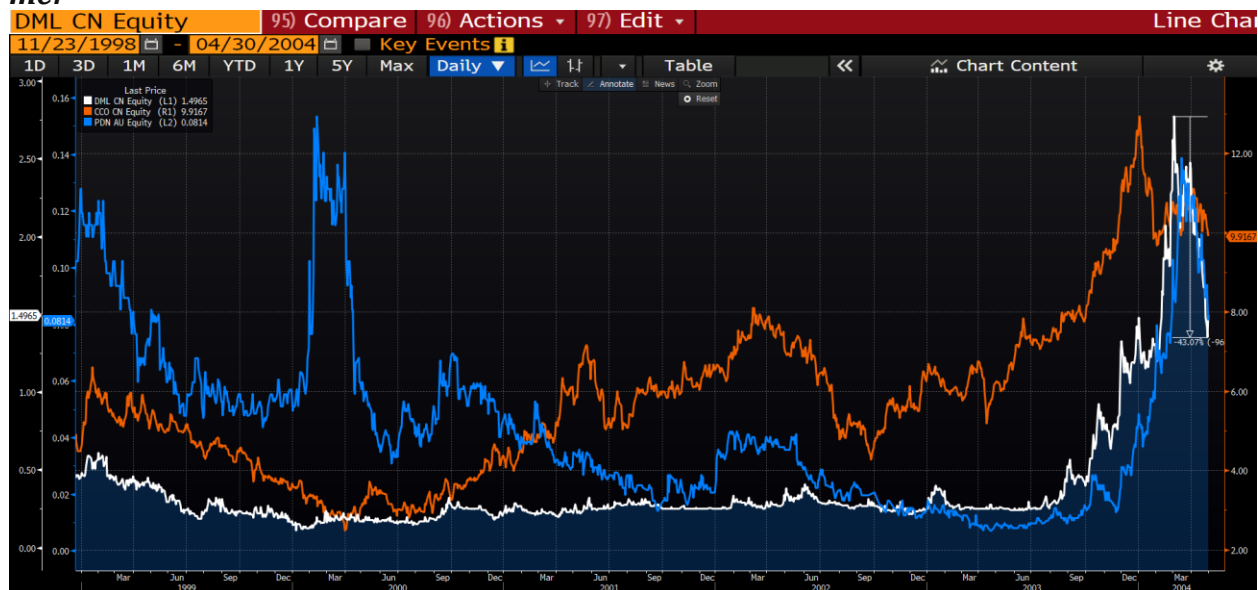
If you did not get out, then in another five months you would be facing this:

Chart below – Share price as of Apr 2004- prices down almost by half in the more speculative names.

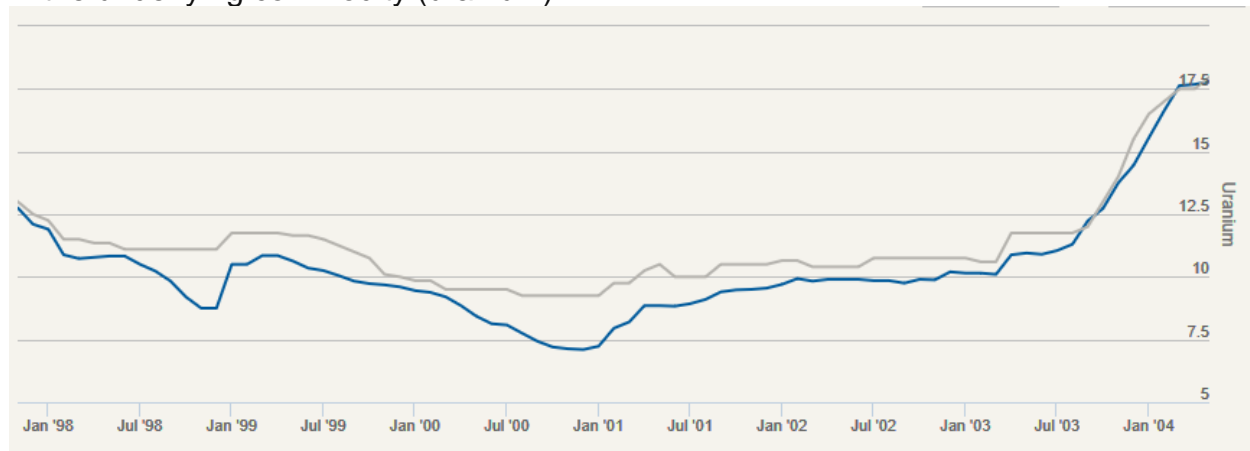
If you were a cheeto-eating, TV-watching amateur, your first thought to yourself would likely be:

Congratulations, you just lost over 40% on some of your positions. Looks like your gonna be stuck in that cubicle for a while yet, pal. Don't give up the day job.

... or even you could have thought to yourself *"Hell, I bought me these shares about a year ago, just after that mine flooding, and now they are up over 4x – that's enough for me!"*



However, if you could put down the cheetos long enough to examine the likely situation in the underlying commodity (uranium)...



... you would see that, importantly, the uranium price was telling you that expectations are that **supplies will be tight**.

Note that in the share price chart, CCO shares are staying relatively well-bid, and they are not collapsing.

Further, it is notable that the the spot price briefly exceeded the long-term contract price during 2003, although they seem to be almost on top of each other currently.

Now, even if you were “smart” enough to trim your positions into the rapid rise from late summer 2003 until the end of the year, the most important thing is to *go back to your original thesis unless proven false*.

Remember, the original thesis involved:

- Inventories that have been declining since about 1985

- Very long lead times to encourage new supply

- Prices too low to stimulate new production

...add to that our new theory that:

- CCO, the biggest non-Kazakh producer, is bullish on the price

- The metal price itself is now indicating a tight market

... and the correct thing to do here is...

... what do you think?

So, what you definitely should not do is to completely get out of all your uranium positions in a situation such as Dec 2003, *even if you really believe that the shares will decline in the short term* (e.g. one or two quarters). **This is because it is extremely hard, psychologically, to get back in once the price subsequently goes against you (i.e. rises after you sell). How do you know that the shares will bounce back?**

You don't.

But your thesis is that the bull market has to run on until it is killed by, most probably, a **rise in supply**. Either that or **tight money**. Or it **burns itself out**.

Since any of those will take ages, you should not be getting out after a few months of stock price inflation.

Moreover, the uranium price is confirming that all is going well. You should be adding to your positions.

This is what the legendary Jesse Livermore meant when he said:

I think it was a long step forward in my trading education when I realised at last that when old Mr Partridge kept on telling other customers, “Well, you know this is a bull market!” he really meant to tell them that the big money was not in the individual fluctuations but in the

*main movements-that is, not in reading the tape **but in sizing up the entire market and its trend.***

Nobody can catch all the fluctuations. In a bull market your game is to buy and hold until you believe that the bull market is near its end.

Meanwhile, CCO released their 2003 annual report around this time (i.e. in April 2004). Here is what they said:

The supply and demand fundamentals in the uranium market are in a period of significant change and uncertainty, and point to

a need for more primary mine production, which will require new investment. Higher sustained prices are needed *to encourage the required new investment in primary production.*

*New construction, improved reactor operations, uprates and the extension of reactor lives make it highly likely that, at a minimum, **the current demand for uranium will continue for a number of years. In the shorter term, perceptions that there are ample uranium supplies are beginning to change as excess inventories decline.***

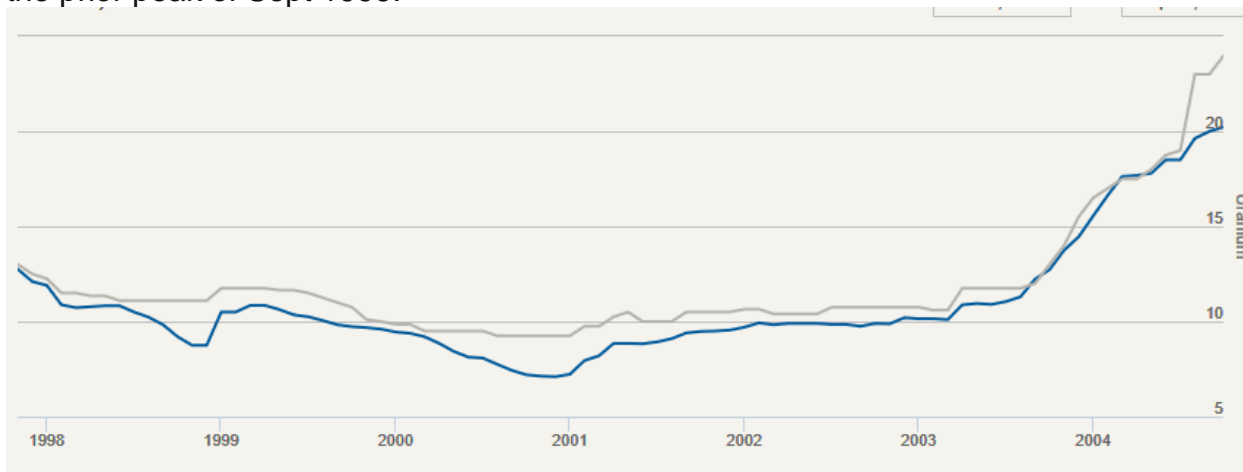
=> i.e., the recent rise in prices is nice and all, but we (the radioactive rock-digging industry) need more commodity price inflation to make us get digging enough of them rocks. This is essentially a strong “Buy” signal from the biggest dog in the compound.

And, on a conference call with CCO just after their annual results (on Apr 23, 2004), they said that prices have been stronger, but now long-term contract buyers are using the flexibility in their supply contracts to max out what they can get from those contracts, instead of hitting the short-term spot market, therefore, spot market volumes are down but prices are up. Needless to say, this is bullish.

