# Path To Enrichment:

The Next Big Boom In Uranium, And How You Can Profit From It.

**By Brien Lundin** 



lot of money has been made by investing in junior uranium stocks. Unfortunately, not so much of it recently.

But that's about to change, according to a mounting pile of evidence.

The uranium market has always had compelling fundamentals. In fact, the supply/demand argument for higher prices has been irrefutable for years — it's just the timing that has been in question.

But it's not like those powerful fundamentals haven't impacted the price before. In 2007, for example, the price briefly hit \$140/pound, or more than triple today's levels. But then came the global financial crisis to toss the prices of all commodities into the dumpster.

Once we got past that train wreck and the global monetary reflation kicked in, the fundamentals for uranium began to kick in once more. The price of uranium was steadily climbing back up...when the Fukushima accident sent the price reeling once again.

That's an unfortunate run of bad luck, to be sure. But only the Fukushima accident was specific to the uranium market. And, as you are about to see in this report, the lesson from that event is that the benefits of nuclear power make it hard, if not impossible, to replace this crucial source of energy.

And today, once again, the powerful and irreversible supply/demand fundamentals are about to

## **A Special Investment Opportunity**

This report explains the remarkable opportunity now emerging in the uranium market, as seemingly irreversible demand growth runs headlong into tightening supplies.

But more than that, this report also shows how investors could profit from this dynamic through a specific, exciting company focused in the uranium space. Importantly, this company has made the strategic decision to participate in this year's New Orleans Investment Conference, from November 10-13. In doing so, they've identified themselves as a strong, viable company eager to tell their story.

You can meet this company, in person, by attending the 2013 New Orleans Conference, which will feature Cong. Ron Paul, Dr. Charles Krauthammer, Dr. Marc Faber, Peter Schiff, Frank Holmes, Dr. Benjamin Carson, Rick Rule, Dennis Gartman and dozens more of today's top experts.

To learn more, visit <u>www.neworleansconference.com</u>, or call toll free 800-648-8411.

come into play. Only this time, there's a stunning new factor in play that will, in one fell swoop, take away 20% of global uranium supplies.

The result, analysts say, is the return of a global uranium supply deficit and substantially higher prices just ahead.

And these developments promise to bring a re-enactment of the fortune-making run of six years ago, when junior uranium mining companies were multiplying in price.

Over the next few pages, I'll explain this extraordinary situation, and highlight one of the more aggressive and exciting junior uranium plays out there — a company that has demonstrated by its participation in this year's New Orleans Investment Conference that it has smart management, solid resources and an important story to tell.

But first, a little background...

## Uranium 101

Named after the planet Uranus, uranium is the heaviest of the naturally occurring elements. Once considered relatively rare, uranium is actually quite abundant. In fact, the Earth's crust contains as much uranium as it does tin, zinc or molybdenum. You can find traces of it almost everywhere, including granite (4 ppm U), sedimentary rock (2 ppm U) and even seawater (0.003 ppm U).

The key, of course, is finding concentrations of sufficient size and grade for economic extraction. And that is rare indeed.

Uranium typically occurs as one of two ore types: pitchblende or uraninite. For mining purposes, concentrations usually need to exceed 0.1% to be considered ore-grade. "Natural uranium" is composed primarily of two isotopes, the more abundant U-238 (99.3%) and the more valuable U-235 (0.7%). U-235 is more valuable because its atomic structure makes it a prime candidate for the fission process that powers nuclear reactors and gives atomic weapons their awesome firepower.

#### A Brief History of Uranium

As a commodity, the uranium story now and in the future revolves around the nuclear power indus-

try, which consumes the vast majority of annual production. However, to understand the story completely, its seminal role in the development and proliferation of nuclear weapons has to be taken into account.

Uranium's potential as a power source was not apparent when Martin Klaproth, a German chemist, discovered it in 1789. Up until the late 19th century, it was primarily used as a yellow dye. Towards the close of that century, however, a series of discoveries made in conjunction with the advance of modern atomic theory opened scientists' eyes to the ability of sub-atomic particles to generate massive amounts of energy.

