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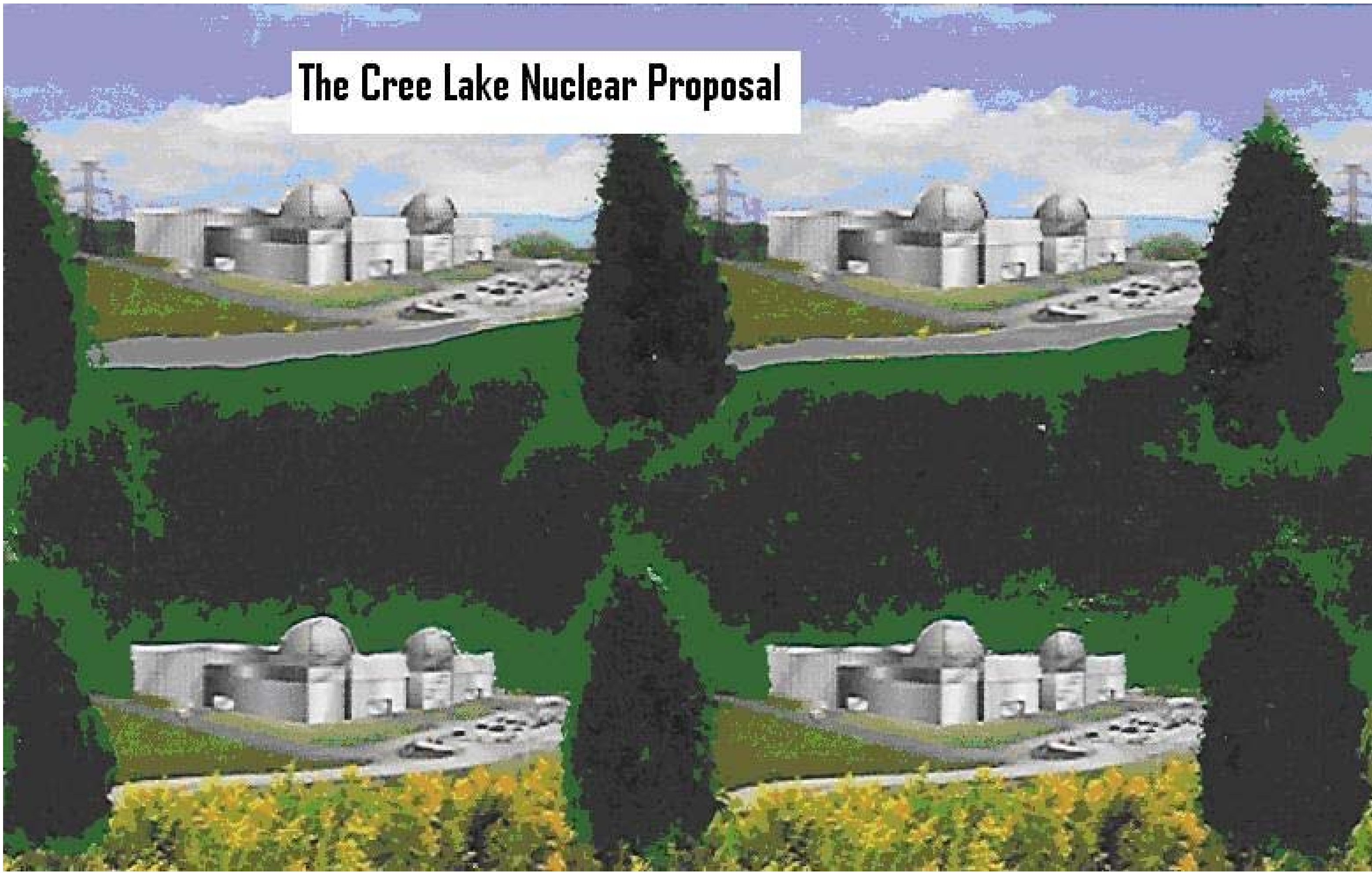

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On Thursday, April 14, 2005 the federal government came down with their long awaited Kyoto plan, having now fixed a $10 billion dollar price tag to an ambiguous structure for implementation. Much of that money will apparently be spent purchasing carbon credits. There is a conventional wisdom developing that says that the plan will go the way of the last plan introduced by federal government, that being the plan to cut CO_2 emissions by 20% in Canada over 5-years commencing in 2000. That plan was announced by then environment Minister Anderson during an election campaign, and with no actual plan to back up the promise, our CO_2 emissions actually went up by 20% during that time frame. This does not mean that there isn't public support for reducing greenhouse gas emissions, but to the best of my knowledge there has not been any credible plan introduced that would address the scale of our energy demands and reduce CO_2 emissions at the same time. This load is ever increasing with a continental growth rate of 2% annually.

The ratification of the Kyoto accord by the government of Canada sent jitters through the oilsands industry. It is extremely unlikely that this protocol will be an effective accord in achieving its stated ambitions, or whether there will be widespread adherence to the mandated CO_2 reductions. An unfortunate reality is that it would seem to be a mechanism whereby the government of Canada could levy a carbon tax that would affect Alberta oilsands producers disproportionately. Alberta produces 1/3 of the Canada's CO_2 emissions, most of that coming from oil sands exploitation. The mega projects undertaken near Ft. McMurray, along with provincial refining capacity are expected to supply 1 million barrels/day in 2005 and 3 million barrels/day by 2015. CO_2 reduction is a desirable benefit exclusive of the Kyoto accord, and it does makes good business sense to embrace nuclear power for process energy as well. Every GJ of gas not used in bitumen production is one more available for sale, some of it to the electric power market.

The nuclear option is not new but it is an option that would cost less money than the federal government's $10 billion figure for Kyoto conformity, and have an impact. It is an option that would create tens of thousands of jobs, grow the economy, the GDP and exports and at the same time result in radical reductions in the amount of CO_2 produced.

So why are we not building nuclear power plants in Saskatchewan right now? Why is this suddenly such a good idea if it wasn't a good idea before? The answer is many faceted. It begins with public support, without which this proposed project cannot succeed. Public support for nuclear power is growing, and I believe now in the silent majority. Canada has already produced billions of MW.hours of nuclear energy over decades of safe and continuous operation. At the same time that we now have the pressure of the Kyoto commitment, we are tripling the oilsands output over the next decade, thus creating unprecedented process energy demand. Alberta is presently increasing its CO_2 emissions to deliver oil to the continent, and there is the possibility that that could get more expensive by means of Kyoto compliance costs. The current oil and gas prices make the price of nuclear power look very competitive, and many have faith that this will be the case for some time to come.

