

Commodity Watch Radio – 20 February 2007

Robert Wallace, Yellowcake plc.

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Dominic With me now on Commodity Watch Radio is Robert Wallace, the Chief Executive of Yellowcake, the first pure uranium investment company in the world. Formerly a journalist, he penned in September 2004 on the Minesite website, the article 'A New Yellowcake Age Dawns,' the first article in the UK about the unfolding of the uranium story. Robert Wallace, hello, welcome to Commodity Watch Radio.

Robert Hi there Dominic.

Dominic Now, there are uranium companies springing up everywhere, many of whom won't ever produce any uranium. One of the brokers at TD Waterhouse said to me just last week, he's getting more enquiries and people wanting to buy uranium companies than any other sector. The shares in uranium companies are doubling and tripling; the uranium commodity itself has never actually corrected, it's only ever gone up, and I actually had one of my guests on this very show say the famous last words "It's different this time." Surely this market is due a serious correction?

Robert One day there will be a correction, Dominic, like every market there will be. But that day is a very long way off. The fundamentals for uranium have never looked better and the market can only expect in the future, for the next 5 or 10 years, continuous increase in demand and not a reaction in terms of supply. It takes some 10 years from discovering the deposit of uranium to turning that into a production facility. So we know that, well ahead with uranium, that there will be a continuous shortage for some years ahead. 2015, demand and supply figures published by the World Nuclear Association, show that the gap between demand and supply scheduled for 2015 is over 150 million pounds of uranium a year. So with that sort of background I think uranium is indeed one of the best investments in the medium term.

Dominic I'm persuaded by the argument that nuclear power is the only real alternative to burning fossil fuels; there just isn't the possibility with ethanol, or wind power, or any of the other alternative forms of energy, but it's by no means a guarantee that everyone is going to turn to nuclear power.

Robert No, but let's you and I step back and let one of the founders of Greenpeace express this better than perhaps either of us can. James Moore, as I said one of the founders of Greenpeace, no longer a member of Greenpeace should I say, James Moore said in an article in the Washington Post last year "Nuclear power is the only non-greenhouse gas-emitting power source that can effectively replace fossil fuels and satisfy global demand." Basically wind and solar power, for example, are dependent on the weather - no wind equals no power generation; whereas it is the base load electricity the electricity you need 365 days a year, 24 hours a day and 7 days a week which is the one nuclear power serves. It has to be available at all times when you want to be able to switch on; it cannot be dependent on the vagaries of the weather and there's only really coal and nuclear power that can produce that, plus the fossil

fuels of gas and oil, which are very, very precious, oil especially, aren't really suitable for us to continue as a world to use up in power generation.

Dominic Will nuclear power be used in the transportation industry?

Robert When you say the transportation industry, the only one it has been used in since 1956 was actually the very first commercial nuclear reactor produced, was in the SS Nautilus which is an American submarine, that submarine is driven by nuclear power, by nuclear reactor in the actual submarine. So transportation in that sense is quite possible and indeed many of the nuclear submarines produced across the years are still in very good service.

Dominic What about trains and cars and planes?

Robert Not really appropriate. Nuclear power is a very large-scale operation and requires considerable safety aspects built into it and it's not sensible to have trains enclosed in concrete for example, which is what a nuclear power station really requires.

Dominic So the SS Nautilus, does it have a, is it, it can't be enclosed in concrete can it?

Robert That was 1956, and the shielding around the nuclear reactor in a submarine is not built from concrete, no. But on the other hand it is considerable.

Dominic How many power stations, nuclear power stations, are there in the UK do you know?

Robert Well there are 20 power stations in the UK, of which 19 are operable, operated now. So that's 19 reactors and they generate one fifth of the total nuclear power, total electricity supply for the United Kingdom.

Dominic And are any more being built?