Also:

..., given limited, uncommitted supplies and the uncertainty in the market caused by the [Russian] termination of the [nuke downblending] contract, prices continued to strengthen significantly over the quarter with respect with to [Russian nuke downblending] issue at this time the general consensus is that Russia will find a way to deliver to the affected utilities. When you look more closely at the first quarter spot volume of interest is the fact that more of 75% of the spot business transacted was concluded with quite up market transaction for the most parts utility buyers are attempting to minimize the upward pressure on prices.

By three months later, in Sept 2004, the uranium price had already gone up significantly – well above CCO’s required level to develop the Cigar Lake deposit, and well above the prior peak of Sept 1996:



Long-term contract prices are now higher than the spot price – indicating that the spot price is getting ignored by long-term big buyers, probably because big buyers would make the spot price rocket higher if they started to rely on it now, so they are hitting long-term contracts as much as possible.

This is what the share prices looked like at this juncture:

First dashed vertical line – end of 2003, the point at which most amateur cheeto-eating TV-watchers would have bailed out.

Second dashed vertical line – CCO’s full-year results announcement, with bullish statements about the uranium market – i.e. when you should have been adding. Now is late July, 2004.

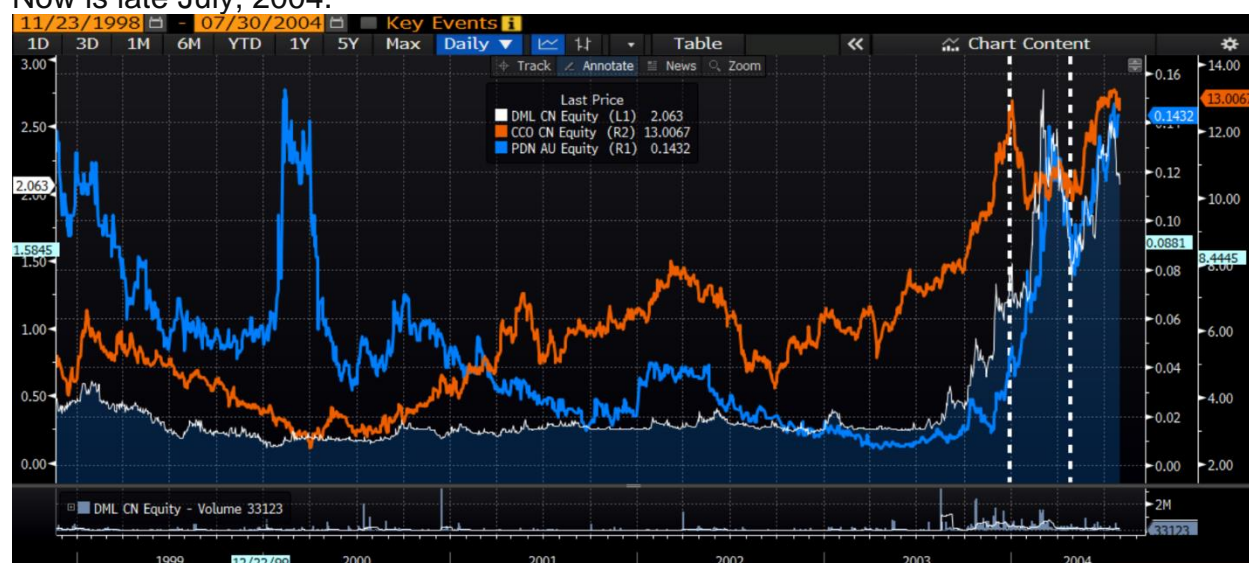
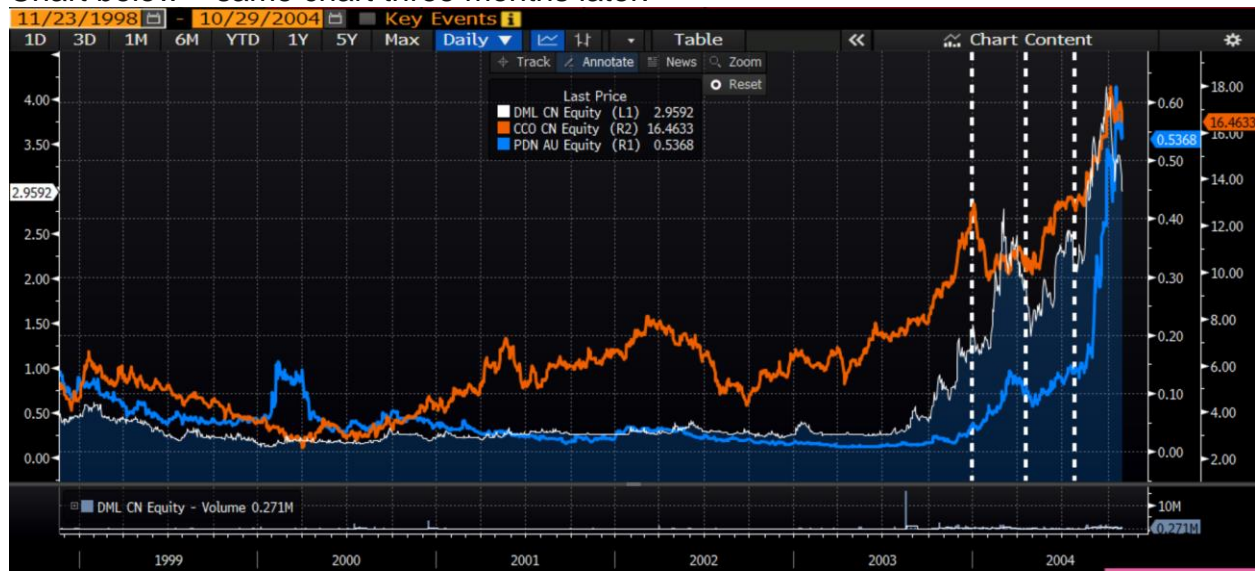


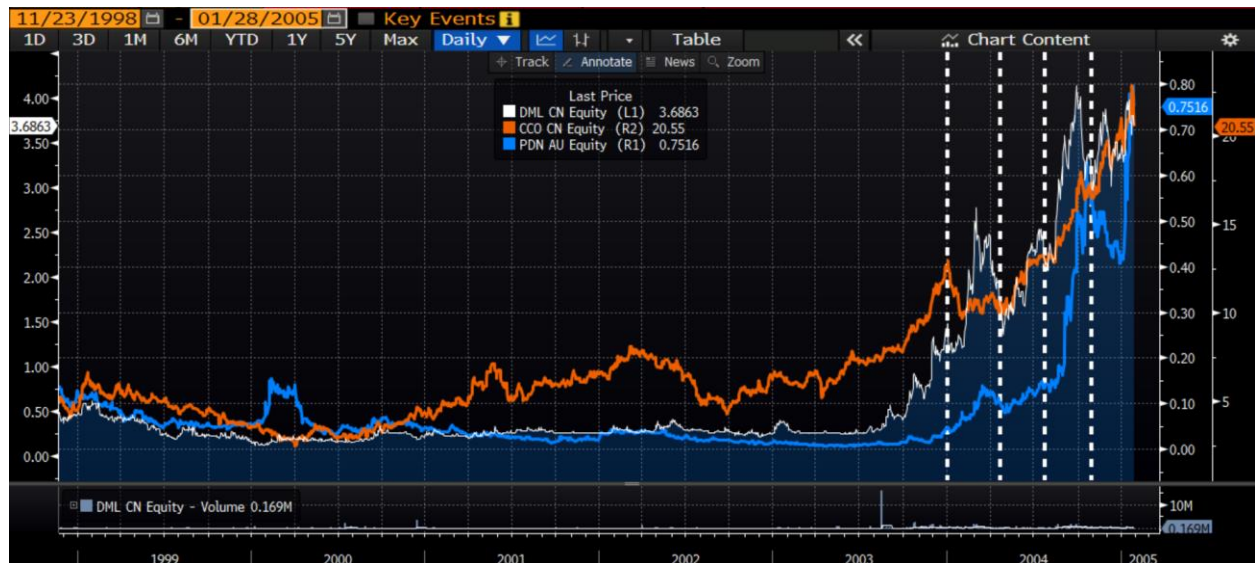
Chart below – same chart three months later.



2005

It is now only about one and a half years since the mine flooding, but the response from both the metal and the share prices have been extremely fast and strong. Part of this is due to a general bull market in commodities.

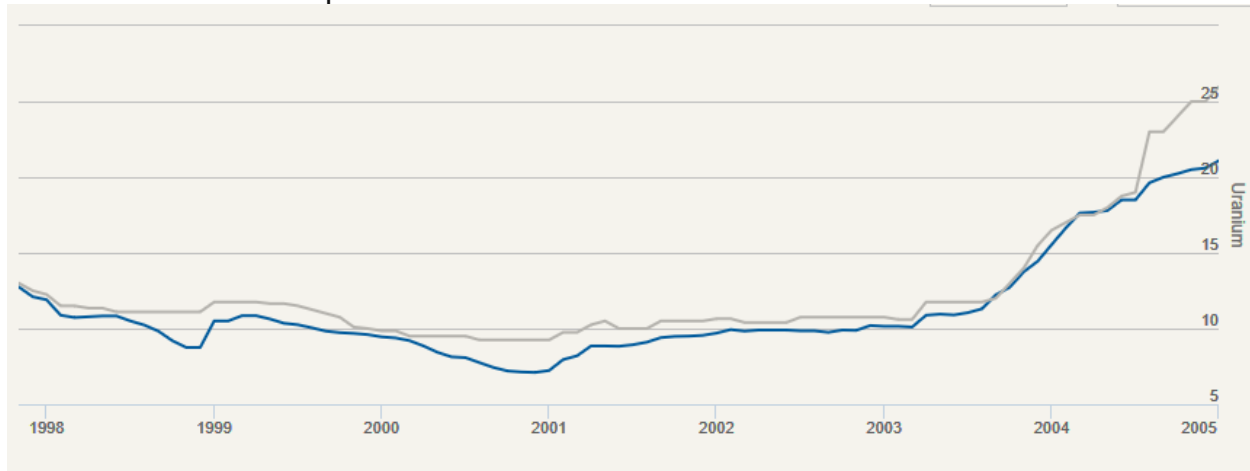
Trying to trade in and out of the more mobile stocks in this environment is extremely tricky (Chart below – same chart another three months later):



It is not exactly clear when, but sometime during 2004, the speculative crowd has taken over some of the trading of these stocks.