With public support comes government support, in this case the support of the Saskatchewan government. The legacy of the Saskatchewan government is that they once nationalized the potash industry, and scared off the capital markets. The capital markets are necessary for the development of nuclear power plants, but high-priced oil is making the markets more interested in nuclear power, even in Saskatchewan. Public support includes aboriginal support. A GJ of energy is worth more in the oil patch now than ever before. The geopolitical situation in the global oil patch does not inspire much long-term confidence for supply. Asian energy markets are growing faster than our own. China buys Saskatchwan uranium, and has already bought several CANDU reactors. I don't have a crystal ball, but prospects for long-term high energy prices have never been better. The technology for nuclear power production has grown more efficient, so much more efficient that rising uranium prices have minimally impacted production costs of the power.

Summary of Existing Research

The idea of using nuclear power for oilsands process energy is not a new one. In June of 2003 a paper on the subject was presented at the Canadian International Petroleum Conference in Calgary. This paper, by R.B. Dunbar and T.W. Sloan of the Canadian Energy Research Institute (CERI), compared the economics of conventional CH_4 fired SAGD methods with a modified ACR-700 (731 MW) CANDU reactor. The study concluded that nuclear steam generation was economically competitive with CH_4. Dunbar and Sloan used 2002 costs, or $4.25 GJ for gas and $30.68 kg for Uranium. In both cases these spot prices are a lot less than they are now.

They modeled a central steam generation site with a modified CANDU reactor to be located within the oilsands, where in-situ process steam was to be created more directly by the heat of nuclear fission, as opposed to producing electric power through generation and transmission. Though direct nuclear steam generation is more efficient and involves significantly less capital cost than power generation and transmission, the thermodynamic limitations of transporting steam over long distances were thought to be a major constraint.

Dunbar and Sloan credited the work of Bock and Donnelly from their paper Fuel Alternatives for Oil Sands Development, presented in 1995 at the Canadian Nuclear Society Annual Meeting in Saskatoon, as well as the 1982 study by Bancroft entitled Nuclear Energy for Oil Sands, which was a feasibility study undertaken jointly by the AECL, Alberta Power LTD., Petrocanada and NOVA.

The comparative economic analysis of Dunbar and Sloan is used in the economic analysis of this presentation.

To go back much further, I need mention the work of Prof. Chauncey Starr, the now 93 year-old professor emeritus of the Electric Power Research Institute, the organization he founded in 1973. It was in his early paper “Supergrid” that he first theorized that the functions of nuclear power generation and deep and permanent geologic disposal of spent fuel could be integrated within the same containment structure. This promises excellent safety and economic benefits, and is very practical respecting this proposed development.

Process Energy Demands of Bitumen Production

Giga-joule to Megawatt-hour conversion:

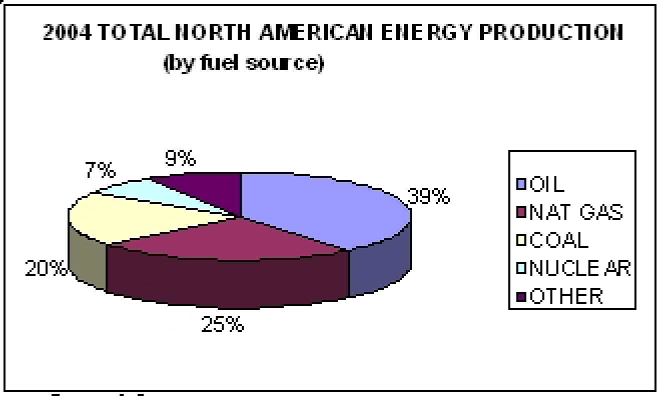
Gas Price (GJ)	Equivalent (MW.h)
$2	$7.20
$4	$14.40
$6	$21.60
$8	$28.80
$10	$36
$12	$43.20
$14	$50.40
$16	$57.60
$18	$64.80
$20	$72.00

There is no guarantee that at some point we will not experience a drop in continental demand for energy in any or all forms, but it is unlikely. The most probable case scenario is that demand will continue to grow. Synthetic crude production will continue to be a major Alberta export on an ever increasing basis, and demand from the Americans will remain healthy. With more than 200 billion barrels of presently recoverable oil and more multi-billion dollar production upgrades on the way, there is a potential for the costs of process energy to be reduced by replacing natural gas and coal-bed methane with nuclear generated electrical power.

Every barrel of synthetic crude produced using SAGD bitumen extraction techniques requires 15% process energy. We have to make steam, and lots of it. Every GJ of gas used in bitumen production is one less we can supply to the market. For every million barrels of SAGD bitumen production 1,128,767 GJ of gas are required. This in turn produces 67,630 tonnes of CO_2.

To a large extent, the profitability of SAGD extraction is contingent upon increases in gas prices being matched by corresponding increases in oil prices. Though there is to exact correspondence, this phenomenon is very much at play recently. There is a risk that demand for gas will outstrip demand for oil, thus eating away the margins of SAGD extraction, or necessitating another fuel source. Gas has tremendous value, not only as an expanding fuel source, but also as an industrial feedstock and a primary component in fertilizer production. It could well be that gas is simply too valuable to be used as the fuel source for SAGD, to the extent that there is an alternative.

