

Exploring Alternative Energy:  
Nuclear Power

Paper prepared by:

Brian Bell  
&  
John Kozoriz

Management 6366  
April 17, 2007  
UNIVERSITY OF TEXAS OF THE PERMIAN BASIN

## Exploring Alternative Energy: Nuclear Power

### Overview

The principal fuel behind nuclear energy is uranium. Uranium was discovered in 1789 by a German chemist, Martin Klaproth. It took until the 20th century for uranium to be used. A splitting of uranium atoms into a chain reaction releases energy inside a nuclear reactor. This creates heat energy produced by fission (splitting the atom) that boils water into steam. This steam drives a turbine generator, which produces electricity. Nuclear power generates 16% of the world's electricity. Nuclear power offers a safe and economical way to meet anticipated growth in American energy demand, according to an October, 2006 report by the Progressive Policy Institute, a policy arm of the Democratic Leadership Council (DLC). The report praises nuclear power as a key weapon against asserted global climate change and air quality concerns. (Dines, 2007)

However, is uranium the answer to our energy crisis? Uranium is 500 times more abundant than gold and as common as tin. Although abundant in the earth's crust, it is scarce in the mined and useable form to be processed in nuclear reactors. The supply constraints can be traced back to the end of the cold war when the United States and the former Soviet Union started converting enriched uranium from dismantled atomic weapons into nuclear fuel for peaceful purposes. That program, and huge incentives offered to uranium companies by the Nuclear Regulatory Commission, flooded the market with excess supply. At the same time, demand shrank. The price of uranium fell sharply. Some companies sold themselves to French, Canadian and British corporations, which now dominate the industry. (Dines, 2007)

Today times have changed. For a long time after the Cold War ended, uranium was out of style. The uranium-mining industry was in a deep depression. When Russia and America reduced their nuclear-weapons stockpiles, all that uranium was dumped on the market with a screw-the-miners attitude that was devastating, which is why the price plunged from \$43.40 in May 1978 to as low as \$7.10 in Dec 2000. (Dines, 2007)

With the political crisis and global warming associated with oil production, a shift to exploring alternative energies is slowly emerging. With a seemingly insatiable and growing demand for energy, alternative energies such as nuclear are becoming much higher in demand. With the increased demand for uranium, there are many mining exploration companies seeking to find more uranium. A tone of uranium fuel can keep a large power station running for two weeks. The global prediction suggests that over the next 50 years, the world's demand for electricity will double or triple. The world's demand for electricity leaves only nuclear energy as a reasonable alternative available for creating vast amounts of electricity that does not contribute to air pollution, global warming and acid rain. (Sapphire S MacAllister, [www.ResourceWorld.com](http://www.ResourceWorld.com), Feb 07)

Currently, there are 442 operable commercial nuclear power plants in the world which produce in total 370,721 megawatts of electricity per year. In addition, there are 28 commercial nuclear power plants under construction which will produce 22,510 megawatts of electricity and a further 62 plants planned and 160 proposed. Presently, the United States gets 19% of its energy from nuclear power; and there is circumstantial evidence to believe that the demand for nuclear energy in the United States and the world abroad will continue to rise. Governments cannot overlook the advantages of nuclear power. Mesa Uranium Property in New Mexico confirmed a breathtaking 13.0 feet of

0.719% U308, and 14.4 feet of 0.513% U308. La Jara Mesa has 7.28- million pounds of U308 measured and indicated mineral resources, and an Additional 3.173-million pounds of uranium as inferred mineral resources on the property. (Dines, 2007)

Two of the world's largest Uranium deposits lay in the bottoms of two Canadian lakes. There is a strong commitment to developing and promoting mined Uranium. There is no formal exchange for uranium as there is for other commodities such as gold or oil. Uranium price indicators are developed by a small number of private business organizations, like the Ux Consulting Company, LLC (UxC), that independently monitor uranium market activities, including offers, bids, and transactions. Such price indicators are owned by and are proprietary to the business that has developed them. The Ux U O price is one of only two weekly uranium price indicators that are accepted by the uranium industry, as witnessed by their provisions that call for the future uranium delivery price to be equal to the market price at or around the time of delivery. (Dines, 2007)