Nonetheless, with the uranium price rising, with the contract price ahead of the spot price, and with continued positive comments from CCO and other industry participants, we should still be holding our positions here. Selling should be avoided due to no reason to do so, and due to all indicators giving green signals. Additional buying here is very hard psychologically, and really only possible in small amounts unless our risk tolerance is very high.

This is what the metal price looked like as of the above chart – still bullish:



We are still holding.

The chart below shows the next one quarter from here.

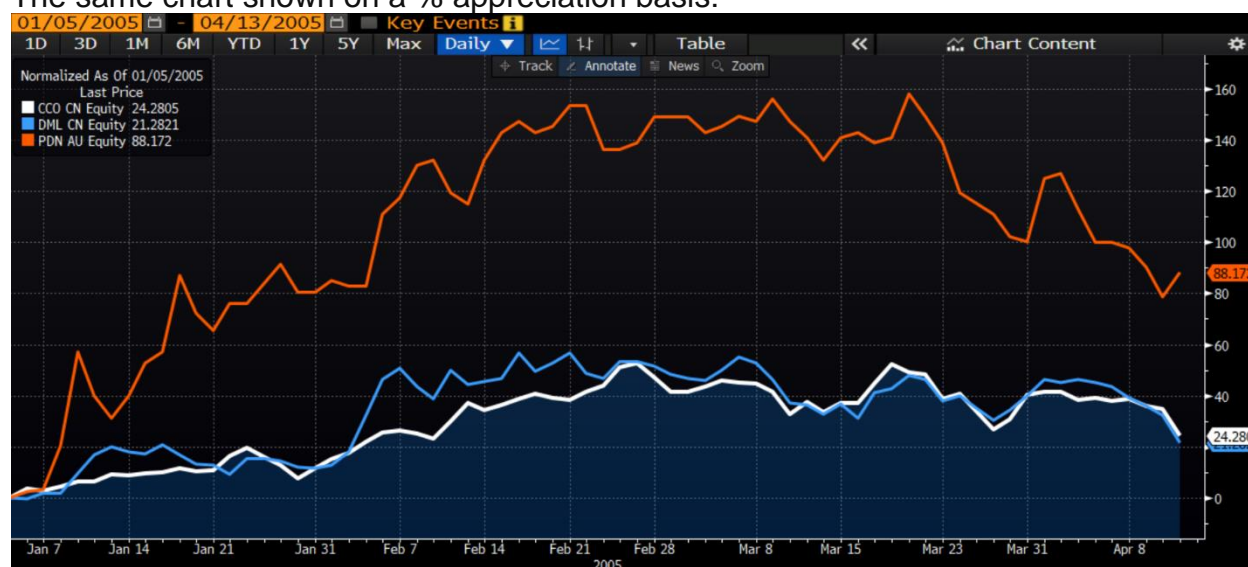
This is shown from January 2005, i.e. from the end of the last chart, because on a longer view the chart gets too messy once the gains are too steep.

Even though a simple-minded view of “technical analysis” would say that these stocks are falling in the past few weeks, and therefore should continue falling, **there have been no negative signals from either the metals price or industry participants:**

CLB



The same chart shown on a % appreciation basis:



So, just in the past one quarter you would have been up 88% on your Paladin position... this is getting psychologically harder and harder to justify holding.

Let's imagine that you are a bus driver from a pleasant little town, with a retirement fund of \$1 million, of which you put 10% into the speculative uranium mining shares at the time of the mine flooding, back in April 2013. If the remaining \$0.9 million remained unchanged, then now, two years later, your total retirement fund is worth \$4.7 million. The thought of it collapsing back down is unbearable to you. In fact, you probably have already bailed a long time ago.

Now, back to business. It is time for CCO to report its annual results for 2004. The actual results themselves are fine. They are not as interesting as what the company has to say about the underlying mental they are digging up.

Here is another very bullish comment on inventories:

*While there are still inventories, they are considerably reduced and more may be classified as strategic rather than excess. **Inventory drawdown in 2005 is expected to be somewhat lower than in 2004, reflecting declining inventory availability.** Current market fundamentals suggest that both spot and long-term prices should continue to strengthen, and we expect the spot price to move up somewhat more than the long-term price, so that the differential will move back to the more traditional spread of \$1.00 to \$2.00 (US).*

Increasing LT contract volumes, and increasing contract lengths

We now expect long-term contracting volume to be well above 200 million pounds this year, significantly more than the 90 million pounds that was contracted in 2004

This high level of long-term contracting also maintains upward pressure in the spot market price. *In comparing volume contract in today's long-term market with that of previous years, one must take into account the contracts have increased significantly in duration. In the past, term contracts were typically shorter in duration, more in the order of 3 years to 5 years. Today's market, they are much longer duration, more in the order of 10 years or so, as utilities look to cover at least some portion of their requirements for the longer term with reliable suppliers.*

In July 2005, President Bush passed the Energy Policy Act, which gave incentives to build nuclear power plants. It was essentially the typical scheme of directing public money into private pockets that could be expected of a man of his nature.

Obviously, there is no way this would have any impact on uranium any time soon, and even buying for the purpose of stockpiling future fuel would take years to start having an effect, **but this was confirmation of the story that the bull market needed.**

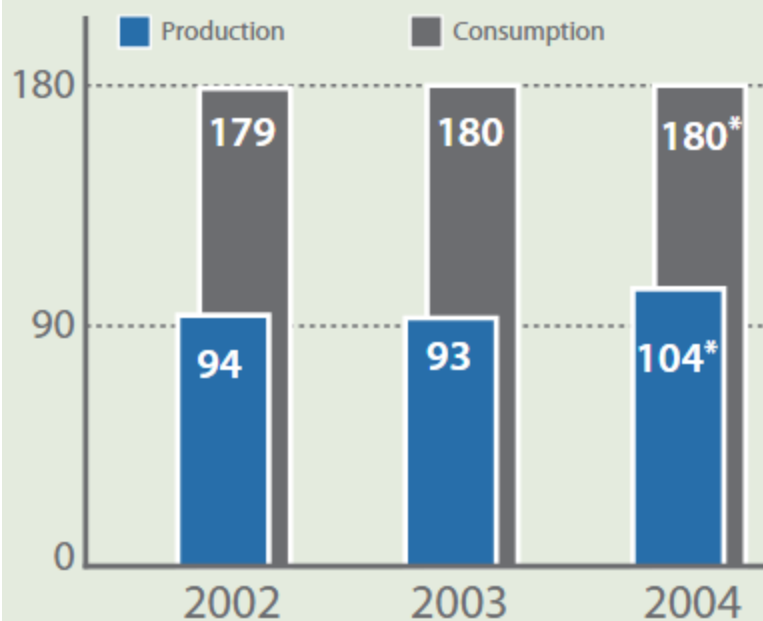
From the CCO report in April 2005:

The increased production they estimate that occurred in the past year is a **concern.**

World Market

(million lbs U_3O_8)

Uranium market supply and demand fundamentals continued to strengthen during 2004.



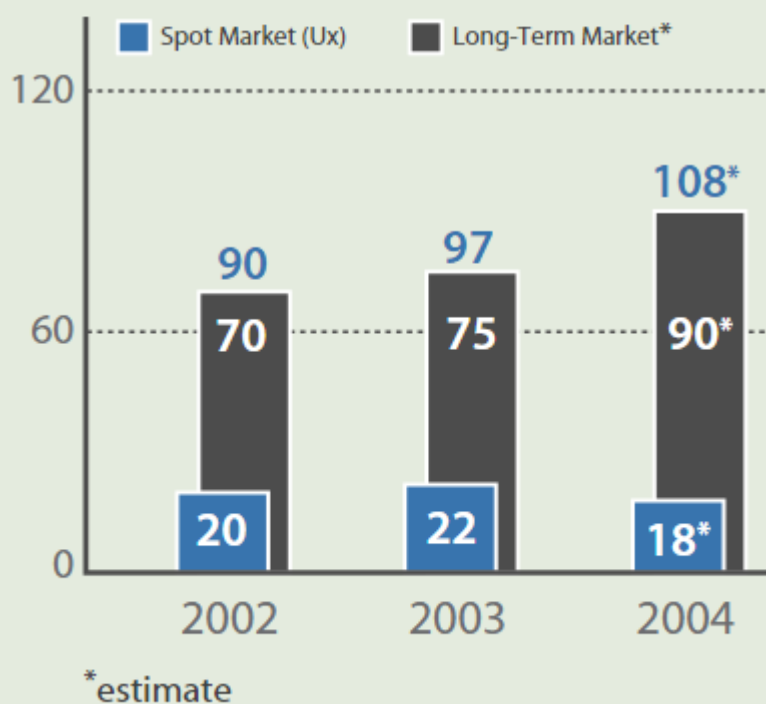
* estimate

Also, volumes under long-term contracts have been increasing, which can be seen as a satisfaction of demand, but the spot market has had relatively low volumes, and this is positive.