Figure 4



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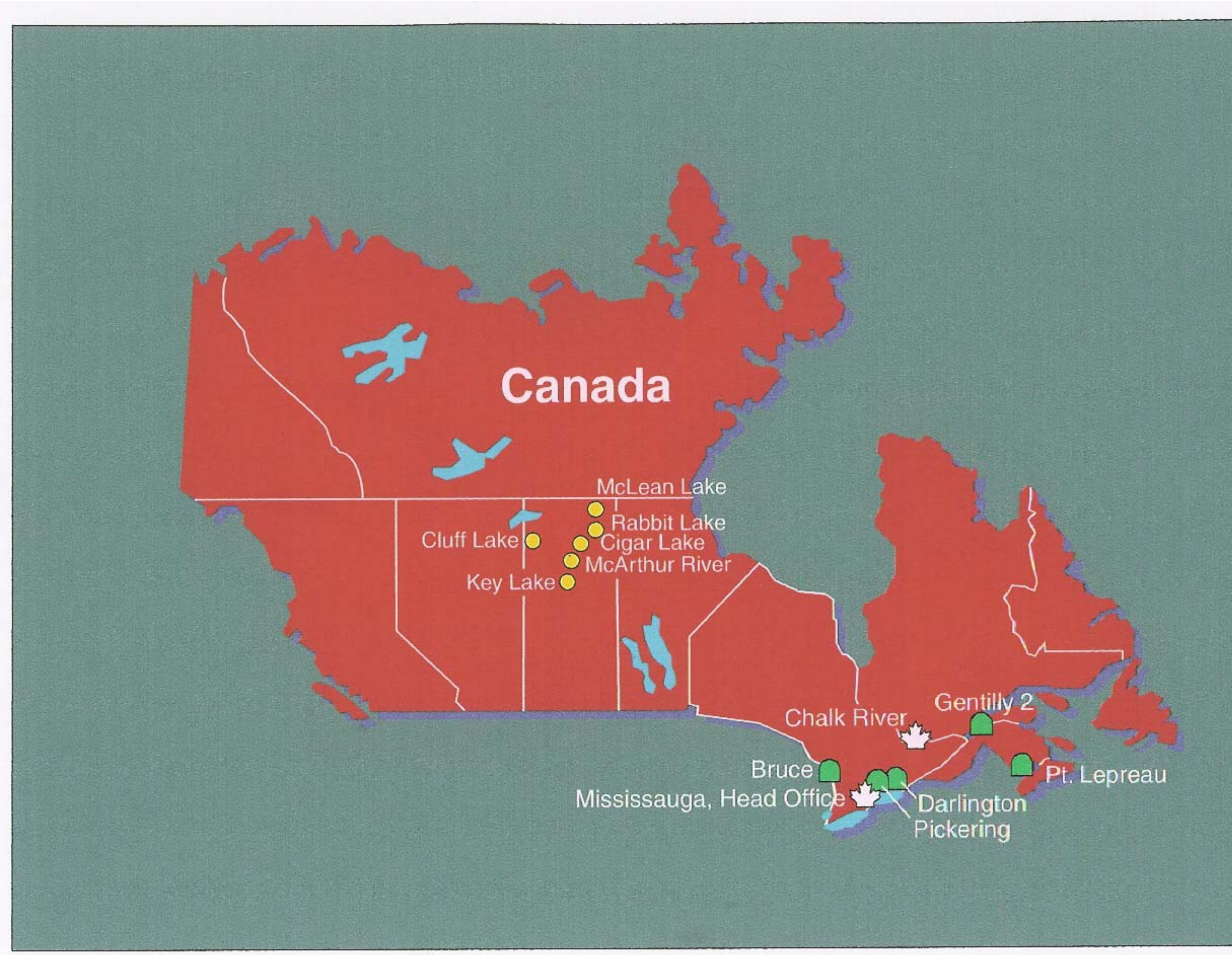
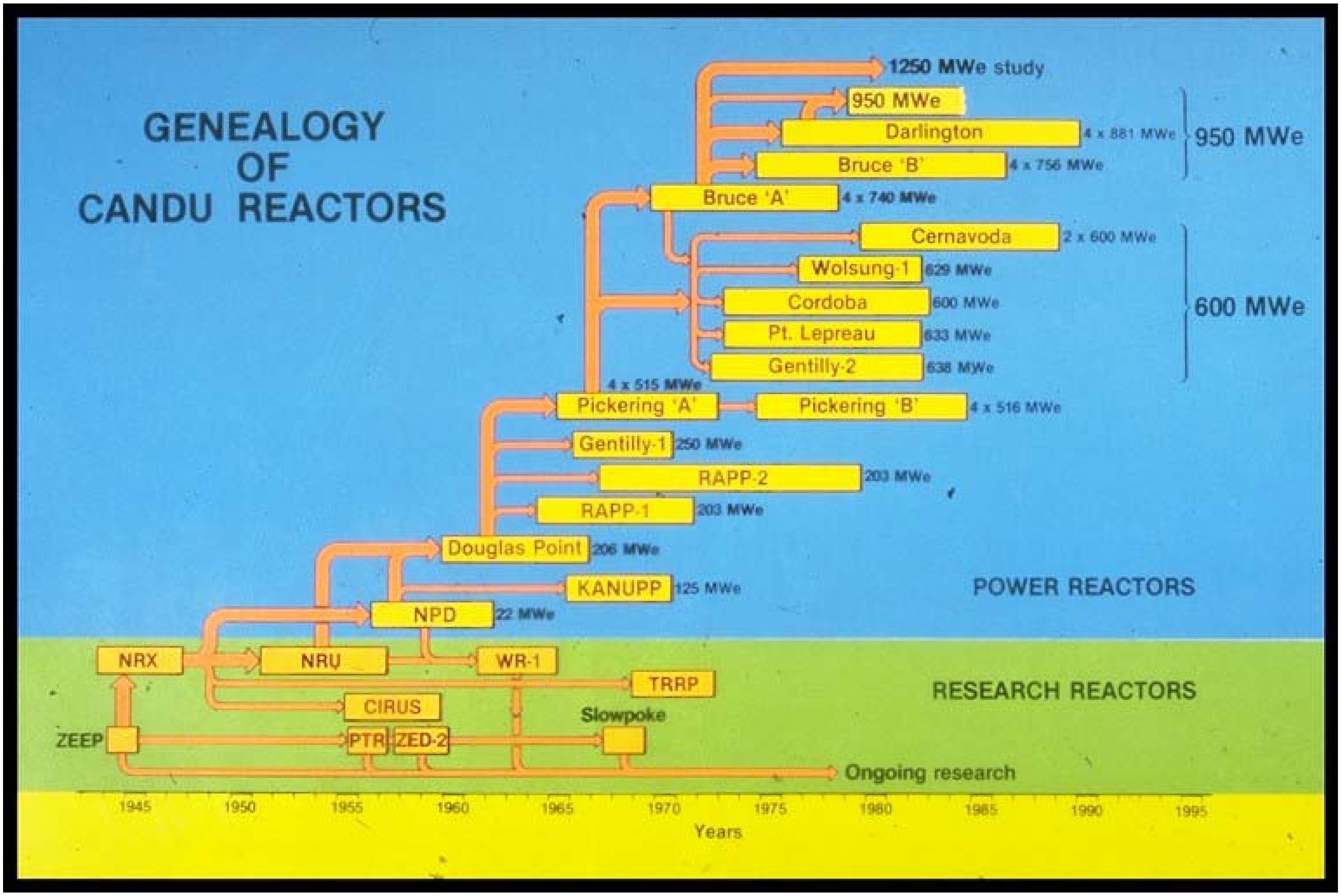
The Canadian Nuclear Industry