Robert No because current plans, as carried out by the present government, have not been published and there's been no decision on replacement of those stations which are now, they were mostly built up until 1995, Sizewell B was the last one but the majority of the others, the last one built was 1983. So we are talking about reactors that are reaching the end of their useful lives and, in fact the last one, current plans will see all but Sizewell B retired by 2023; no plans have been advanced, firm plans by the government to replace those reactors. At the moment we're in a very, very bad situation in the UK because 20 percent of our energy comes from nuclear and that is all reckoned to be phased out in the next years up to 2023.

Dominic It sounds like someone is being a little shortsighted, which is never an accusation you could level at a government, well not an English one anyway! Now were we to go down the French route, what is their percentage generated by nuclear power? Is it 80 or 90 percent? Am I right?

Robert Well just a slight exaggeration there Dominic. I think the official figure is 79 percent from 57 reactors and, unlike the British government, the French government has taken a decision to build another reactor, at least one reactor, which is under construction, and increase the percentage of power coming from nuclear.

- Dominic** It's not often you find yourself praising the French?
- Robert** The French have definitely got a march on us. We import power from France; as a country France produces more electricity than it needs and we are an importer of it; and it's remarkable to think that in Britain a large percentage of our power is generated completely emissions free but it is generated in France.
- Dominic** So if we're going to go down the French route and switch to nuclear power, how many nuclear power stations do we need to build if only to replace the existing ones; how much is it all going to cost; where's the expertise going to come from; how long is it going to take?
- Robert** I can't answer you exactly and one of the reasons is because the plan would have to say what size the reactors are. The latest nuclear station being built in Finland is 1.6 mega watt station, most of ours are 1 mega watt or less. So, fewer nuclear reactors of a larger size would be more appropriate. The answer to your second part of your question is carried out by that Finnish station; it is the fifth reactor in Finland and being larger than the others is increasing the generating capacity by about 30 percent. It's just being finished now, built by Arriva, the French company and it is being finance entirely without any recourse to the government. The next 20 years' of electricity flow from that station has been securitised by a series of banks who've put up the money and some of the largest European utilities, electricity utilities, have guaranteed to take supplies from that station for 20 years; on the back of that the construction money has been advanced by the private sector. So there is no need Britain to fund, as a government, there's no need for Britain to fund the building of new stations. It can be arranged by the financial markets easily.
- Dominic** And how much uranium will this Finish power station consume in a year?
- Robert** The average 1 mega watt station requires 25 tons of uranium a year. Compare to that a 1 mega watt coal station requires 3.3 million tons of coal a year, involving enormous movement and transportation costs, but the bigger cost to the world is the 7 million tons of carbon monoxide emissions which that coal station will create whereas the nuclear station, of course, creates no carbon emissions. Inside the 7 million tons of pollution is mostly carbon monoxide but on the other hand there is a heavy pollution mix including arsenic, and strangely enough coal like everything else in the world, contains a minute percentage of uranium, which is not disposed of during the coal firing process and a considerable proportion of that pollution consists of uranium distributed by a coal station.
- Dominic** So, the mother of all ironies. Now, you're talking there about clean coal or normal coal?
- Robert** I'm talking about normal coal. Clean coal is a wonderful phrase created by the coal industry; it isn't a practical alternative yet. There is a lot of very heavy scientific effort being put into producing so called clean coal; we don't have any at the moment, indeed some of the proposals for the coal industry are bizarre, for example sequestering the sulphur and carbon emissions of a coal station, putting it in underground ex-oil wells, alternatively natural gas wells; they recognise that you cannot at this time create a thing called clean coal and the proposal therefore is just to store the pollution underground.

Dominic 25 tons of uranium – how much does uranium cost per ton at the moment?

Robert It costs now \$75 US a pound. But the cost of uranium in the greater mix of things, in the term of cost of generating electricity is about 5 – 7 percent of the total cost of a nuclear reactor; by far the greatest share of costs of a nuclear reactor is the depreciation on the building of the station and the actual cost of the uranium is only about 5 – 7 percent. So if uranium were to double from here to \$150 per pound it still wouldn't be more than 10 – 15 percent or so of the cost of generating electricity, and even then the generating of electricity is not really related directly to the cost to the consumer at the end of the wire, because there's transportation costs as well. So even doubling the cost of the uranium used to drive the station wouldn't produce more than 2 or 3 percent increase to the cost to the consumer. And in the meantime, by the way, nuclear power is extremely competitive compared to coal - in the US the figures are that it is cheaper than producing from coal.