The big breakthrough came in 1905, when Einstein put forth his Theory of Relativity, which established an equivalency between mass and energy. Einstein's theory paved the way for the creation of the atomic bomb by planting the notion that mass could be converted to energy.

## **Building the Bomb**

Over the next three decades, scientists made steady progress toward harnessing the power of the atom. World War II accelerated these efforts, as Germans and the Allies engaged in a race to build the first superweapon.

The Germans made the most progress at first. Their scientists built on the work of U.S.-based scientist Enrico Fermi, who in the mid- and late-1930s had successfully created both heavier, man-made elements (artificial radionuclides) and lighter, naturally-occurring elements by bombarding uranium with neutrons.

In 1939, Otto Hahn and Fritz Stassman demonstrated that the lighter elements produced in Fermi's experiments were, in fact, a mixture of barium and several other elements with atomic masses roughly half the mass of a U atom. Their findings proved definitively that atoms could be split.

A team led by Niels Bohr, one of chemistry's giants, advanced fission theory still further by accurately predicting and measuring the amount of energy released by splitting a single uranium atom. More importantly, his team hypothesized that stray neutrons emitted by this process could spark a self-perpetuating "chain reaction" that would multiply exponentially the energy released by fission.

The Allies, led by Rudolf Peierls' team in Great Britain, were perhaps a step behind the Germans during this period. But once World War II began in earnest, the

## **Uranium Deposit Types**

Mineable uranium occurs in a number of geologic settings, including igneous, hydrothermal and sedimentary structures. Of these, unconformity-related deposits host many of the world's most prolific deposits. An unconformity is a boundary separating two or more rocks of markedly different ages. Uranium mineralization usually lies below the unconformity in faulted and brecciated metasedimentary host rock.

These deposit types generate all of Canada's production and account for 20% of Australia's known resources. And while most uranium deposits average between 0.1% and 2.0%  $U_3O_8$ , unconformity-related ore grades can be exceedingly rich — the deposit at the proposed Cigar Lake mine in northern Saskatchewan averages 20%  $U_3O_8$ , including some areas with grades in excess of 50%.

Iron Oxide Copper Gold deposits lie on the other end of the scale. Though capable of hosting massive resources, their ore grades are typically quite low. The uranium remains economic to mine because it is viewed as a by-product of the vast quantities of copper and gold these deposits can produce.

Australia's Olympic Dam is the prototypical IOCG. Even with uranium grades that range between 0.04% to 0.08%  $U_3O_8$ , it still contains one of the world's largest uranium deposits and accounts for two-thirds of Australia's known reserves.

Sandstone deposits host 18% of all known uranium reserves. Though typically higher in grade than IOCG deposits, most sandstone-hosted deposits contain ore bodies of low- to medium-grade  $(0.05\% \text{ to } 0.4\% \text{ U}_3\text{O}_8)$  and small- to medium-size (up to 50,000t U<sub>3</sub>O<sub>8</sub>) and small- to medium-size (up to 50,000t U<sub>3</sub>O<sub>8</sub> at a maximum). Producers initially mined and milled these deposit types using the conventional methods described in our discussion of the fuel cycle, but are now more likely to use cheaper in situ leaching methods.

Geologists have also encountered uranium in surficial, volcanic, intrusive, metamorphic and quartz-pebble conglomerate deposits. Though less common than the above-mentioned structures, all are capable of hosting ore-grade mineralization. defection of German scientists like Otto Frisch, who had a hand in many of the aforementioned discoveries, gave them a decided edge.

In 1940, Peierls and Frisch released a uranium memorandum, which posited that a bomb could be built by initiating a chain reaction within a concentrated, five-kilogram ball of U-235. Though it would be another five years before a bomb rolled off the assembly line, this memo provided the Allies with the road map to get there.

for Robert Oppenheimer and his team in Los Alamos, New Mexico to build and test a bomb. On July 16, 1945, they successfully detonated a plutonium device at Trinity, New Mexico. The explosion ushered the world into the Atomic Age.