http://canteach.candu.org

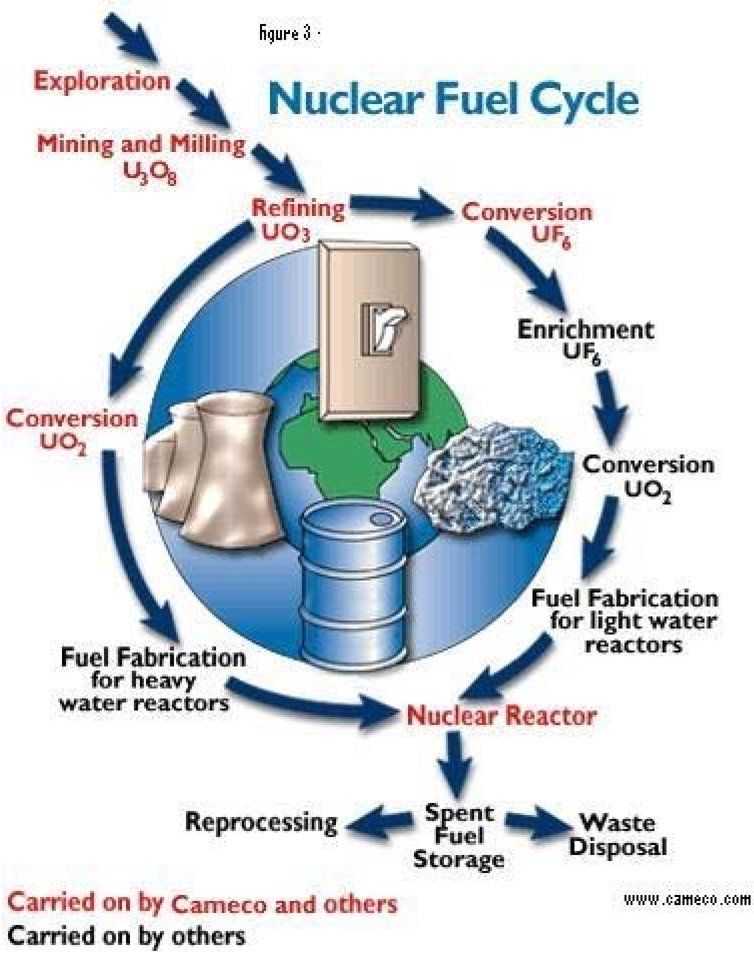
As you can see from this graphic there is a large uranium mining industry in Northern Saskatchewan, which supplies fuel to a large power industry in the east. This Canadian nuclear industry is divided into design, uranium production, and power production camps, with Saskatchewan supplying uranium oxide to the east and the rest of the world, through the mining operations of AREVA-Cogema and Cameco Corp. This uranium fuels CANDU plants operated by crown corporations in Ontario, Quebec and New Brunswick which are or have been net exporters of electrical power to the US. Saskatchewan in the world's largest uranium exporter, and they presently supply 1/3 of the world market.



http://canteach.candu.org

In terms of design, Canada is a world leader through the 53 year old crown corporation AECL. The development of their CANDU reactor ranks as one of the greatest Canadian engineering achievements of all time. The AECL and CANDU technology have an impeccable safety and reliability record, based on decades of operational validation and more than a half century of research. This technology and these reactors have been exported to Pakistan, Argentina, Romania, South Korea, India and China.

All of the CANDU's built this decade have been built in Asia. There are presently 440 nuclear power reactors in operation around the world, of which 32 are CANDU's. The distinct feature of the CANDU is heavy water moderation, which gives the reactor the advantage of using naturally occurring uranium fuel, with little or no enrichment. Additionally, advanced CANDU Reactors (ACR) utilize on-power refueling, eliminating scheduled shut-downs and productivity interruptions.



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In 1973 Canada laid claim to the world's largest nuclear power complex, when the last reactor of the first four units at Pickering Ontario went active. Pickering A & B now comprise 8 x 515 MW reactors or more than 4 GW of power. At the Bruce plant, there are an additional 8 reactors producing approximately 6 GW total, and at Darlington there are another 4 reactors producing a total of 3.5 GW. In addition to billions of dollars in productivity, Ontario's nuclear power industry went on to demonstrate the safety and reliability of the CANDU, as well as to establish the AECL as a world leader. These CANDU plants have generated in excess of 2 billion MW.hours of electricity since their construction. Given the increase in continental energy demands, now is the time to build on this valuable Canadian expertise after decades of exporting it. Now is the time to address the energy market of Alberta with Saskatchewan generated nuclear power.

Magellan Geographix – www.maps.com

The Proposed Project

The proposed project is the construction of a multi-gigawatt CANDU nuclear generating station near Cree Lake, Saskatchewan, west of Key Lake, Saskatchewan and 275 km east of Ft. McMurray, Alberta. This remote location is on the eastern edge of the Athabaska basin 550 km north of Saskatoon, Saskatchewan and 850 km north of the Montana border. The project should be scaleable, commencing with the Phase 1 construction of two 1-GW ACR-CANDU 9 series reactor complexes (4-units), with suitable turbine capacity and 700kV – DC transmission lines to Fort McMurray, Alberta. The transmission right of way would run south of Clearwater Provincial Park. Scaleable, in this context implies that further reactors and generating capacity should be added over time as revenues will accommodate, the demand will justify, and transmission infrastructure will allow.

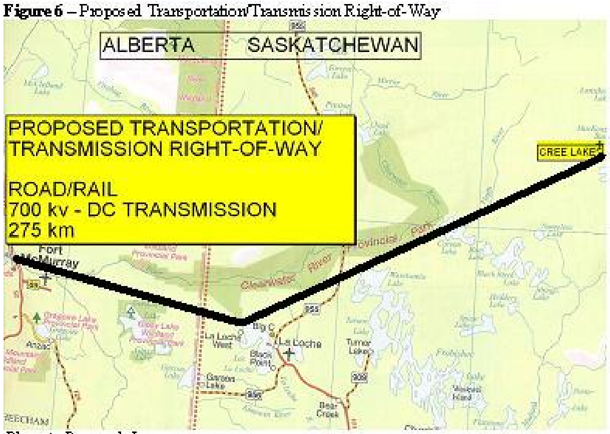
Why Cree Lake? Why 275 km from Ft. McMurray as opposed to something closer? One very important consideration in the development of a nuclear reactor is the question of what to do with the spent fuel. Indeed, this is a major concern for nuclear generators everywhere. The real cost of nuclear power includes not only uranium and enrichment costs in addition to capital, but the cost of disposing of spent fuel as well. In the case of this proposed project, the answer is deep and permanent geologic disposal on-site. This will provide great safety and environmental benefits, in addition to excellent economy.