Western World Contract Volumes

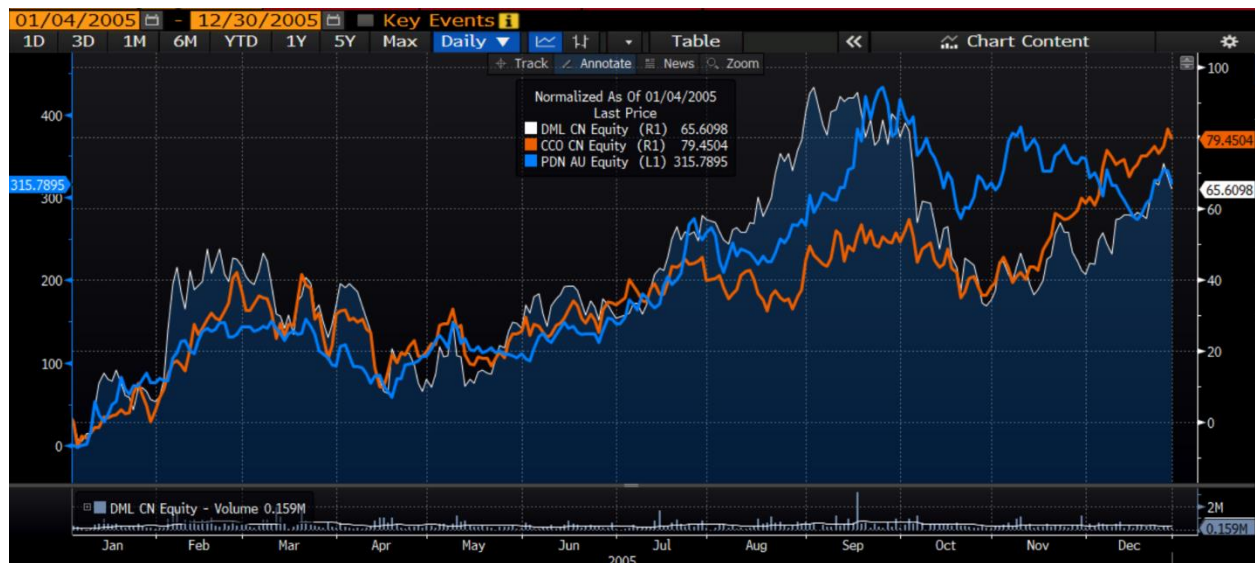
(million lbs U_3O_8)

Long-term contracting for 2004 is estimated to have been about 90 million pounds, a 20% increase from 2003.



Also, during 2005, a number of new reactors were announced.

This is how much the three companies appreciated during the whole of 2005 (the last-shown price chart only showed the first quarter):



There have not been any serious red flags in the media yet. For example, during this period, interest in general web searches on “Uranium stocks” was not statistically significantly changed.

Worldwide 26/10/2004 - 24/11/2005 All categories Web Search

Interest over time [help_outline](#)

[file_download](#) [code](#) [share](#)



However, there is **increasing concern** that the “metals complex” in general, including copper, zinc, etc is getting overheated as investment funds are piling in, and uranium is also receiving some of this “hot money”.

While this is potentially a warning sign, it is not a very strong one, because it does not actually directly undermine our thesis (yet).

However, in Jan 2006, more warning signs start to appear in the media, especially in Canada, where a mining boom is underway:

Alberta's uranium rush

With **uranium prices**
soaring and supply
sagging, prospectors
are staking claims
south of Calgary,
hoping to
cash in

3

Also from Jan 2006:

Uranium price rise not over
as **supply** situation tightens

Spot market prices could reach \$500 a pound

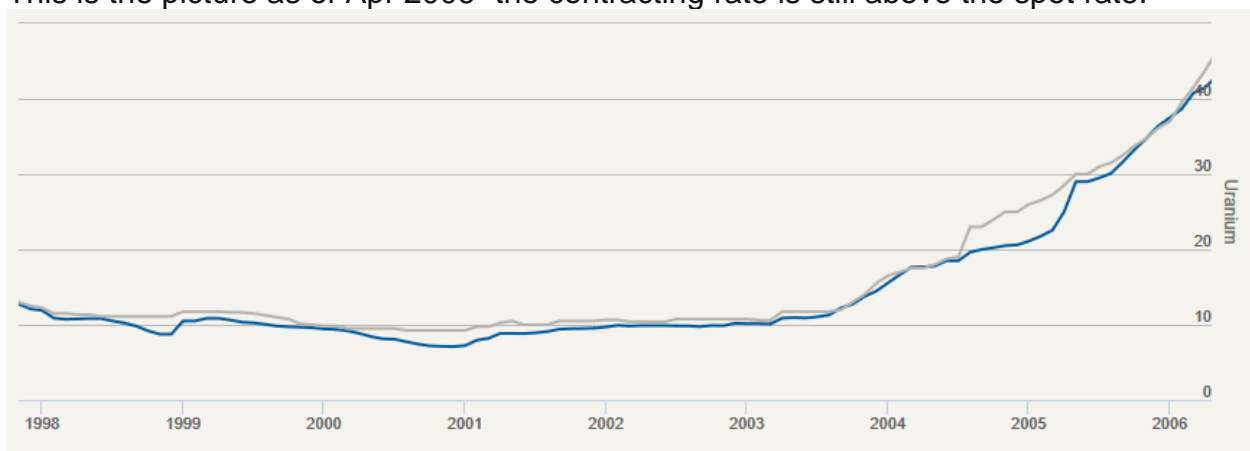
This is one analyst's expectation for the case of a squeeze, but the same analyst (from Sprott) expects \$50.

A Scotiabank analyst is expecting \$40.

Uranium price renews interest in Ariz. mines

Meanwhile, the uranium price keeps on rising.

This is the picture as of Apr 2006 -the contracting rate is still above the spot rate:



And this is what the share price appreciation since the beginning of 2005 looks like now:

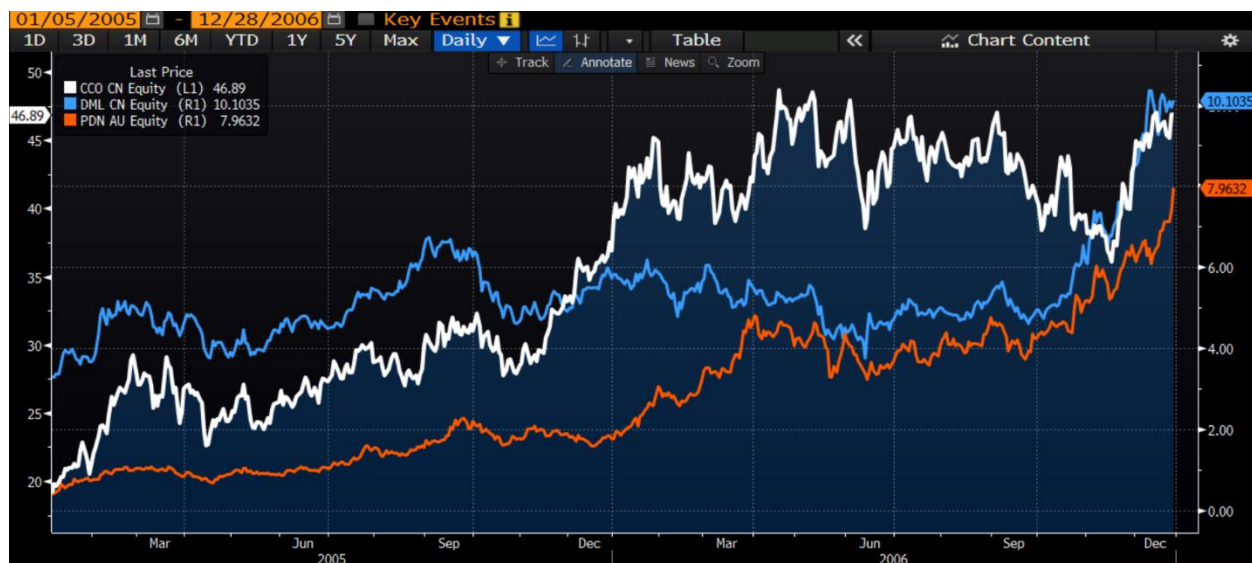


Now in April 2006, CCO stops being so aggressively positive on the uranium price.

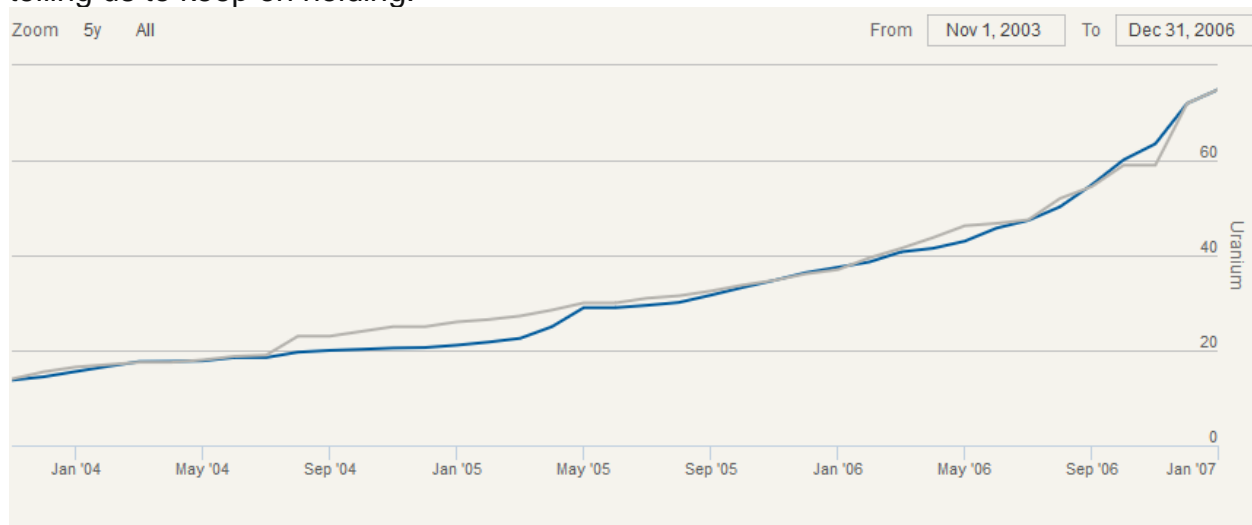
In their annual report, they have a more long-winded and balanced discussion on their view of the metal price. It might continue to go up – it depends on a lot of factors. The inventory level is a point of view – it depends on what you mean by “strategic”... etc.