Soon thereafter, President Harry Truman, in an attempt to bring the war with Japan to an early close, ordered U.S. armed forces to drop atomic bombs on two Japanese cities. On August 6, 1945, the Enola Gay dropped the first bomb, made of U-235, on Hi-

Over the course of the bomb's development, scientists made parallel discoveries about uranium's usefulness as a power source. Indeed, prior to its entry into the war in late 1941, America focused more on the commercial power applications of uranium than on its weapon-making potential. The bombing of Pearl Harbor changed



this focus overnight, and by early 1942, America had initiated the Manhattan Project, an all-out, highly classified effort to build the first atomic bomb.

The Manhattan Project had one overriding goal: to produce enough fissile material to create a weapon. And while the British, with a big assist from German and French scientists, had constructed much of the theoretical framework for the bomb, only the Americans had the industrial and economic firepower to make it a reality. In the end, a war-ravaged Germany could not compete with the resources the U.S. could bring to this arms race.

Despite the advantages America afforded the allies, producing a bomb proved a daunting task. Using uranium drawn primarily from mines in the Belgian Congo, the Americans, British and Canadians used electromagnetic separation and gaseous diffusion processes to generate weapons-grade concentrations of the two most promising fissile elements — Uranium-235 and Plutonium-239. This latter element is an artificial radionuclide created when U-238 absorbs two additional protons during the fission processes.

By the spring of 1945, the Manhattan Project had produced enough P-239 and highly-enriched U-235

roshima. Three days later, a second, plutonium-based bomb destroyed much of Nagasaki. The horrific destruction and loss of life the bombs inflicted had their intended effect. On August 10, 1945, the Japanese surrendered.

#### The Cold War Weapons Race

Russia was work-

ing on its own nuclear weapons during World War II, but was still a couple of years away from completion when it received word of the bomb at Hiroshima. The news spurred Russia to redouble its efforts. In doing so, it leaned heavily on the expertise of German scientists acquired after the Russian occupation of Berlin.

By 1947, it successfully tested its own weapon. The nuclear build-up that defined the Cold War between the United States and Russia had officially begun.

The weapons race drove uranium demand between 1945 and 1969, a period during which the U.S. government was by far its biggest customer. In order to prime the supply pump, the Atomic Energy Commission kept prices artificially high so producers could earn an adequate return on their investment.

Beginning in 1948, miners delivered their uranium to various buying stations across the country, at prices that averaged around \$45/lb. in current dollars. By 1969, the industry had produced 337,000 tonnes of uranium, only 4% of which had been sold to commercial power plants.

#### Nuclear Power Comes into its Own

Although nuclear power plants had been generating electricity since the 1950s, it wasn't until the early 1970s that commercial nuclear power surpassed weapons in uranium consumption. The oil crises during that decade greatly accelerated interest in nuclear power as a clean, affordable energy source. At one point, the United States planned to build 250 nuclear power plants. (By way of comparison, it only has 103 currently in operation.)



Then the accident at Three

Mile Island, though largely contained, put the brakes on interest in nuclear. A new power plant hasn't been built in the U.S. in more than three decades.

Today, the world has 437 nuclear plants operating in 30 countries, with an aggregate production capacity of 372 Gwe (372,000 Mwe). Nuclear power plants provide 13.4% of the world's electricity, and 13 countries rely on nuclear energy for at least onequarter of their electricity.

Today, commercial nuclear power, for all practical purposes, is the sole consumer of the world's uranium.

## **The Fuel Cycle**

The complexities and opportunities that define uranium's current supply-demand dynamics emanate from the way it moves through the fuel cycle, a path that takes uranium from ore in the ground to power-generating fuel to depleted radioactive waste. Because a basic knowledge of this process is critical to understanding the investment case for uranium, a brief overview is in order.