#### Changing Social Views

Global warming is a developing critical issue denied by some political leaders as bad science of the past. This has been replaced by fear of a possible irreversible decline that would raise ocean levels many feet higher. The debate is over, and global warming has been identified as a civilization crisis. Even President Bush abandoned his accusations of bad science. Environmental experts are not even certain that it's possible, at this late date, to reverse the damages of global warming. Therefore, political leaders are talking about reducing dirty emissions into the air by 2020, but need to do this much sooner ([www.osti.gov/energycitations](http://www.osti.gov/energycitations)).

However, General Motors and Ford now report that their sales have been plunging; punishment for their stupidity in turning out gas-gulping big cars instead of being sensitive to the planet. (Dines, 2007)

In the past, the environmental movement has developed a hatred for nuclear power arising from past nuclear meltdown such as Chernobyl. Now, some political leaders have already come out in favor of nuclear power because it completely solves the problem of global warming. In light of these environmental concerns, a slow shift from burning things to a mineral source that solves the problem of global warming is shifting. A few years ago, environmentalists were the biggest enemies of nuclear power. (Dines, 2007)

Dr Patrick Moore, original founder of Greenpeace and James Lovelock, author of the Gaia Theory, support nuclear energy. Lovelock writes, "Nuclear energy is free of emissions and independent of imports from what will be a disturbed world." Over the past 30 years, the nuclear industry has significantly improved reactor safety. Newer designs essentially eliminate the risk of serious core damage and escape of radiation to the environment. Modular standardized designs reduce construction times. (John Hutson & M Aslam Lone, *Fresno Bee* (California), 18 Feb 07)

That debate continues among scientists and politicians from around the world who gathered in Paris to finish the first of four major reports by the Intergovernmental Panel on Climate Change. The panel was created by the United Nations in 1988. The early versions predict that by 2100, the sea level will rise between 5 and 23 inches. In the past, the climate change panel didn't figure there would be large melting of ice in

West Antarctica and Greenland this century and didn't factor it into the predictions.

Recent NASA data shows that Greenland is losing 53 cubic miles of ice each year – twice the rate it was losing in 1996. (Dines, 2007)

The social change is also reflected among the US public. When polled, Americans were asked “Overall, do you strongly favor, somewhat favor, somewhat oppose the use of nuclear energy as one of the ways to provide electricity in the United States?” The results showed 70% favored nuclear energy and 24% were opposed and the rest were undecided. Today, nuclear power plants are designed so that any major problem is contained within the structure. (Dines, 2007)

#### Policy Change among International Governments and Businesses

*“Nuclear should not be an afterthought but the main theater” James Dines*

Many countries are addressing the needed energy demand for uranium. France is the world's biggest user of nuclear power, already using 79% of its energy from nuclear power plants. The country is now building another plant and has proposed building to go along with the 59 they already have. France was the only country in the world that demonstrated the foresight when, back in the 1970s, after the first oil crisis, it shifted nearly 80% to nuclear power, and has never had an accident. (Dines, 2007)

France has the cleanest air in the industrialized world, and because the oil is now around \$60 a barrel, it has the lowest electric bills in Europe. In fact, France has so much cheap electricity; it exports it to its European neighbors. French nuclear plants supply power to parts of Germany, Italy and help light the city of London. The French

government monopoly controls every step of its nuclear industry from uranium mining to plant design construction to radioactive waste disposal. (Dines, 2007)

Other countries are following suit. China plans to add as many as 68 new nuclear power plants to the 10 it already has. China's plan is to increase nuclear energy capacity by almost 5-fold to 40 gigawatts by 2020, and twice that of India's plans. India now has 16 plants, but wants to double that capacity. (Dines, 2007)

Around the world, there are 28 nuclear power plants under construction right now, with as many as 64 on the drawing board. China will likely seek annual imports of about 2,500 tonnes of Australian uranium by 2020, or about one third of its expected annual demand of 7,500. Sydney-based Resource Capital Research said planned or proposed new reactors worldwide had increased dramatically since May, with 251 new ones in construction or planning stages. In May, China planned 24 new reactors. By November, that had risen to 63. Recently, Australia, with just under a quarter of world uranium production, and China ratified two uranium trade agreements signed in April 2006. Global demand is expected to double in the next 25 years. (Robin Bromby, *The Australian*, 21 Dec 06)