Considering that CCO gave perhaps the **earliest signal** that the bear market was over, it would be entirely expected if they turned more cautious ahead of the peaking out of the boom.

Despite warnings, speculative share prices continue to rise a lot, although CCO's shares seem to have temporarily peaked at the time of their annual results, while the more speculative names are tearing higher.



The uranium price is probably the most important input to our view, and it has been telling us to keep on holding:

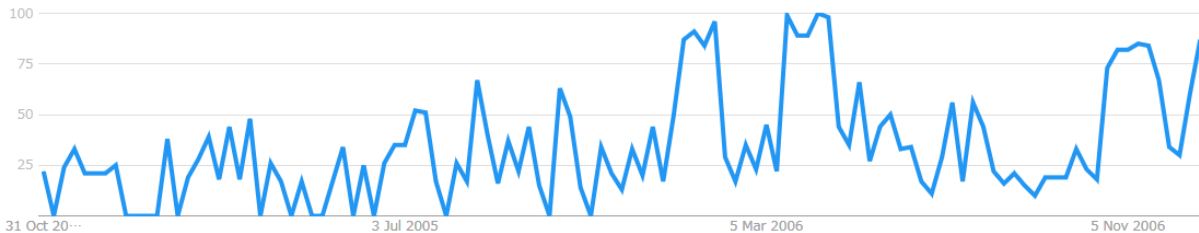


Interest in “uranium stocks” is still not meaningfully up, but the moving average of this series would have been increasing by now:

Worldwide ▾ 26/10/2004 - 24/12/2006 ▾ All categories ▾ Web Search ▾

Interest over time [help_outline](#)

[file_download](#) [code](#) [share](#)



2007

About this time, the interest in uranium stocks developed into a **mainstream “thing”**, particularly among **small-time speculators**.

THAT is a major warning indicator—speculative froth!

There are plenty of “finance-o-tainment” shows and sites out there, and I am not picking on CNBC specifically, but it does attract a lot of sincere amateurs, who get led into a distasteful slaughter by their **quick-money casino-like mentality**.

By now you should be on red alert for an imminent collapse.

March 2007: CNBC is calling the top by saying positive things about uranium after its massive bull run:

CLBUUUUFSM



Dirty Trade: Nuclear Portfolio

Lee Brodie | @LeeBrod

Published 9:03 PM ET Thu, 8 March 2007 | Updated 4:23 PM ET Thu, 5 Aug 2010



April 2007: CNBC calling the top again:

FAST MONEY

The Word On Nuclear Energy, Vonage & More

"60 MINUTES" GOES NUCLEAR: The headline: A report on CBS's "60 Minutes" Suggests Nuclear Power Emerging As The Only Truly Viable Alternative EnergyThe word: Eric ...

Lee Brodie 4/10/2007 10:18:12 AM



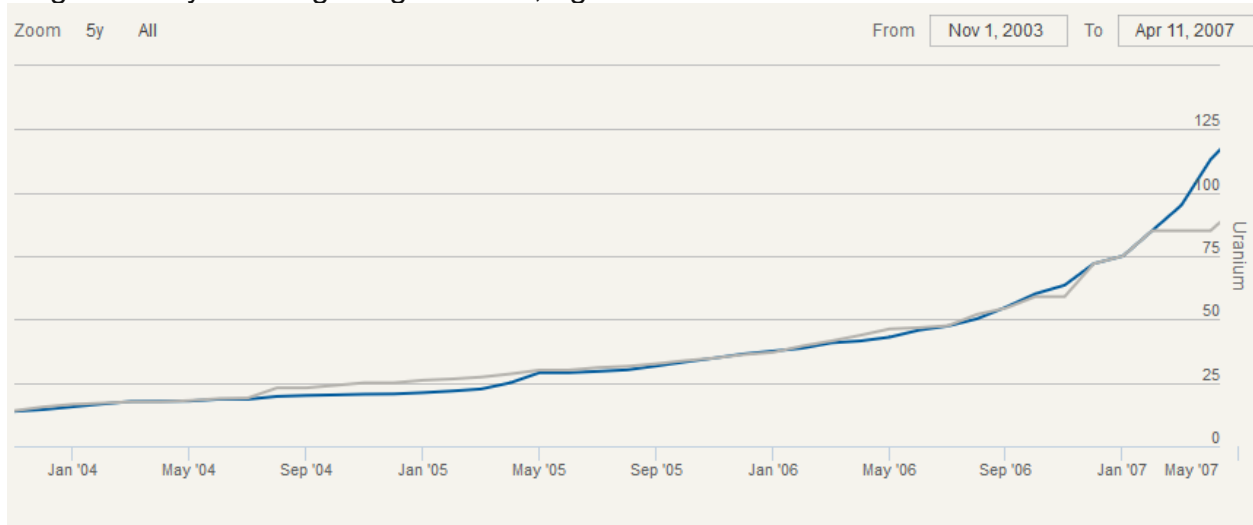
Despite all of this, the shares continue to rise – we must be extremely careful now that the dumb money has started to flood in.

Chart – vertical line: CCO annual report with measured sentiment on uranium prices:



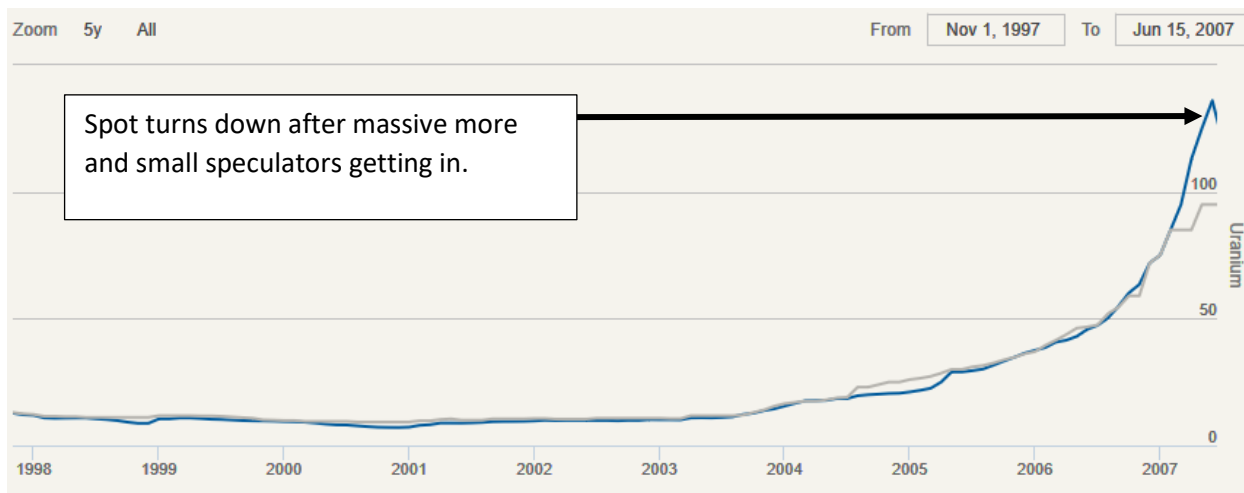
Now spot prices start to shoot ahead of the contract prices.

Surely this is the end – the speculators are pushing up the short-term market and the long-term buyers are getting satisfied, right?



The gap between the roaring spot price and the slow-moving contract price keeps on expanding. **This is a sign of serious overheating.**

Then, in Jun 2007, the spot price started to decline. This is now **a strong signal to get out.**



The % gain from Jan 01, 2015 until Jun 15, 2017 in the three stocks was:

CCO CN +189%

DML US +249%

PDN AU +1647%

(...and this is after a massive gain from 2013)

This was indeed the peak in uranium, and it was extremely close to the peaks in all three stocks.

Of course, it would not be possible to call the top, but more importantly, looking for this type of objective indicator of speculative-vs-“real” demand (i.e. comparing the long-term contract price against the short-term spot price) would keep us in our positions until at least the nearest few months of the top.

The maths gets a bit funny here. If you used the above indicator to get out, while you would have lost at least 25% in PDN from its peak, you still would have made close to +200% in that stock from the beginning of 2005 alone.

Hopefully we have gotten out by now.

Then in summer 2007, **CNBC gives another strong sell signal by being positive on uranium** – drawing in the plebs to the slaughter just at the exact wrong time, as per usual.

This would have also been a good time to get out, because the shares bounced a bit at this time:

Uranium Rocks!

Sri Jegarajah | @cnbcSri

Published 3:13 AM ET Fri, 20 July 2007 | Updated 3:11 PM ET Thu, 5 Aug 2010



The wise guys at this comedy show stated as follows:

Although the upward march for uranium prices may be punctuated by the odd proverbial 'bump in the road' the outlook does look positive given robust fundamentals and the prospect for further industry consolidation.

UBS forecasts uranium prices will rise 170% in 2007 and another 54% in 2008, as secondary resources fall, mine production growth remains tight and demand continues to rise. As if that were not enough, a few months later, in October, another "Red Book" by the IAEA is released (this one being the 2007 version).