Let's take the case of a large, 1,000 Mwe lightwater reactor (LWR), which can generate enough electricity to power a city of one million. The fuel needed to generate all that electricity can come from a variety of sources (more on these later), but for the sake of this example, we will assume that the power company that owns the LWR fills its annual fuel requirements entirely by purchasing  $U_3O_8$ from miners.

## **Mining and Milling**

Our 1,000 MWe LWR needs around 200 tonnes of  $U_3O_8$  annually. Producers receiving an order for this amount of uranium oxide will extract it from either an open-pit, underground or in-situ leach mine. In most cases, this ore is shipped to a mill, which crushes it and then leaches out the  $U_3O_8$  using sulfuric acid. When the resulting concentrate dries, it forms a khaki-colored powder known as yellowcake.

Even in concentrated form, yellowcake retains its naturally occurring levels of isotope composition -99.3% U-238 and 0.7% U-235. Since the fuel assemblies that power LWRs require U-235 levels between 3.5% and 5.0%, the yellowcake leaving the mill must undergo a series of industrial processes to become suitable for power generation.

## Conversion

The first of these is conversion, which turns yellowcake powder into a gaseous form known as uranium hexafluoride (UF6) or "hex." As with the enrichment and fuel fabrication steps that follow it, conversion takes place at a relative handful of plants scattered across the globe. This set-up allows the world's nuclear powers to keep close tabs on inventories and makes it more difficult for terrorists and rogue states to get their hands on nuclear fuel and technologies.



### Enrichment

Because "Hex" exists in liquid form at room temperature, it can be transported in barrels to one of the world's enrichment plants. There, it is converted back into a gas and run through a long series of gaseous centrifuges, which gradually separate the U-235 from the more-prevalent U-238.

This process removes around 85% of the U-238 from the final "product," a quantity of UF6 enriched to 3.5% U-235. By contrast, the "by-product" or "tails" contain less than 0.25% U-235. No longer useful for energy production (except as a dilution agent for weapons-grade material), the tails often find their way into yacht keels and radiation shielding.

#### **Fuel Fabrication**

The enrichment plant will then ship its finished product to a fuel fabrication plant. There, the enriched UF6 is baked into small, ceramic pellets of uranium dioxide (U02). These pellets are then packed into four-meter-long zirconium alloy tubes, which are then bundled into the fuel assemblies that power the reactor.

### At the Reactor

Our light-water reactor contains several hundred such fuel assemblies. Once loaded in, these assemblies undergo a fission process that is a less-intense, more-controlled version of the process that causes a nuclear explosion. "Light water" is ordinary water — as opposed to the heavy water used in Canada's reactors. It provides the moderator needed to control the chain reaction occurring within the fuel rods.

Once the U-235 atoms within the fuel rods begin to split, they emit both gamma particles and an enormous amount of heat. The particles not only split other U-235 atoms, they also convert a portion of the U-238 into plutonium. Half of this plutonium also fissions and, in doing so, provides about one-third of the reactor's energy output.

As it would in a coal-fired plant, the heat generated in a nuclear plant produces steam, which turns the turbines that generate electricity —

about seven billion kilowatt hours worth annually. In the process, a reactor of this size will consume about one-third of the roughly 75 tonnes of fuel in its core.

Once removed, the spent fuel rods continue to emit a great deal of heat and radioactivity. To dissipate that heat and to facilitate future handling, the assemblies are temporarily stored in on-site storage tanks, where they await either reprocessing or final disposal.

## Irreversible Demand Growth

Drawing back from the fuel cycle, we see a demand environment for uranium driven almost exclusively by the demand for nuclear power. The end of the Cold War has sent the demand for nuclear weaponry (except for a few well-known rogue states) into steep decline. (Although, as you'll see in a minute, Cold War weapon stockpiles continue to play a critical role on the supply-side of the equation.)