AECL has long studied the deep geological disposal of spent fuel, and established its effectiveness at their Waste Technology Business Unit (WTBU) research facility located near Pinawa, Manitoba. The geologic conditions near the proposed plant site are known to be among the safest anywhere for deep and permanent disposal. Given the environmental concerns, spatial concerns, and security concerns related to spent nuclear fuel storage and disposal, there is great economy in a safe and permanent solution. High and low grade nuclear waste could be permanently disposed of near the same place they were originally mined as uranium ore, and this could be accomplished using existing research and design. With the technical expertise of AECL, the world's safest disposal repository could be developed. The environmental risks related to the transport and storage of high-level nuclear waste would also be minimized.

Geologically speaking, Cree Lake is extremely stable. Located on the Athabaskan Group of Precambrian rock, the sub-Athabaska basement comprises very stable achaean gneissic granitoid rock. This would be the least likely reactor complex anywhere to be damaged by an earthquake, or affected by volcanism, or any natural weather phenomena. Additionally, the plant site would be surrounded by the world's largest reserves of high-grade uranium oxide. 70-km to the southeast is the Key Lake Mine, site of the largest high-grade uranium milling facility in the world, operated by Cameco. 80-km east is the Macarthur River mine, the world's largest, high-grade uranium deposit. 95-km to the North West is the Cigar Lake deposit, the world's largest undeveloped high-grade uranium deposit.

Cree Lake is the only place where, within a fixed geographic area the size of Lake Athabaska, a facility could be developed that would integrate the functions of uranium mining, milling, fuel fabrication, nuclear power production and transmission as well as safe and permanent disposal of spent fuel. At this location there is an virtually unlimited potential, given the transmission capacity to deliver the power.

Figure 6 – Proposed Transportation/Transmission Right-of-Way



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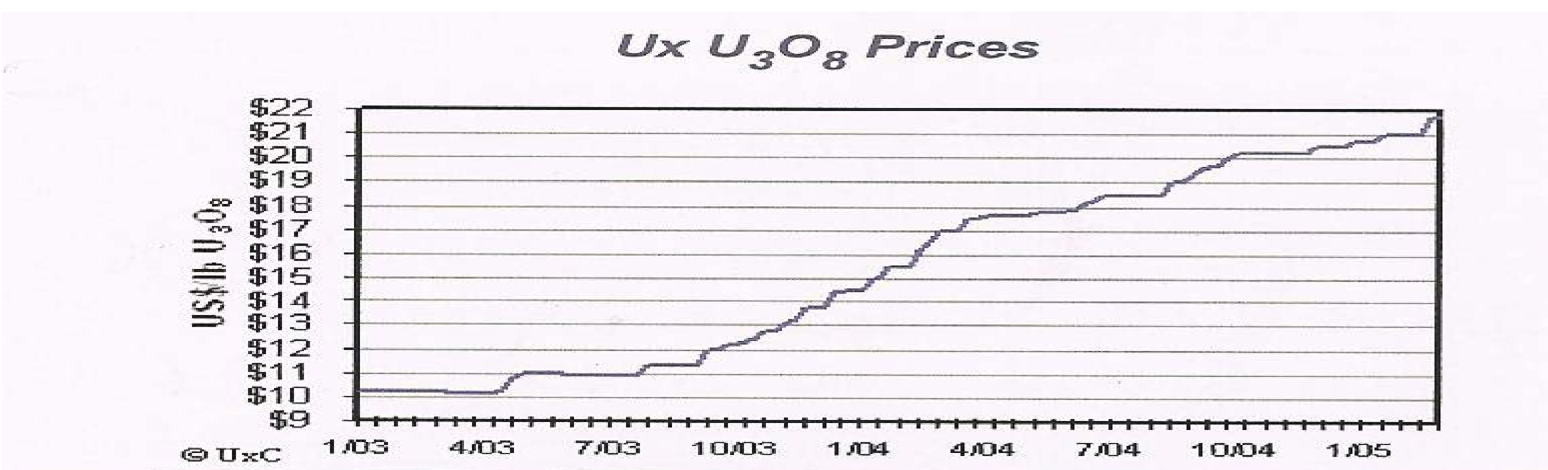
It was said earlier in this presentation that the profitability of SAGD extraction is contingent upon increases in gas prices being matched by corresponding increases in oil prices. To a lesser degree this applies to uranium prices as well. There appears to have been a more linear climb in these prices as you can see, however, this steady incline is more likely resultant of constricted supply coupled with little or no increase in demand. The pressure from oil prices has been good for the uranium business. You can see that uranium prices have doubled over the last two years, and in fact they have quadrupled over the last four years. This doesn't have a linear impact upon nuclear power prices though, owing to the fact that there is a lot more energy in a unit of uranium oxide than there is in a unit of gas. Additionally, advanced reactors have improved efficiency by greater depletion of the fuel in the reaction. Indeed, there are reactors today that could run efficiently on the spent fuel from earlier reactors.