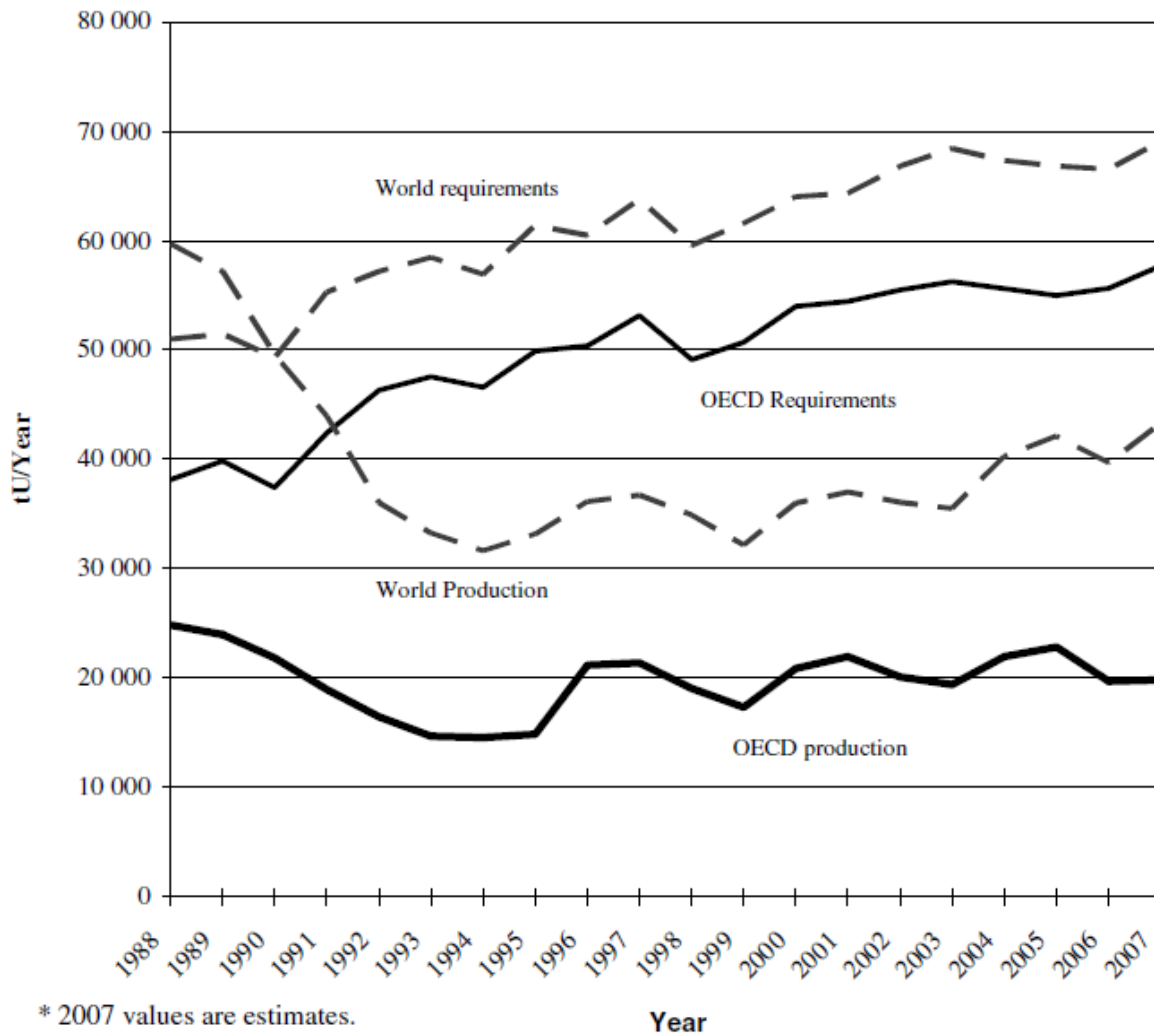
It states:

Uranium mine development has responded to the market signal of high prices and rising demand.

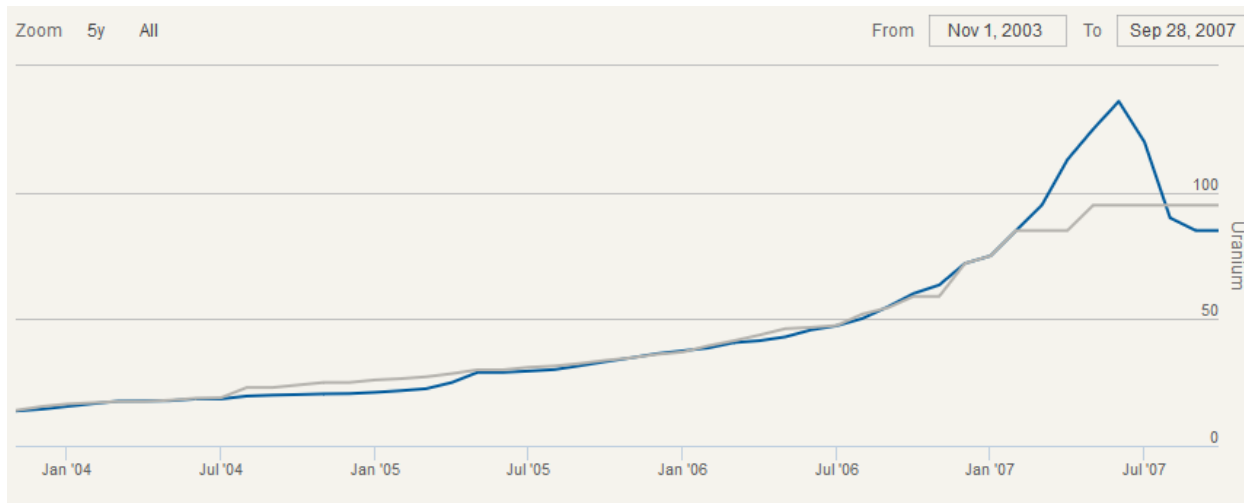
As currently projected, primary uranium production capabilities could satisfy projected high case world uranium requirements through 2028.

It goes on to say that mines will be delayed and secondary sources still necessary. Nonetheless, this is a **bearish statement from a serious publication**. Further, it includes the following chart, which shows world production, increasing at what looks like a faster rate than requirements:

Figure 12. OECD and world uranium production and requirements*
(1988-2007)



This is what is happening to the price of uranium at that time – clearly things are not looking good:

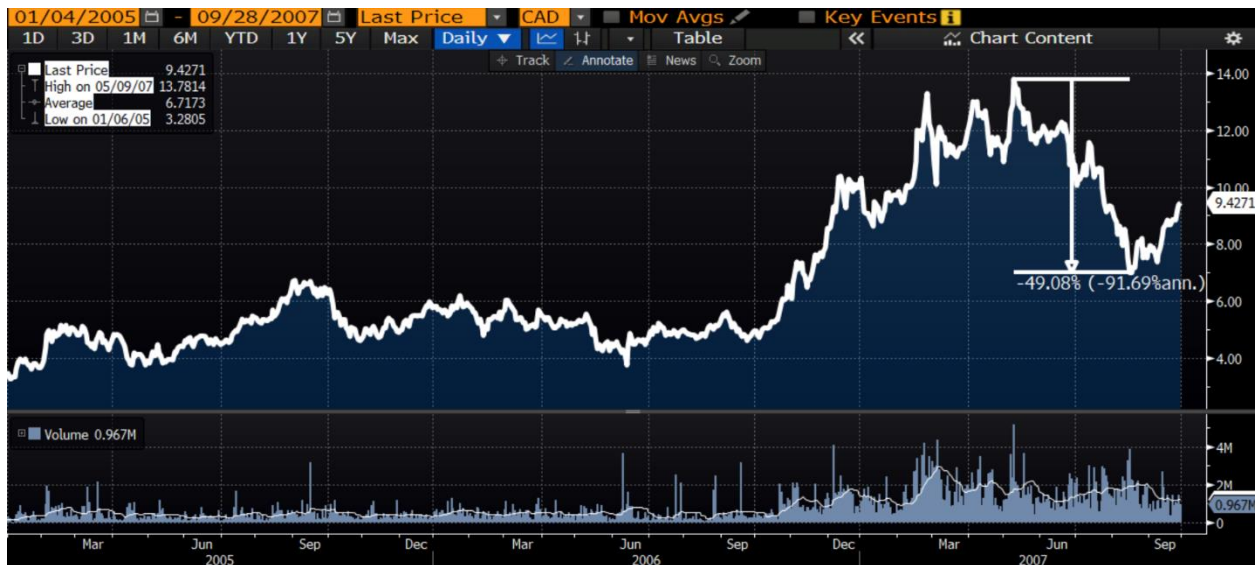


Share prices have been rallying, but after all of the sell signals, this should be a time of cutting positions or getting out completely:

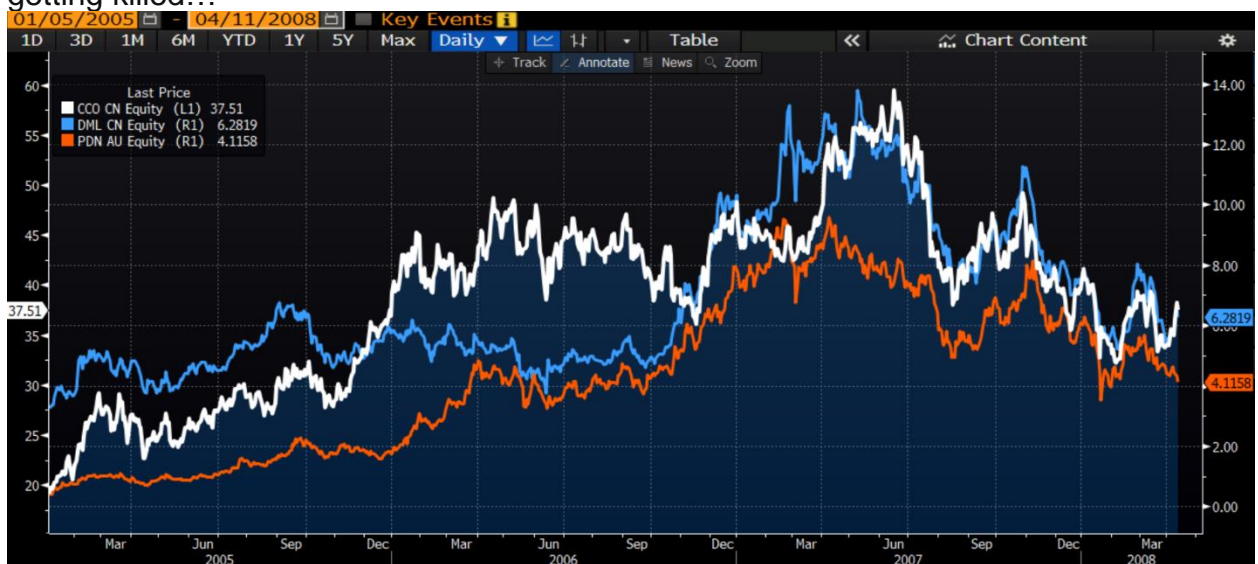


The bottom panel shows ten-year interest rates (green line) and ten-year real interest rates (red line). The reason to look at these is because any speculative boom is going to burst due to excessive supply (which has been ramping up since at least 2006), or excessively tight money (which is not the case, as can be seen here).