As we noted, nuclear power plants currently provide about 13.4% of the world's electricity. Coal (40.8%), natural gas (21.3%) and hydro (16.2%) are responsible for most of the balance of global baseload electricity, with renewable energy sources like solar and wind power making token contributions.

Because nuclear plants take a long time to get permitted and built (between five to 10 years, depending

on the country) and because they produce power and consume fuel at relatively predictable rates, the growth of the nuclear industry is both methodical and relatively easy to predict.

And for the same reasons, once the market gets headed in one direction it is — like a massive oil tanker — hard to change course.

That is why, despite the setback of the Fukushima disaster, the upward slope of global uranium demand remains largely unchanged. According to the World Nuclear Association, 62 nuclear reactors are now under construction worldwide. And that's just the start: Another 484 are in planning or being proposed.

While many naysayers focus on Germany and Japan moving away from nuclear energy, China is leading the world in the other direction. The Middle Kingdom has 26 reactors currently under construction, with more to come. The current five-year plan calls for the nation to multiply its nuclear-sourced electrical production more than six-fold, from 12 GWe currently to about 75 GWe in 2020.

The country plans on having 200 GWe in capacity by 2030, so this is not a short-term trend.

The biggest issue to weigh on the uranium market recently was the Fukushima disaster, and Japan's supposed abandonment of nuclear power in its wake.

But the reality is 180 degrees from the public perception: Today, there are more reactors under construction or planned than there were before Fukushima, and analysts don't expect than any nation will be able to completely turn away from nuclear energy.

Just since the Fukushima event, the UK has announced it will build five new reactors, Saudi Arabia has announced 16 reactors, Brazil has begun construction on one reactor and plans for an additional eight, the U.S. has approved four new nuclear plants (the first in 34 years), and Russia, China and India have all expressed their support for nuclear energy, with their plans contributing half of the projected new construction.

And it is in Japan, especially, that the reality is at





odds with perception. While most of the public still believes that Japan has permanently terminated its nuclear energy industry, the recent landslide victory of the Liberal Democratic Party was a game-changer. This pro-nuclear party is now working to accelerate the restart of the nation's 48 inactive reactors.

Add it all up, and world-wide demand is projected to grow from around 170 million pounds  $U_3O_8$ currently to 226 million pounds by 2020. By 2030, demand is expected to reach 280 million pounds.

In short, the steep trajectory of global uranium demand has, if anything, only grown steeper after Fukushima. But while demand is growing relentlessly, the story is much different on the supply side of the equation.

## An Upcoming Supply Shock

Though undoubtedly compelling, the demandside case for uranium pales in comparison to the supply-side case. Like miners of many other commodities, uranium producers face an enormous supply gap.

To put things in perspective, the gap between uranium consumption and production stood at 80 million pounds in 2003. In percentage terms, production met only 55% of total demand. Secondary, "aboveground" sources made up the difference. But now, many of those secondary supply sources, which in the past kept a lid on uranium prices, are getting used up.

## **Mining Techniques**

Depending on the depth of the deposit, uranium can be extracted by using either underground or open-cut techniques. Underground methods are usually reserved for higher-grade deposits at depths below 120 meters. In general, open-cut methods are usually low-grade, bulk-tonnage deposits and employ traditional mining and milling methods.

Some underground mines, on the other hand, are increasingly being mined via in-situ leaching (ISL), also known as in-situ recovery or ISR mining. UEC and the other ISR miners all these days refer to it as in-situ recovery (ISR). Instead of drilling the deposit and hauling rock to the surface, in situ leaching essentially "mines in place." Oxygenated water is pumped down to the deposit, where it dissolves the uranium-bearing mineralization. The resulting slurry is then pumped to the surface, where a mill extracts the native  $U_3O_8$  as it would be using conventional methods. This method works best with porous rock, which explains why sedimentary deposits are good candidates for ISL.