Canada and Australia can be described as "the Saudi Arabia of Uranium", holding 51% of uranium reserves. However, Australia holds deep anti-nuclear beliefs, favoring instead solar and wind power. A crucial election near the end of April 2007 will decide whether to allow its uranium to be sold. The Chinese and the Russians are in almost every potential uranium-producing country looking for joint ventures and long-term supply arrangements. (Dines, 2007)

Similarly, First Deputy Prime Minister, Sergei Ivanov, says Russia will develop a new energy strategy to increase its share of nuclear power. Russia now has 31 operating power reactors at 10 nuclear-power plants. Russia plans to put in service three nuclear-power reactors annually starting in 2016, and by around 2019, that number could increase to four. Russia wants to double its percentage of nuclear-generated electricity from 16% to around 30% by 2030. The Russian government will be vertically integrated with uranium extraction, electric power generation and through construction of nuclear power plants. (Dines, 2007)

The United States continues to use nuclear power, but growth is constrained by a proportionate lack of political and government support compared to other countries. The U.S. now has 104 nuclear power plants up and running, and has just extended the leases on 48 of its older plants for the next 20 years. Also, 37 more plants have either applied or notified the Nuclear Regulatory Commission of their intent to extend their leases. The United States hasn't built a new nuclear plant since the 1970's. (Dines, 2007)

Former Vice President, Al Gore, took his global warming campaign to Congress, declaring that the problem is "by far the most serious" the country has ever faced and called for an immediate freeze on emissions of carbon dioxide. In response to a question from Senator Johnny Isakson, R-Ga, Gore said he did not believe nuclear power, which does not emit carbon dioxide, would provide a significant solution to the problem.

(Arizona Daily Star, 22 Mar 07)

Al Gore recognizes that any solution to global warming is going to require a revival of nuclear power, yet he does not totally support the idea: "Nuclear power plants

are the costliest to build and they take the longest time and at present they come in only one size – extra large." (Dines, 2007)

Bush said that within 10 years, he wants the United States to use five times as much alternative fuel as it does now. President Bush has turned primarily to ethanol, perhaps to earn some votes in corn-producing states.

Slow shifts are emerging in the U.S. Recently, TXU has cancelled plans to build a large fleet of coal-fired power plants in Texas, as President Bush hopes instead to build America's biggest nuclear power plants. Amarillo, NRG Energy and Exelon might follow TXU's lead. Overall, American nuclear developments lag behind other nations. (Dines, 2007)

### **Business Model**

The business model can be described using the four key elements (volumes, revenue driver, margins, operating leverage) of a firm's economic model as described in the class handout "Is your economic model working" (Murdoch, Moris, and Witting, 2004)

### **Cost Drivers**

Individuals considering investing in enriched uranium likely will want to know the cost structure of the process. What does it cost to identify, support, extract and process uranium from rock to the reactors?

The market for uranium works like oil. Discovery determines production. Resources determine price. Demand determines market viability, and nuclear power is

now being looked at in an all new light as large-population countries like India and China continue up the road of capitalism the road of capitalism. The last remaining drops of oil are now vigorously sought by (NEAPOSWAP) all nation states. Governments cannot overlook the advantages of nuclear power. That's why China plans to add as many as 68 new nuclear power plants to the 10 it already has. India now has 16 plants, but wants to double that capacity. (NEAPOSWAP) Around the world, there are 28 nuclear power plants under construction right now, with as many as 64 on the drawing board (Staff Report, [www.IAEA.org](http://www.IAEA.org), 2005).

France is the world's biggest user of nuclear power, already using 79% of its energy from nuclear power plants. Most of them use American technology. France is now building another plant and has proposed building to go along with the 59 they already have. The United States now has 104 nuclear power plants up and running, and has just extended the leases on 48 of its older plants for the next 20 years. Also, 37 more plants have either applied or notified the Nuclear Regulatory Commission of their intent to extend their leases. (Dines, 2007) So the demand is there.