Note that, although the above chart does not look so very bad after a big run up in 2005-2006, in this little 4-month decline in 2007 you could have lost about half your money from the peak in DML (and you would still be up hugely from early 2005, and much better from 2003):



From this time until Cameco's next annual report, in April 2008, the shares are all getting killed...



...and then CCO delivers a serious blow on top:

From CCO's 2007 annual report (April 2008):

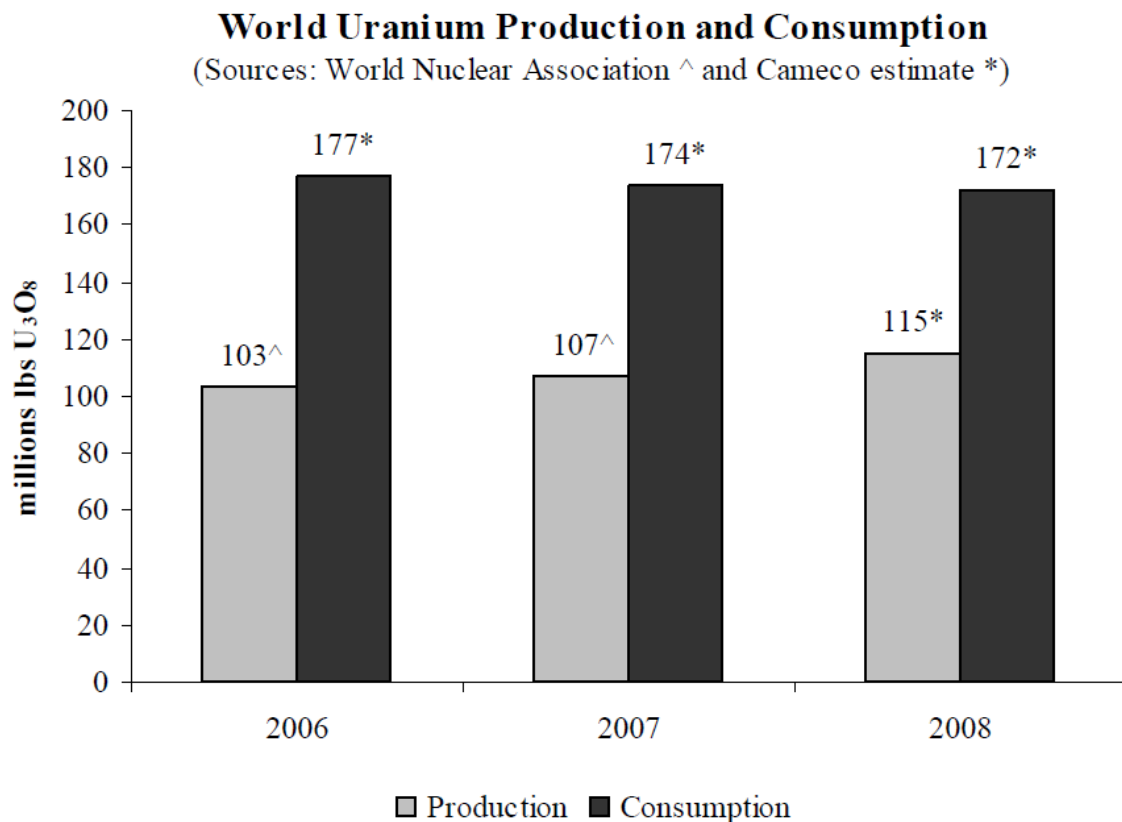
Growth in demand could be tempered as uranium price increases encourage utilities to utilize more enrichment services and less uranium.

Uranium demand is affected by the enrichment process, which is one of the steps in making most nuclear fuel. Utilities choose the amount of uranium and enrichment services they will use depending on the price of each. In essence, utilities may substitute enrichment for uranium, thereby decreasing the demand for uranium and increasing the demand for enrichment. For example, when uranium prices rise, utilities tend to use more enrichment, assuming enrichment prices remain constant.

At December 31, 2007, the uranium price had increased in excess of 700% since mid-2003. Over the same period, enrichment prices have increased by only 30%

At this point this is surely the last and final call for even the most stubborn of us to be fully out of all positions. The play is fully over. We can pick our football up and go back home.

Later, in CCO's 2008 annual report, they have the following chart, pouring more negativity on the situation (but we are already safely out):



The Tide of Fortune



Post Series: [Would You Have Made a Fortune in Uranium?](#)

What have we learned from our years of uranium investing experience, since the early 2000's, when we were patiently waiting for the turn in uranium prices, back when they were so painfully low, and all the way through the ups and downs of the bull market?

The main lessons were the following.

When considering getting into a long cycle commodity:

- The picture is going to be awful at the bottom. Truly awful.
- The biggest companies and interested parties will all be looking to diversify out of their core business (such as Cameco did by investing in power production, as opposed to rock mining).
- Production will start to be closed down. No one will care.
- There will be little to no media coverage.
- The companies you will be looking at will be mostly loss-making and will look horrible.

- Keep following the important indicators of the business, such as Cameco's view of the uranium price and the contract vs spot price.
- Make sure you buy enough "crappy" companies, which will respond more strongly to the share price than the more stable businesses.

At the early stages of a recovery:

- Analysts will firstly have an initial frisson of hope as share prices recover, and then they will stupidly downgrade stocks at the first reversal.
- Doubts will be present. You will want to lock in gains, or prevent further losses after any reversal.
- At this point, you have to go back to your original thesis and examine the evidence of what the underlying commodity is doing.

After the share price draws attention and starts accelerating upwards:

Go back to your thesis. Do not trade in and out excessively, but do consider adding if there is a reversal in share prices while the underlying commodity demand remains strong.

When the share price rises are extremely fast, and you have made you so much in profits that this trade is skewing your overall net worth:

Sell down to the sleeping level (to the level at which you can sleep).

However, do not be panicked out simply by increases in share prices.

Monitor your underlying thesis (the underlying commodity and the demand for it), and prioritise this over share prices as an input into your mental model.

When there are initial negative comments made by people in the industry about the rapid rise in commodity pricing:

This is not the peak.

Industry insiders will turn a negative well ahead of any peak in a market.

They can see what the commodity is worth and how much it cost to dig it up, but they cannot see inside the ignorant brains of the speculators who are going to flood in with hot money and form the peak of the market.

When there is an increase in media reporting about the commodity:

This is a serious red flag, but it does not have to be the peak of the market.

Usually, finance media for amateurs will drive short-term hot money into the market, so at this point you should get ready for some further acceleration in share prices, and possibly a blowoff top at any time.

But in general, the more something is promoted in finance, the more likely it is to be worth less than the current price.

Start to reduce exposure and increase the frequency of checking your underlying thesis to make sure it is still intact.

When you see definitive signs of a slowdown in the underlying demand, and/or signs of increased supply:

Start to get out. You will not call the top, but it is now getting seriously risky.

Accuracy of forecasters:

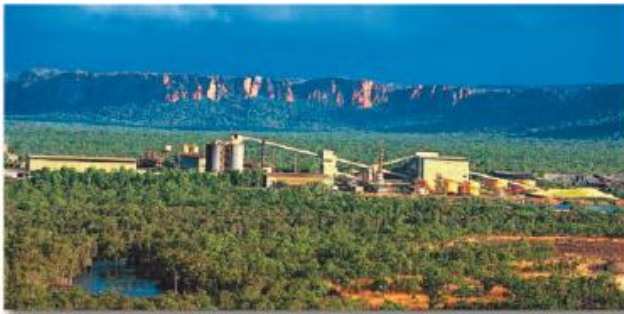
Now, let's review the accuracy of the forecasts in the uranium market from the start of its bull run.

This is important for us to learn which indicators to pay attention to in the future. Not all experts are good at forecasting. In fact, most are experts at talking, and most of that talking is useless. It is our job to comb through and identify which are the facts that will contribute to our mental models of how things work.

There is an extremely interesting document, called the "Red Book" for 2003, published June 24, 2004. It covers everything you need to know about the uranium industry. Its full name is:

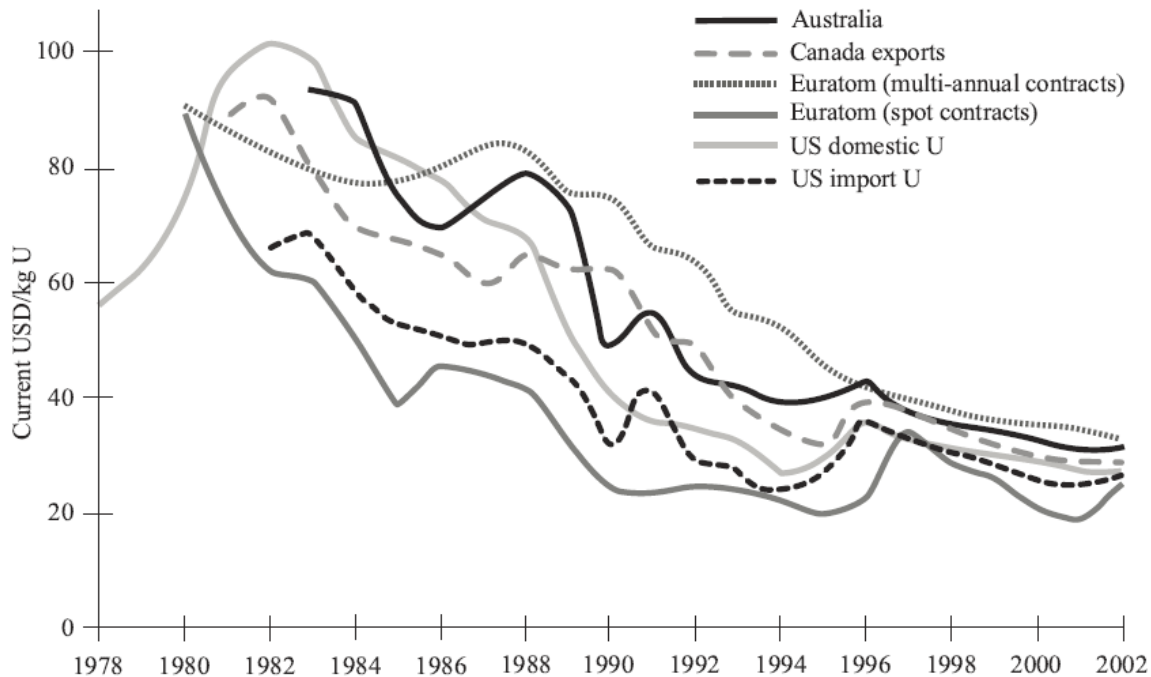


Uranium 2003: Resources, Production and Demand



It has some good data on what happened in 2001:

Figure 12. Development of Uranium Prices



But apart from this data, do they have any useful opinions that could have helped us have a view on how much higher uranium could go?