Because its core deposit is polymetallic, Olympic Dam is one underground operation that uses traditional mining techniques. Miners must take extra safety precautions to avoid inhaling dust tinged with radioactivity. Above-standard ventilation contributes the bulk of the additional costs and provides yet another reason why ISL is becoming the preferred underground extraction method.

And the major one is about to disappear altogether.

If the last spike in  $U_3O_8$  to nearly \$140/pound is any indication, a new uranium renaissance may well be underway. Because spot prices account for only 12% of the overall market, any price signals sent by that market need to be taken with a grain of salt. And yet, long-term prices do take their cues from the spot price, and the longer the spot price holds onto gains, the more confident the industry will be about investing in exploration.

To understand why the market is beginning to price-in uranium's supply gap, let's take a look at those "above-ground" sources and why their ability to constrain uranium prices is weakening.

## The Beginning of the Lean Years: The 1970s Stockpiles

In the first bull run for uranium in the late 1970s, uranium prices hit \$40 per pound as the oil crises of that era caused a wholesale movement into nuclear power. Hyper-concerned about their ability to control their fuel supply, nuclear plant managers bought uranium hand over fist.

Then, the Three Mile Island disaster hit the headlines, and America, along with much of the world, soured on nuclear power. All plants still on the drawing boards were mothballed.

Between the decreased interest in nuclear power and the buying binge of the late 1970s, the world's nuclear plants found themselves sitting on a mountain of uranium. By 1984, MIT professor Thomas Neff projects that commercial stockpiles approached 250,000 tonnes U — an amount equivalent to five years of world demand at the time.

In the nearly 30 years since, uranium demand has outpaced supply by an increasingly wide margin. Plants probably would have burned off commercial stockpiles sooner if a huge, new "artificial" source of uranium had not suddenly materialized.

#### HEU And The Coming Supply Shock

The end of the Cold War brought with it a series of agreements between the United States and Russia to reduce their nuclear arsenals by 80%. Collectively known as the "Megatons to Megawatts" program, these agreements brought a large amount of weaponsgrade Highly Enriched Uranium (HEU) to the market.

HEU concentrations exceed 90% U-235, well above the 3.5% needed to power a typical light-water reactor. As you might imagine, a little HEU goes a long way.

To keep this huge influx of fuel from putting the major producers out of business, Russia committed to releasing only 30 tonnes of HEU every year up to 2014. That amount represents about 10,000 tonnes of  $U_3O_8$ , or 15% of worldwide demand.

Using U.S. Enrichment Corporation as its agent, the U.S. government agreed, in 1993, to buy 500 tonnes of HEU from Russia over a 20-year period,

again ending in 2014. When mixed at a 25:1 or 30:1 ratio with the tails from enrichment plants, this material equates to 166,000 tonnes of  $U_3O_8$  production.

The HEU agreement has obviously helped keep the uranium price in check for decades. But the 24 million pounds of annual supply from that agreement – equal to 13% of global supplies – will cease in December of this year.

Immediately, the uranium market will go into a supply deficit, with an impact on prices that could be considerable right from the start.

### **Inelastic Fuel Prices**

Could the nuclear power industry withstand a steep escalation in fuel costs? By all accounts, it can do so easily. The high capital costs associated with building a nuclear plant comprise the vast majority of its Levelized Cost of Electricity (LCOE).

Delivered fuel assemblies, on the other hand, contribute only 10% to the LCOE. And almost half of that fuel cost stems from the energy expended during the enrichment process.  $U_3O_8$  counts for, at most, a third of total fuel costs. As a result, the nuclear power industry is largely indifferent to price increases in yellowcake.

That kind of price inelasticity could pay off enormously, because a price two or three times today's levels may be necessary to address the production shortfall going forward. Current prices are simply not high enough to encourage the massive level of exploration needed to fill that gap.

## An Historic Opportunity In the Making

All by themselves, the supply-side fundamentals for uranium make for a compelling investment thesis. Combine them with the upside that nuclear power contributes to the demand-side, and it becomes a slam dunk.