There is no formal exchange for uranium as there is for other commodities such as gold or oil. Uranium price indicators are developed by a small number of private business organizations, like the Ux Consulting Company, LLC (UxC), that independently monitor uranium market activities, including offers, bids, and transactions. Such price indicators are owned by and are proprietary to the business that has developed them. The Ux U O price is one of only two weekly uranium price indicators that are accepted by the uranium industry, as witnessed by their provisions that call for the future uranium delivery price to be equal to the market price at or around the time of delivery.

The price for uranium is subject to specified form, quantity, and delivery timeframe considerations. It is not necessarily based on completed transactions (although a transaction embodies an offer and its acceptance). The “spot” market in uranium has traditionally involved contracts calling for delivery as far out as 12 months, although more recently, deliveries take place in the forward two to three month period. Some of the obvious components that drive costs are surveying costs of finding the material. (John, you may have to reword this yourself unless this is really what you intended to say.) The extraction costs are considerable. There are variable processing costs and cost due to waste disposal ([www.epa.gov](http://www.epa.gov), Radioactive waste disposal: An environmental perspective).

Uranium prices are being pushed higher by consumers and speculators holding stocks while output is delivered at a fraction of the spot price under old contracts, a conference heard on Wednesday.

The good news for a potential investor is that uranium, though relatively high in supply, does not meet demand. Uranium producers have met just 60% of total annual revenues, while the other 40% comes from government stockpiles and from decommissioned nuclear warheads.

The cost drivers for a uranium mining company are heavy fixed costs in equipment, such as reactors, the housing of the reactors and extensive waste management system. There are huge costs related to safety, which is the chief concern for an investor. Nuclear power is reliable but a substantial amount of investment must be injected into the safety processes. Waste is very dangerous and it must be sealed up and buried for many years to allow the radioactivity to die away. There are variable costs to operating the

plant such as labor and electricity. A breakdown of some of the operational costs of an Australian company known as NRC is outlined below.

### **Operation and Maintenance costs**

The day-to-day costs associated with operating the nuclear power plant. This includes the costs of:

1. labor and overheads (e.g. medical and pension benefits),
2. expendable materials,
3. NRC (e.g. license changes, on-site and regional inspectors, and headquarters staff) and state (e.g. health department, emergency planning) fees,
4. local property taxes (varies from state to state).

Labor costs in a nuclear plant include those for operators, maintenance personnel (electrical, mechanical, instrument and controls), health physics technicians, engineering personnel (mechanical, electrical, nuclear, chemical, radiological, computer).

Material costs include replacement parts, computer parts, expendable office and other supplies.

NRC 1998 fee structure (PR 98-45, April 1, 1998) is:

1. \$2,980,000 per unit for power reactor licensees
2. \$57,300 for non-power (research and test) reactor licensees
3. \$2,607,000 for high-enriched uranium fuel licensees
4. \$1,280,000 for low-enriched fuel fabrication licensees which manufacture fuel for nuclear power plants
5. \$14,100 for radiographers
6. \$23,500 for broad scope medical licensees

([www.nucleartourists.gov/basics/cost.htm](http://www.nucleartourists.gov/basics/cost.htm)., Oct, 2006)

### **Revenue Streams**

Revenue is dependent on demand, which fortunately is increasing. Unfortunately, as previously mentioned, mining companies have only been able to meet 60% of the world wide demand through their own production. The other 40% is subsidized through governments. Revenue streams are generated initially by large investments that are backed by contracts. The initial stages require large upfront cash loads, and it can be 12

years before a new project can begin producing revenue from a mine deposit. But it is profitable. Cameco is the world's leading company in uranium production, with a mining contract to the very uranium-rich rock bed of the Cigar Lake in Canada. In 2006, the company increased net earning to \$376 million, from \$215 million in 2005. In '06, the company sold 21 million pounds of uranium (Cameco: Quarterly text, January 27, 2006).