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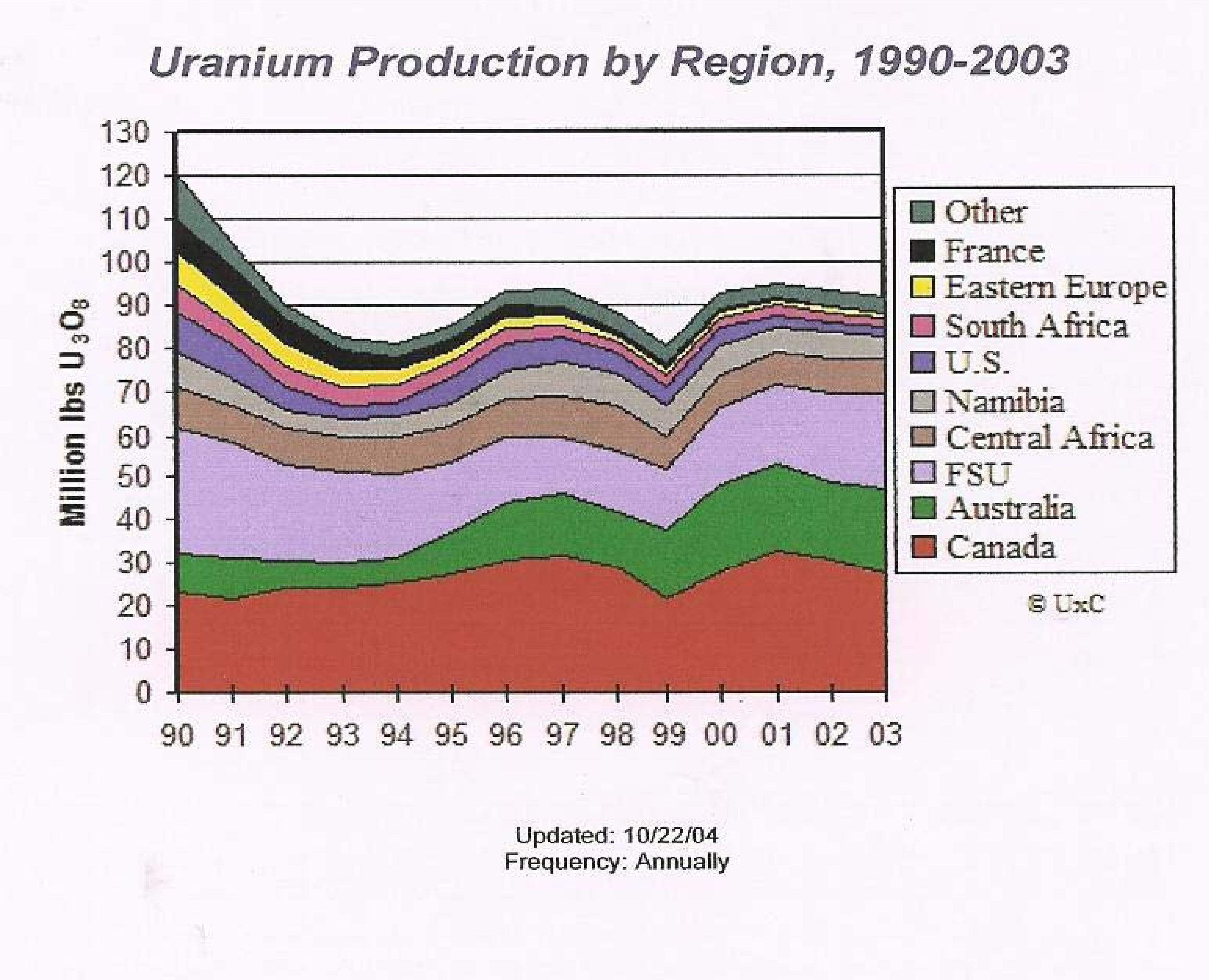
Worldwide uranium production over the last 15 years has fallen some 20%, though Canadian production had remained consistent. Why is this the case? Obviously global energy demands have not diminished, so what is going on? Half of the world's nuclear fuel is presently produced from decommissioned weapons, but this supply won't last. Canada already has a large nuclear power industry that relies on Saskatchewan uranium, but even older reactors can be made more efficient. In other words, greater depletion of the fuel means less fuel is required. Scheduled shut-downs of power reactors for refurbishment, including Canadian reactors, also affect the need for uranium production.

Though nuclear reactors supply less than 8% of the North American energy market, that share of the electrical power market has risen from 11% to 20% over the last 25-years. This is important considering that no new nuclear plants have been licensed or built in Canada or the US since the Three Mile Island accident 25 years ago. The added production is the result of plant efficiencies, and operation near capacity of existing plants. Worldwide, nuclear power supplies 17% of the total energy market. When you consider that Saskatchewan already supplies some 33% of all the uranium oxide produced in the world, that would also indicate that Saskatchewan supplies 33% of 17% of the world's energy, or almost 6% of the world's total energy output. When you compare that with Alberta's oil production of approximately 1-million barrels/day, or 1% of world production, you can see that Saskatchewan already exports a lot more energy than Alberta. The difference is in the revenue generated and the economic return.



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Notwithstanding the contribution of CERI and others, there has been little in the way of proposals for new nuclear power projects. The approach taken in this presentation is to propose that such development should proceed, on a colossal scale, on a timely basis, including where it should proceed and why. The scientific research and experimental development has already been done, and the market is already in place.

The new millennium has brought with it a new realm of security concerns. This is especially true with regard to the nuclear power industry, for it has become a serious concern that a reactor site would become a terrorist target. The events of September 11, 2001 introduced the plausibility that nuclear facilities could be attacked in a similar way. The public perception of safety risks associated with nuclear reactors are the major reason that more reactors are not presently being developed to meet our escalating power demands. It is also the reason why no nuclear generating stations have been built anywhere in North America since 1979.

Security initiatives surrounding existing North American reactor sites have made them less vulnerable, but no amount of vigilance can guarantee that terrorists won't attempt to attack a reactor site. It is extremely improbable that the most remote reactor site in the world would be considered a practical terrorist target, given the logistical challenges to access and the absence of a target population. In addition to the fact that the CANDU is the world's safest nuclear reactor, the Cree Lake project would be the world's most secure reactor site.

Of course there are other reasons why Cree Lake is the ideal location for such a project. There is a strong potential for vertical integration within the industry. Cameco is a world powerhouse in uranium production, and could be a valuable partner in a development of this scale. The oilsands players are flush with cash in the face of US$60 oil. The AECL has the design and engineering expertise, along with the experience to expedite the project. The process energy market is already in place. The labour force developing at Ft. McMurray would be a valuable asset to this project, as opposed to any attempt to develop the necessary workforce starting from nothing.

From a public safety perspective there is no question that a remote plant location is preferable, as is the case in this proposed development. As a remote and isolated location, Cree Lake would be a preferred place to develop what would ideally become the world's largest nuclear power complex. With a regional population of less than 400 persons within a 200 km radius, many of them employees of the various uranium mining operations, this regional population density is among the lowest found anywhere in the world. No other nuclear plant would have such an extensive natural buffer, and accordingly no other nuclear reactor complex anywhere would be as safe.

All of the CANDU's in Canada are adjacent to a large body of water, most of them on Lake Huron. This provides for excellent safety, and has never resulted in any form of radiation contamination throughout the long operational history of these plants. Cree Lake is also a suitable body of water for this purpose. It is possible to situate a nuclear plant without a large body of water adjacent, but that is something we have yet to do in Canada, as it has always been unnecessary..

Economics (Canadian Dollars)

The tax policies of the Government of Alberta with respect to capital investment in oil sands mega projects were and continue to be a primary motivator for investment. The legacy of these policies are 100's of thousands of high-paying jobs, burgeoning record surpluses, and a rapidly growing provincial population. One would hope, under these circumstances, and based upon this empirical experience, that all provincial governments would see the benefits of such a tax regime. This may or may not be the case. Indeed, if CAMECO got the same tax treatment in developing uranium production/processing as the oilsands players are getting in the capitalization of their projects, it is more likely that they would not be using their capital developing deposits in the former Soviet Union (FSU) as opposed to developing production at the world's largest high-grade deposit in Saskatchewan.