If you believe, as I do, that the future for uranium is exceedingly bright, then the question of how to cash in on that future should now be top-of-mind. In the pages ahead, I intend to answer that question in a way that maximizes your leverage on what has all the makings of a secular bull market for uranium.

Since it does not trade large volumes on a futures exchange, the only viable way to play uranium is to

invest in companies that mine and explore for it. Simply put, if you want to hitch your wagon to uranium's star, you'll need to familiarize yourself with the innerworkings of this relatively small corner of the mining universe.

Consider this next section a "Cliffs Notes" summary of the uranium sector, one that touches on its methods, its mines and its market-makers. And one that prepares you to turn the high-powered recommendation that follows into your own personal Path to Enrichment.

#### Putting It All Together: One High-Potential Way To Play Uranium

After a 20-year drought, uranium exploration enjoyed an amazing resurgence in the 2004-2006 period. Where once only a handful of juniors existed, dozens upon dozens of newly-minted uranium exploration companies quickly sprung up, each touting itself as the ideal way to play this emerging trend.

In the early stages of the uranium land rush, resource accumulation provided the clearest path to share price appreciation. Indeed many companies enjoyed multi-bagger gains based solely on their ability to amass sizable chunks of property with historic resources.

But as the price of uranium came back to earth over the following years, the rules of the game changed. In short, the sector went through a Darwin-esque experience, with only the fittest companies surviving.

By and large, these remaining companies boast the best management teams and the best deposits. Some are now either in production or close to it.

They are better companies, by far, than ever in their histories. And yet, in many cases, they boast market capitalizations significantly lower than before the last big run in uranium stocks.

With the global uranium market running headlong into its first major supply deficit, there has never been a better time to speculate in high-quality uranium exploration companies.

So what are the best opportunities in the sector? By one measure, it's quality of management — the teams that are savvy enough to advance their projects and get their stories out to the world's most active and sophisticated investors.

## **Conversion Factors, Etc.**

T o understand the nitty-gritty of uranium mining and investing, you need to familiarize yourself with a few technical nuances. Chief among these is the difference between uranium oxide (U<sub>3</sub>O<sub>8</sub>) and what the industry refers to as "natural uranium." Also, because the literature on uranium tends to bounce around between metric and avoirdupois units of measure, a brief review of the relevant conversion factors used to describe deposits is also needed.

When producers send  $U_3O_8$  to the conversion facility, it contains a little more than 80% uranium by weight. The term natural uranium allows the industry to equate the amount of uranium contributed by secondary sources (i.e. weapons-grade, enrichment tails, etc.) with the amount contributed by yellow-cake.

To convert "natural U" to its  $U_3O_8$  equivalent, simply multiply the "natural U" figure by 1.18. As an example, let's take the United States' demand for "natural U' in 2003. That year, its nuclear power industry consumed 22,379 "tonnes U." If it had met that demand entirely from primary sources, it would have needed to purchase 26,428 tonnes of  $U_3O_8$ .

Producers concern themselves primarily with the quantity and grade of  $U_3O_8$  in their reserve and resource bases. Power companies and intermediaries purchase almost 90% of all  $U_3O_8$  through long-term contracts, but the financial and trade press usually quote the spot price, expressed in terms of U.S. dollars per pound.

To be able to conduct comparative valuations of uranium stocks, you will need to move deftly from tonnes to tons and from kilograms to pounds. The relevant metric-to- avoirdupois conversions are as follows:

1 metric tonne = 1,000 kilograms = 0.9071 short tons = 2,204.622 pounds

Let's apply these numbers to a hypothetical company with a defined resource of 15.0 million tonnes grading  $0.30\% U_3O_8$ . The total resource in pounds would be 100 million pounds (15,000,000 x 0.003 x 2,204.622). At a  $U_3O_8$  spot price of US\$20, it would be worth \$2 billion, or \$134/tonne of ore in the ground.