The increases in demand are other revenue drivers. Presently, China is adding 68 new nuclear power plants to refine the enriched uranium. India has 16 plants and is looking to increase that to 32 in the next 12 to 15 years. The United States has 104 operating plants; 48 have recently been granted new leases and 37 have applied for renewal.

Some of the key advantages of crossing over to processed uranium from oil are that there would be no greenhouse emissions. In this day and time, environmentalism has captivated the national attention and the notion of global warming, while not exactly proven, has nonetheless become the buzz topic in the political landscape and in many activists' circles. Additionally, unlike burning fossil fuels, the process of taking uranium-235 through the nuclear fission process does not pollute the environment. One final advantage of the nuclear power option is that there are extremely large reserves in places like the crusts of Africa, Australia and particularly in the lake beds of the Saskatchewan province of Canada.

There are some disadvantages. When one is addressing the issue of nuclear power, the primary concern is nuclear accident. The disaster of the Chernobyl Nuclear Power Plant in the former Soviet Union was the worst in history. There is also a lot of nuclear waste generated, which to be buried in drums beneath the earth's surface until the

radio activity degrades. Unfortunately, in some cases, the waste can remain dangerous for thousands of years. The nuclear power plants are also very expensive to maintain, and quite costly to secure. Current cylinder management activities in the United States average 15 million a year. There is also a very high costs associated with decommissioning the plants. Additionally, like fossil-fueled power plants, nuclear reactors emit thermal pollution.

### **Demand**

The market for uranium works like oil. Discovery determines production. Resources determine price. Demand determines market viability, and nuclear power is now being looked at in an all new light as large-population countries like India and China continue up the road of capitalism. The last remaining drops of oil are now vigorously sought by all nation states (Seiler, Geoffrey, [www.Forbes.com](http://www.Forbes.com), Taking the Uranium Bull for a Ride, 2005).

Uranium prices are being pushed higher by consumers and speculators holding stocks while output is delivered at a fraction of the spot price under old contracts, a conference heard on Wednesday.

The good news for a potential investor is that uranium, though relatively high in supply, does not meet demand. Uranium producers have met just 60% of total annual revenues, while the other 40% comes from government stockpiles and from decommissioned nuclear warheads (Seiler, Geoffrey, [www.Forbes.com](http://www.Forbes.com), Taking the Uranium Bull for a Ride, 2005).

## **Challenges in Constructing the Business Model**

Discussed in our presentation

## **Critical Issues of Comparing Uranium to Oil**

The Nuclear Regulatory Commission (NRC) has certified three new designs that would use significantly fewer pumps, pipes, valves, and cables than first-generation facilities. That will reduce the plants' complexity, making them easier to inspect and maintain," the report continues. "From a safety perspective, the new plants rely on natural forces such as gravity, natural circulation, and condensation, assuring safe shutdown even in the event of an accident." The report encourages Democrats to take action now to remove regulatory hurdles that slow the development and construction process. (James Hoare, *Environment & Climate News*, Feb 07)

## **Importance of Nuclear vs. Oil**

Oil is still important but a shift is starting. Both uranium and oil commodities will continue to be important in the near future. The development of alternative energies will reduce overall demand on any one commodity, therefore making oil more viable for a longer period. However, the war for the last drops of oil has already begun, and countries such as Russia, China, India and Japan will not stand aside and let America keep the increased share of oil. (Dines, 2007)

## **Investment Overview/ Environment**

The market for uranium is expanding due to favorable conditions that through social change, political change, and insatiable demand for energy with mined uranium ready for use in reactors. Uranium's current bull market stems from the political and

social change associated with global warming, while making the transition from burning things for energy to a nuclear source. The market potential is further enhanced through terrorist threats of cutoff of oil supplies and overall diminishing oil supply.

Uranium is very abundant in its natural form but the shortages in the refined form have driven prices up at unprecedented rates, increasing the value of uranium metal.