At a recent lecture by Gerald Grandy, the CEO of CAMECO Corp held in Regina, he mentioned corporate tax rates as a barrier to expanded production. Unlike Alberta, which, for the previously mentioned reason, has one of the lowest effective corporate tax rates in North America, Saskatchewan features one of the highest. The Government of Saskatchewan must learn from the Alberta experience if a project of this nature is to proceed. The capital markets have a low pain-threshold for governments wanting to load-up the capital requirements of a mega project, particularly the Saskatchewan government because of its ill-conceived nationalization of the potash industry in the 1970's. Though the potash industry was later re-privatized, the damage was done as far as the markets were concerned.

This project would have the prospect of producing the first MW of power in 2015 and would cost more than $5-billion to capitalize in 2005 dollars. The enormity of the capital requirements have long relegated this idea to obscurity, despite the work that has been done. The politics of Saskatchewan and the tax regime have not generally been considered conducive to privately financed mega-projects, and there consequently hasn't been any. A project of this nature needs public support, and if it has that then it will proceed and there will be a lot of pressure put upon the Saskatchewan government to bring their tax policies into line with Alberta. Given the tens of thousands of jobs involved, as well as royalties and spin-offs, and considering the Alberta experience it should not matter which political party governs in Saskatchewan as far as regulatory support is concerned.

Nuclear power stations and long-distance transmission are expensive proposals with large, up front capital costs. A project of this size (about as large as the Pickering complex in its proposed initial capacity) is a mega project in every respect. For analysis purposes this presentation has used the NYMX spot gas price on April 11, 2005 as well as the U_x spot uranium price for the same day.

In the 2002 CERI analysis there was a rough equivalence in the steam generation cost for SAGD using gas in the first instance, and a nuclear facility in the alternative. At the time of that analysis, the spot price used for gas was $4.25/GJ and the price of uranium was $30.80/kg, in Canadian funds.

Updating this analysis using the 2002 CERI estimates, it is necessary to adjust for changes in gas and uranium prices, as well as adding 20% for inflation through 2005. A conversion factor of US$1 = CAN$0.80 was used.

Per 1000 MW_e produced, using a gas price of $8.73 GJ and a U_3O_8 price of $62.25 CAN/kg.

Method of Generation	Capital $ Millions - CAN$	Operating $ Millions - CAN$ Annual	Fuel $ Millions - CAN Annual	Bitumens (Million-Barrels) Annual
Gas	380	14	718	73
Nuclear	2298	50	200	73

Of course this analysis is incomplete with regard to transmission. Whereas the gas fired generation method reflects the cost at the point of steam generation, the electrical power must be transmitted through high voltage lines over the 275 km distance. This in turn would involve at least one substation, as well as I^2R losses. For purposes of this analysis, we have budgeted $1 million/km, or $275 million for this transmission infrastructure using high-voltage DC transmission. The design life of the plant in both alternatives is set to 40 years. Using an interest or ROI rate of 6% compounded annually, the total annual cost for comparative purposes was estimated.

A = P(A/P, i%,n) for the capital recovery factor: $i(1+i)^n/(1+i)^n - 1$

For the gas project (per GW_e) net of royalty and taxes:

P = \$380 Million i = 6% n=40 years

A=\$380,000,000(0.0665) = \$25.3 Million per year + operating costs + fuel

Total Annual Cost = \$25.3 Million + \$14 Million +\$718 Million = **\$760 Million (\$24.10 MW.h)**

For the nuclear Project (per GW_e) net of royalty and taxes:

P = \$2298 Million + \$275 Million = \$2573 Million i=6% n=40 Years

A=\$2,573,000,000 (0.0665) = \$171 Million per year + operating costs + fuel

Total Annual Cost = \$171 Million + \$50 Million + \$200 Million = **\$421 Million (\$13.35 MW.h)**

Obviously, gas fired generation is more sensitive to gas prices and nuclear generation is more sensitive to the interest rate. The gas fired system is not competitive using a spot price of \$8.73/ GJ, and this analysis does not factor in any Kyoto compliance costs for the thousands of tonnes of CO_2 that would be produced daily. Some would consider the spot prices or the interest/ROI rate utilized as impractical, it is difficult to know what these will be, and certainly beyond the scope of this presentation. This analysis also does not consider the capital costs of re-fitting existing steam generators from gas fired to electrical, to the extent that retrofit would be necessary. There is also no consideration for the value of carbon credits that nuclear generated electrical power would earn.

Safety

Given the great potential for nuclear power development, it is difficult to accept the fact that there has been no nuclear power plants built in North America since 1979. Anti-nuclear activism is an easy sell, and the incident at Chernobyl didn't help the industry either. Quietly though, and without incident, we continue to generate many GW of nuclear power from the Great Lakes complexes at Pickering, Bruce and Darlington safely and economically, right in the heart of the most densely populated region of the nation.

The CANDU has never had a radiation breach in its history anywhere, and this is not luck at play. It is the superior design of the reactor, the highly advanced if not redundant safety systems and containment structures, and the tried and tested vigilance of the AECL that all factor in to the public safety equation. The level of public acceptance regarding nuclear power is growing.

There have been enormous strides made in the control and operation of these reactors with the advent of information technology, and indeed it is now possible to employ redundant safety systems that diminish the potential for human error to the point of elimination. Human error is referred to specifically because it was the primary reason for both of the infamous accidents at 3-Mile Island and Chernobyl. Add to these advances the inherent benefit of locating the reactor in a remote and unpopulated area and what you end up with in the safest reactor complex anywhere. No other complex anywhere in the world has the luxury of a 200 km population buffer. It is something that is uniquely Canadian, and it goes a long way with the public it terms of the perception of safety, in addition to the actual benefit. The best nuclear power stations are those that are invisible to the public.

The public can be assured that the AECL can build the safest and most secure nuclear complex that has ever been built anywhere. They can build the most environmentally efficient power complex that has ever been built anywhere. They have studied deep geologic disposal at their Pinawa, Manitoba research site for decades and they have established the method and the means to permanently entrain spent fissile fuel for many thousands of years. Tens of thousands of years beyond the radioactive life of the materials involved. Ideally we would have on power refueling followed by highly automated deep and permanent disposal of spent fuel within an integrated containment system. Indeed, most of the world's nuclear power plants have no solution to the permanent disposal of spent fuel and they are compelled to utilize temporary solutions to storage. The Cree Lake proposal would have the benefit of safe and permanent disposal. Pursuant to this, an integrated facility such as this one has great potential for complete automation of refueling and disposal, providing a 21st century approach to worker safety.