Here are the reasons they have for the bottom in 2001:

- The October 2001 fire that destroyed the solvent extraction facility at the Olympic Dam mine in Australia.
- Uncertainty about the availability of low-enriched uranium derived from blending down former weapons HEU from the Russian Federation was resolved when the Governments of the United States and the Russian Federation approved an amendment to the commercial implementing agreement in 2002.
- The historically low price of uranium reaching a “floor” as it approached or perhaps even dropped below the production costs of uranium producers.

The above are facts that we can use to improve our understanding.

They also say:

The uranium market over the mid-term remains uncertain due to the limited information available on the nature and extent of secondary supplies. Information presented in this document suggests that although commercial inventories have declined, they remain substantial.

Given that uranium derived from the conversion of warhead material will likely constitute a significant source of supply in the near term, a continuation of an oversupplied, low-priced market is implied.

=> Oops!

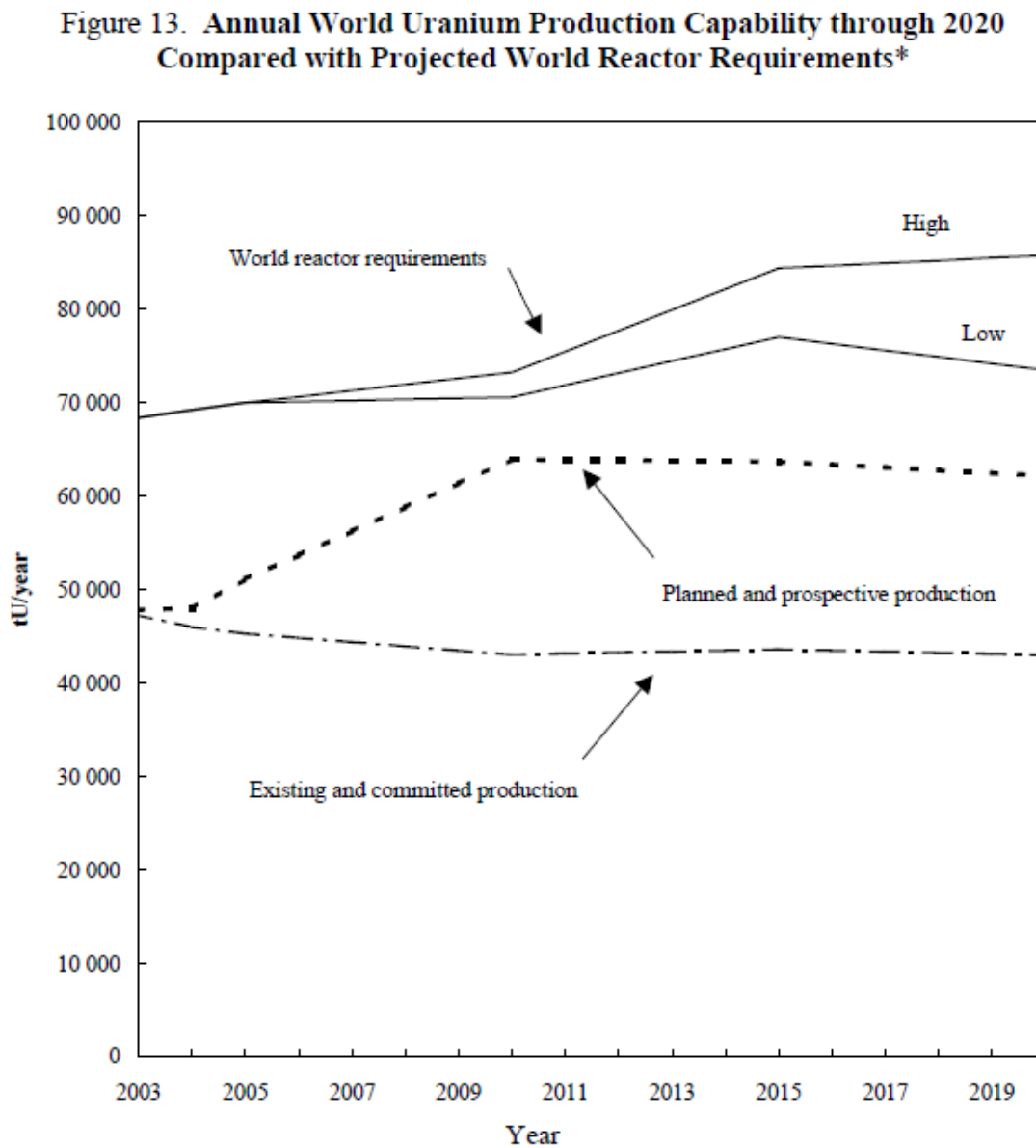
This is an opinion. **Expert opinions are radioactive**, regardless of whether they come from the IAEA.

They expected secondary supply to decline after 2020, leading to uranium supply shortfalls and significant upward pressure on uranium price, but much later than happened.
How did they get this so wrong?

They give some details of their supply-demand model.

Their ideas about warhead material and their supply-demand model totally failed to predict a blast-off in prices:

Chart – IAEA’s view on world uranium supply and demand – totally failing as a model to predict higher pricing



This is really because they do not use inventories in their thinking about pricing. But even the simple potato farmer knows that few potatoes in storage means high prices!

In fact, a simplified view of their data would have been much more effective in predicting what happened. i.e. A potato farmer would probably have done a better job.

Firstly, they state that inventories have been falling. *This is good data – we can use this!*

Secondly, the above model in the graph shows existing and committed production declining while requirements slightly increase.

These two factors are not sufficient to have an idea about what might happen, but it is much better to be approximately right than precisely wrong. i.e., as long as we take from this the idea **that inventories are getting tighter, then that is sufficient for our purposes**. We can ignore the rest of their voluminous document.

Lesson: Experts are good at providing some data, but their opinions about what may happen are best left alone. Get the data, ignore the opinions.

How about Cameco?

CCO was predicting higher prices for a long time before they actually bottomed. They were wrong for the same reasons as the IAEA, but much less wrong, they also admitted it, and they had a better mental model of uranium pricing. If the IAEA gets an F-grade, then Cameco gets a B minus.

This wrongness was based on the reasonable assumption that inventories were being drawn down, so prices could remain low, but this had to end at some point. **However, that point was unpredictable until it finally arrived in 2001. From that point, once the corner was turned, inventories were getting tighter as utilities changed their expectations of availability of the metal, and then at some point the speculators piled in.**

Cameco had a good sense for the direction of the market, particularly around the turning points, but they were **too conservative in their forecasts, saying that they needed \$12/ lb to develop one of their deposits, while a short while afterwards the price rocketed to over \$100.**

Therefore, they ended up being excessively cautious once the bottom came, in 2001, and excessively cautious when prices were high.

Despite this, they perhaps inadvertently gave us bullish signals in the early 2000's by talking about reductions in inventory levels, and their own feeling that prices need to be higher in order to induce more production.

Other signals:

Now, in addition to the weak signal from the IAEA, and the strong signal from Cameco (its comment that it sees higher pricing required), we can look at the following:

-What proportion of mines are economic/ uneconomic and current uranium prices?

=> Although it would be hard for us to answer this question ourselves, CCO did give occasional updates on the feasibility of mine production relative to the uranium price.

Using this as an indicator while the price was still low would give us increasingly strong buying signals until we got to the bottom end of the market, and it would keep us in at least some of the advance in prices, although not the “hot” part of the bull market.

-What kind of volumes are going through the short-term (spot) market versus the long-term contract market, and what is the difference in pricing between them?

=> During the early stages of the bull market, there is a decline in spot market volumes, as customers (utilities) max out their contracts in order to not pay high prices in the spot market. Later, the spot market attracts speculators, who chase its level above the long-term contract market.

Also, if there is a genuine fear of shortage, then the spot market would be higher than the long-term contract market, and high volumes would go through it (we saw this at the market peak, and could have used this as an indicator of when to get out).

-Is there any general media attention on uranium stocks?

=> Once the “financial entertainment” industry starts to pay attention to uranium stocks then the party is nearly over. Obviously, this is an indicator to start looking for an exit.

-Is the uranium price itself responding well to events that should be positive for it (e.g. mine flooding)?

=> Using a price to forecast the price itself is referred to as “technical analysis” despite it not really being very technical. However, in this case, with dealing with market with very low transparency over inventory levels, and moreover, the latter stages of the bull market were dominated by speculators, who will keep on driving up the price as long as there is positive news.

Therefore, while not ideal, we do need to use the price momentum of the underlying commodity itself as an input into whether we should hang on or bail out.

Hope you enjoyed making a fortune in uranium!

End of Tutorial