In other words, the companies smart enough to participate in the annual New Orleans Investment Conference, where the most serious resource investors gather every fall, obviously separate themselves from the rest of the pack.

Here, then, is one company that fits the bill in all respects. Enjoy this intriguing story, visit their website, give them a call, and meet them in person at this year's New Orleans Investment Conference

(www.neworleansconference.com).

## Uranium Energy Corp.

UEC.NYSE-A 866-748-1030 uraniumenergy.com

If there's any company that could be labeled an innovator and leader in the junior uranium space, it's Uranium Energy Corp.

I remember meeting the company's dynamic young CEO, Amir Adnani, back in the early 2000s, before the company even came public. I was struck by Adnani's energy and vision — to rejuvenate in-situ recovery (ISR) uranium production in the historic resource areas of the southwestern U.S.

It sounded crazy back then. Keep in mind, this was well before the big rush into uranium erupted, when literally hundreds of Johnny-come-lately companies would rush down the path that Adnani and UEC had already tread.

But through the years that followed, through boom and absolute bust in the uranium sector, the ingenuity and energy of Adnani and his team brought UEC into production, where it stands virtually alone today in the junior sector.

And the future looks even brighter.

Consider this: Just as our expected surge in uranium prices emerges later this year, UEC will be in prime position to leverage those gains with rapidly growing production at a per-pound cash cost in the range of just \$21.

UEC's Palangana Mine in south Texas generated 69,000 pounds of  $U_3O_8$  in the fiscal quarter ended April 30, 2013, a 21,000-pound increase over the previous quarter's production, an increase of 44%. Thanks to the startup of Production Area 3 in December 2012, production is ramping up quickly.

The steady production increase from UEC's first mine should persist throughout 2013, as production continues to gear up from Production Area 3 and as development continues apace on Production Areas 4 and 5. With the com-

pany's nearby Goliad ISR uranium project now fully permitted for production — and an additional four nearby projects being readied for production — the full power of UEC's hub-and-spoke model for uranium production and processing in south Texas should really start to kick in.

From the time Palangana began producing  $U_3O_8$  in November 2010 to the end of this most recent quarter ending April 30, 2013, UEC has mined 440,000 pounds of uranium. The company is debt-free with \$9.0 million in cash and 37,000 pounds of uranium (market value of approximately \$1.5 million) available for sale.

UEC maintains a strong liquidity position, a growing production profile and the ability to generate cash on an ongoing basis. That last asset is a very rare commodity indeed in this or any junior resource sector.

Furthermore, UEC has a large and growing portfolio of properties, focused in Texas, Wyoming, New Mexico, Arizona, Colorado and Utah, and at all stages of exploration and development. This area was ground zero for U.S. uranium exploration for decades and, by moving into the region and developing key contacts well ahead of the crowd, UEC was able to secure one of the largest databases of historic exploration data in the country.

It's safe to say that shareholders will not want for news flow.

Again, the key here is that Uranium Energy Corp. is actually in production — and with a rapidly growing production profile — just as the global uranium market seems set to go into a supply deficit and prices are poised to rally. It's a perfect recipe, at the perfect time.

#### Uranium Energy Corp.

Recent Share Price:	US\$2.05
Shares Outstanding:	
Market Cap:	US\$175.3 million
Shares Outstanding Fully Diluted:	95.2 million
Market Cap Fully Diluted:	US\$195.2 million

## **A Unique Opportunity**

The uranium market, and the company featured above, represent a special opportunity for investors to potentially reap rich profits from a remarkable supply/demand dynamic.

Again, serious investors should consider meeting Uranium Energy Corp. at this year's New Orleans Investment Conference, being held from November 10-13. In addition to discovering today's most exciting exploration and development opportunities, you'll enjoy intimate presentations from today's top experts, including Cong. Ron Paul, Dr. Charles Krauthammer, Dr. Marc Faber, Peter Schiff, Frank Holmes, Dr. Benjamin Carson, Rick Rule, Dennis Gartman and dozens more.

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