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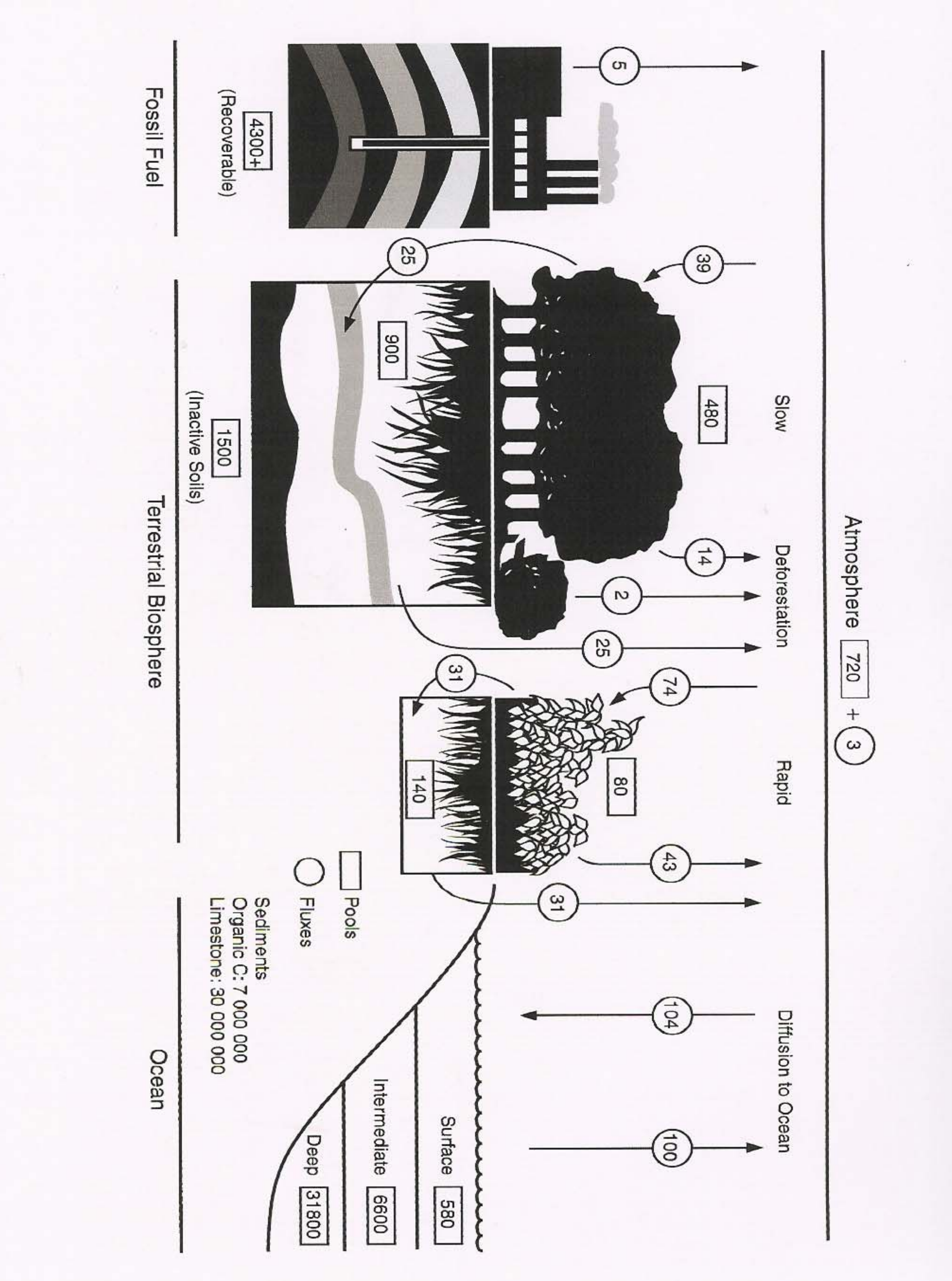

FIGURE 2 GLOBAL CARBON CYCLE POOLS AND FLUXES BILLIONS OF TONS AND BILLIONS OF TONS / YEAR

Environmental Considerations

The benefits of this proposal in terms of CO_2 reduction have previously been mentioned. As is universally the case, any power installation has its environmental footprint. It is now the case that there are significant uranium mining operations in this geographic area, some of it open pit. Though the techniques for environmental efficiency have improved dramatically over decades of exploitation, open pit uranium mining will always alter the natural landscape, much the same as surface mining in the oilsands.

The uranium mining is an existing industry, and its impact on the regional environment is well understood. It is an unfortunate truth that in the early days of the industry there was little attention paid to minimizing the environmental impact, and the area around Uranium City further north is indeed one of Canada's most contaminated sites. One should not judge this proposal according to what went on there 40-years ago. Like most mining operations in this country, the uranium industry has cleaned up its act.

What would ideally become the world's largest nuclear complex at Cree Lake would be the most environmentally efficient large power plant ever built. Not only would it eliminate millions of tons of CO_2 production, but permanent deep geologic disposal of spent fuel within the area's stable granite eliminates the only inefficiency of nuclear power generation. Low level wastes would be returned underground into existing mines for permanent disposal. This would be a closed loop, zero effluent, zero emission operation.

It is clear that we must judge the environmental impact of a project in the macroscopic sense. The Kyoto Accord mandates reductions in CO_2 at a time when global population grows exponentially. Given extensive CO_2 emissions from fertilizer production, in addition to the half-tonne or so exhaled by 6-billion people annually, this does not leave much room for expansion of conventional fossil fuel fired power generation. There is no master plan to deal with an energy demand that could increase 40% in the next twenty years. The probability that the Kyoto Accord will ever achieve its desired impact (*6% below 1990 levels)* is negligible in any time frame, let alone by 2012.

The environmental audit of the power generation industry reveals the trade-off between very small and concentrated amounts of spent fissile material, in the case of nuclear power, as opposed to very large and widely dispersed amounts of greenhouse gas, or other more noxious emissions. It is difficult to visualize the difference in the volume of waste between nuclear power and fossil fuel power. Every bit of spent nuclear fuel we have ever produced in this country would not fill a large swimming pool, but the CO_2 we have produced would cover the Maritimes in dried ice. If you accept the premise that nuclear power is safe the way it is done in Canada, there is no question that there is a much smaller environmental footprint.

Public support is changing on the subject of nuclear power plants. There have been no new plants built since the infamous 3-mile Island incident in 1979, though the plants that were built beforehand now supply more 20% of North America's electricity. There are several new license applications pending in the US with government support. Some environmentalists have come around to support the development of nuclear power plants, as opposed to burning coal which accounts for nearly 50% of continental electric power production. The public demands safety and the Canadian technology has an impeccable safety record, with a half-century of accident free operation. We have been building these plants throughout Asia in ever increasing capacity but we have not been building them at home. The public wants to improve air quality and reduce greenhouse gases and the nuclear option is the only large capacity option of net environmental benefit.

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