Dominic Let me ask you - with a nuclear power station, what can go wrong?

Robert Well there's only been two instances, serious, there have been some minor instances around the world, but there have only been two instances of things going seriously wrong. One of the greatest things about nuclear power that isn't understood by the public – it has the best safety record of any form of power generation. The only two instances of course were Three Mile Island in Pennsylvania in 1978, where there was a nuclear meltdown; but the reactor design even in those days, proved wonderful in that no, although there was a nuclear meltdown, no radiation escaped the three concrete skins of that building; it was all contained in the first chamber and none of it escaped into the outside air. I've read the transcripts of the court case where some 1500 people claimed they'd got leukaemia, in-growing toenails and every other malady you can imagine from that incident, and I've read the scathing remarks of the judge who said that all the people who sued in that respect, and all their lawyers, were to be heavily deprecated for bringing malicious but frivolous claims, because there was no proof that any radiation escaped that building. Chernobyl of course, in the Ukraine, was a different matter where the station blew up and caused a considerable number of deaths. On the site there were 31 people killed at Chernobyl, but Chernobyl was totally out of the ordinary. They were conducting an experiment at the time which involved switching off all of the safety systems and withdrawing fuel rods from the reactor as part of an unauthorised experiment, and it was that that led to that particular tragedy. Those 31 people still remain the only people to have been killed on a nuclear station anywhere in the world at any one time, and since Chernobyl the world has had 13000 reactor years of completely death free operation. It is the only fuel source that has that sort of record. The numbers of people killed through coal stations is considerably larger than 10000; even hydroelectric power has caused 4000 deaths, that was through the bursting of two dams in India during the period, and oil, even oil and gas had up to 1500 deaths across that period. There have been none at any nuclear station; it has the best safety of, in the last 20 years, of any power generation source. For the number of reactors that being, actually under construction, there are 28 right now but those reactors are of a completely different generation to the ones operating before 1990 when all the world's new reactors were built. So the prospects are only better, in terms of safety record, going forwards.

- Dominic** I don't know if you've read William Engdahl's book, A Century of War, which basically details all the oil wars through the 20th and beginning of the 21st century, but in it he suggests that the negative consequences of the Three Mile Island incident were deliberately exaggerated by a pro-oil American government.
- Robert** That sounds exceptionally correct at that time and those sorts of rumours, and those malicious emissions if you like, from that incident have cost the United States dearly because it's still only got the 103 reactors which it had at the time of Three Mile Island, they haven't built one since. Had they done so, had they continued the building scheme which was planned, they'd probably have about, like France, they'd have about 80 percent of their electricity production through nuclear and at that point the USA would be a virtually an emission free country. As it is, only about 20 percent of electricity in America is nuclear and their particular coal burning activities are a major cause of world-wide pollution.
- Dominic** And they wouldn't be in quite such a pickle in the Middle East either.
- Robert** When you say 'oil wars' we are coming up towards a period when uranium will become, I think, a strategic commodity. Russia has already announced, Russia, you may know, has been the provider of some 30 to 40 percent of the world's uranium supplies for many years by down blending nuclear weapons, their stock pile after nuclear weapons were outlawed really, under the SALT Treaty in 1982, and ever since then Russia has been down blending the plutonium from its weapons to produce peaceful nuclear material for, uranium in any other words, for the nuclear power industry. Russia has now announced it will not down blend any further weapons from 2012 for use by western nations; it will in fact keep all, the uranium, to its self and is spending \$25 billion on new nuclear stations within Russia so that it can export all its gas. At that point the western world, the European world, will be very, very, very heavily dependent on gas from Russia to keep itself supplied with electricity and that's a very dangerous position to be in. Eventually the people who control uranium will control the world's nuclear industry and it's very refreshing to note, that the biggest suppliers of uranium are Australia, Africa and North America, Canada particularly, and sources within those, from those as it were safe areas, will amount by about 2015 to about 64 percent all uranium produced.
- Dominic** Uranium mining and the building of nuclear plants is going to boost demand for equipment and services; so what are the related companies that we should be looking at?
- Robert** In the UK, especially with the decommissioning programme of some 20 reactors closing represents a considerable sum involved and there are a number of world construction companies like Vectel etc who are jostling for nuclear decommissioning work. I can't give you any names and numbers, personally, but certainly the decommissioning expenditure in the next 20 years in the UK and in countries around the world where stations are being reviewed, will be a very useful source of revenue and profit which will form a good investment case. In terms of supply, I think we need to focus on uranium itself; I still think that's the most certain and promising sector to invest in the years ahead.
- Dominic** But if only a dozen or so of the uranium explorers will make it to production, how do you pick the winners?