### **Price of Uranium**

The price for uranium is subject to specified form, quantity, and delivery timeframe considerations. It is not necessarily based on completed transactions (although a transaction embodies an offer and its acceptance). The “spot” market in uranium has traditionally involved contracts calling for delivery as far out as 12 months, although more recently, deliveries take place in the forward two to three month period. Some of the obvious components that drive costs are the surveying costs of finding the material. The extraction costs are considerable. There are variable processing costs and cost due to waste disposal. (Dines, 2007)

Hedge funds and other institutional investors, who began buying up uranium in late 2004 to exploit the volatility in this relatively small market, have accelerated the price rally. There are three relatively independent factors; 1) dwindling supplies of inventory, 2) low overall production from the handful of uranium mines and 3) rising concerns about global warming all have converged to drive the current uranium price higher by more than 1,000 percent since 2001. (Dines, 2007)

That is why there is a scramble now, and so many new uranium companies being formed, to find uranium and at least begin the mining process that will carry toward ample production in the world. Worries about uranium supplies are growing, with 251

new nuclear reactors either being built or planned compared with the 442 in production. (Dines, 2007)

Cigar Lake's (Canada) recent floods are bad news for uranium buyers, driving up the price further. Despite this setback, Cameco who controls 50% of Cigar Lake has continued to increase returns for investors. ERA's Ranger mine in Australia is also having flooding problems, possibly losing around 4% of estimated international uranium production this year. Uranium users must now be scrambling to buy uranium *at any price*, and with rumors of the of \$200/lb uranium being sold, well above the current spot price of \$113. (Dines, 2007)

### **Investment Potential**

James Dines, writer of the Dines Letter provides one of the most comprehensive sources on investing in uranium, among few if any, investment sources in this area. According to Dines, investing in uranium has already been fantastically profitable. The DIURANIA (the Dines Uranium Average) is the world's only such average, and recording a new all-time high on February 6, 2007, evidence that this is possibly the biggest bull market to arise in recent history. This stock has increased from \$7.10 to \$75.00

It may be true that other types of stocks perform well but they do not in a relative manner. In 2000, investors were urged out of the Internet and high-technology stocks, cashing out profits. Now, the relative strength of emerging alternative energies like uranium is much superior to high-technology stocks. Laramie for example rose from 10 cents (Cdn) in Aug 2003 to as high as \$11.24 (Cdn) on 24 Jan 07, with a very liberal gain of 11,140%; \$1,000 would now be worth \$112,400. (Dines, 2007)

Even tiny new uranium companies, actually have options on the American Stock Exchange, for example, Uranerz (URZ), so the field is growing up and we predict that eventually virtually all uranium-mining companies will have options traded so as to attract speculators. (Dines, 2007)

### **Specific Investment Tips**

With a continuing bull market in full swing, there is little doubt that investing in uranium is a very viable and perhaps the best option currently for investors. The more relevant question is not a decision whether to invest in uranium but what stocks are the best investment. Investors seek to earn the greatest possible returns while minimizing risk, meaning that investors in uranium would benefit by shifting out of uranium stocks with modest return into those with high returns.

Investing in uranium can take place in two general forms: through speculating in the uranium metal market through hedge funds or through investing in individual stocks. With the unprecedented rise in the spot price of uranium, speculators have jumped at the opportunity to purchase uranium in anticipation of further price increase.

On the other hand, stock investing involves selecting those uranium companies, either mining or nuclear energy producers, that are anticipated to experience the highest returns for investors. With two generally distinct investment options, it is important to understand the correlation between uranium metal prices and stock prices because they are not one and the same.

Hedge funds have been increasingly attractive, reflecting the rapid rise in the price of uranium metal. Many speculators have stormed into the uranium metal market and panicked nuclear power-plant users into paying any price for what they must have, in

effect "cornering the market". This effect is amplified in the absence of established government controls on the spot market, which refuse to release their uranium reserves to the public. Therefore, nothing illegal is happening. These hedge funds continue to lock in huge profits in their holdings of uranium metal, as uranium is being sold in the spot market. It is anticipated that a this shock would almost certainly send uranium prices lower. However, this is unlikely since the great global expansion of nuclear projects will require continued demand for scarce uranium supplies. (Dines, 2007)