Robert

There are some 400 so called uranium producing or so called uranium producing or exploration companies around the world and as you said earlier, a lot of them have got very little hope of producing, ever, uranium. In Canada they have this phrase 'Moose Pasture Companies, and by moose pasture anybody who stakes up an area of tundra up in north Canada and says 'we're looking for uranium' that can't be classed along with those people who have the right chance of producing uranium and the reward for an exploration company finding commercial deposits of uranium are colossal; for example if a deposit is found with reserves, proven reserves, of 20 million pounds of uranium, which is not an enormous number in the scheme of things, many of the top exploration companies have that capacity, and even \$50 a pound, let's say it falls to that sort of level long-term, that's \$1 billion of resources and the rewards are colossal. Many of the current exploration companies around the world have market caps under \$100 million and the prospects for such companies are electric. How do you differentiate the wheat from the chaff, as it were? One of the best measures of all is that there was an enormous amount of research carried out in the 1970s and '80s, '60s, '70s and '80s and much of this data remains intact and finding a deposit where there were historically proven reserves, not reserves but resources, where drilling was actually done and there was an estimate of, I don't know, 20, 30, 40, 50 million pounds of uranium in the ground, where they are being regenerated and people are now going back to those historically proven resources is a very good first step. For example UraMin, which is one of the companies quoted in London, has a number of deposits but in the central African Republic there is the Bakouma Deposit which was completely explored back in the '70s and '80s and reckoned to contain some 20 to 23 million pounds of uranium, and then of course all the exploration was halted after Chernobyl because there was no demand for uranium, further uranium supplies at that time, all those records remain and its only for UraMin to redrill and reprove those resources in modern times and there's a deposit. So that's a pretty safe company to invest in, a company that has that sort of capacity.

Dominic

When we spoke last night, you mentioned the future of nuclear power and what the physicists are working on, what's going to be happening in 50 years' time, tell us briefly about that?

Robert

Nuclear power today is carried out by nuclear fission which is a way of generating the power from neutral uranium. Five or six countries including China, Russia, France, Britain and America, including those countries and I think other capital countries, are working on a new replacement technology called nuclear fusion. Basically the power for nuclear fusion is, can be generated from sea water; after 2050 and that's the very earliest date it's been reckoned to reach nuclear fission being tested properly and all the scientific investigations completed, we could move to that form of propulsion and uranium, whilst it would continue to supply existing stations, might not be needed in the far distant future. At the moment there's at least 80 years' of uranium in the world to take us forward, of known and recognisable sources, so nuclear's a long term, vastly valuable aid to the world of producing carbon free electricity.

Dominic

Robert, it's been a real pleasure; it's been fascinating talking to you. Why don't you give out the website address of your company and your ticker symbol as we close?

Robert We Yellowcake Plc, the website is www.yellowcakeplc.com and all the details of the company are on there.

Dominic Robert Wallace, thank you very much.

Robert A pleasure Dominic. Goodbye for now.

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