With a degree of price uncertainty, it is expected that funds holding uranium metal would not go up by as great a percentage as funds holding uranium-mining stocks. The underlying logic is that, since uranium mining companies process the uranium, they remain unaffected by price fluctuations compared to those who own uranium metal. This is reflected by the fact that DIURANIA is up 2,266% (a composite of all non uranium holding companies) while uranium metal is up only 1,492%. (Dines, 2007)

Major uranium miner and producer, Cameco, has lost some of its mining power with current floods. Its stock has risen 39% but it is recommended to switching these proceeds into Mega, Fronteer and Pinetree, with percentage gains of 130%, 188% and 257% respectively, which are mining intensive. (Dines, 2007)

Currently, the markets are still preparing for latecomers by encouraging a trend towards mergers amidst the smaller uranium companies, getting large enough so as to provide mutual funds with the depth and liquidity that they require for large buy orders.

There are only a limited number of uranium companies that have serious prospects. James Dines predicts that a new phenomenon will arise, and that will be

outright purchase of these smaller mining companies to guarantee production for nuclear power companies 10 or 15 years from now.

Bidding wars between foreign countries such as China and India will lead to a greater demand placed in front of smaller companies, sending them to new heights and continued stock returns. Nuclear-power buyers have limited buying power, in which they would have to pay nearly any price or close down. This effect further accounts for uranium shares being calmer than the uranium mining shares today.

Some of Dines' top stock selections include; Areva, Fronteer, JNR, Laramide Paladin and Summit, making all-time highs. (Dines, 2007)

Laramide, under President, Marc Henderson, worked hard to acquire the properties that he wanted, making it a recommended stock at 81 cents (Cdn) on 16 Sep. Laramide eventually got up to as high as 14.25 (Cdn), with an astonishing rise of 1,659%. (Dines, 2007)

Paladin made an offer to buy Summit valued at \$1 billion (Aus)/ \$815 million (US). On the other hand, Mega Uranium is valued at only \$721 million (US), suggesting that Mega, with its vast variety of properties superior to Summit's, should already be much higher in the marketplace, especially as a takeover candidate. Therefore it is suggested that it is not too late to start buying Mega. (Dines, 2007)

Furthermore, with anticipation of Australia policy change, buyers of Australia's uranium mining companies such as Laramide, Mega, Pinetree have risen spectacularly in order to reflect that policy change. (Dines, 2007)

Mega announced just this week, a staggeringly large \$40-million drilling program for this year including projects in Australia, Canada, Argentina, Bolivia, Colombia and

Mongolia. Mega's 65,000 meters of RC/diamond drilling might be the most ambitious uranium-drilling project among the smaller stocks. (Dines, 2007)

Overall, Dines recommends investing in smaller stocks that are potential superstars as opposed to investing in overpriced blue-chips in the uranium/nuclear industry. He further suggests focusing on uranium mining stocks since the development and efforts of these companies will be responsible to heavily invested nuclear reactor projects globally. Other words of wisdom include seeking out uranium-mining companies with a wide variety of locations so as to decrease company-specific risks. This safety in diversification and will guard against projects that are speculative. (Dines, 2007)

**References:**

Cameco: Quarterly Text, January 2005

Dines, James. The Dines Letter. Vol. 47 no. 5. April 13, 2007. pp. 1-15

Dines, James. The Dines Letter. Vol. 47 no.4 . March 23, 2007. pp. 1-16

Dines, James. The Dines Letter. Vol. 47 no.3. February 9, 2007. pp. 1-16

John Hutson & M Aslam Lone, *Fresno Bee* (California), 18 Feb 07

Robin Bromby, *The Australian*, 21 Dec 06

Arizona Daily Star, 22 Mar 07

James Hoare, *Environment & Climate News*, Feb 07

Sapphire S MacAllister, *www.ResourceWorld.com*, Feb 07

Seiler, Geoffrey, [www.Forbes.com](http://www.Forbes.com): Taking the Uranium Bull for a Ride, 2005.

[www.epa.gov](http://www.epa.gov)., Radioactive waste disposal: An environmental perspective, February, 2005.

[www.Nucleartourist.com/basics/cost](http://www.Nucleartourist.com/basics/cost), October 2006

[www.osti.gov/energycitations](http://www.osti.gov/energycitations), Energy Citations Database