

THE SASK PARTY GOVERNMENT'S URANIUM DEVELOPMENT PARTNERSHIP REPORT:

Flawed Assumptions, More Deregulation and Subsidies, Shoddy Demand "Guestimates", and a Rehash of Old Nuclear Fantasies...with the Wastes Thrown In

By Jim Harding, Ph.D.

The Uranium Development Partnership (UDP) was appointed by the Sask Party government to study adding economic value to the uranium industry. Its March 31, 2009 report has no surprises.¹ It's a nuclear business plan. Rather than approaching energy as the main challenge in converting to a sustainable society and undertaking a comparative analysis of energy options, the UDP treats the non-renewable uranium sector as a means to spur on nuclear growth, while encouraging yet more government deregulation and expenditures on infrastructure and R and D to facilitate this. Both the traditional political right and left in Saskatchewan would likely agree that such private profit at public expense is inexcusable.

LITANY OF FLAWED ASSUMPTIONS

The assumptions justifying the UDP's mandate and report are seriously flawed.

*The report reiterates the industry-created cliché that "*the nuclear industry is enjoying a global renaissance*". It states that "*nuclear power is emerging as an attractive potential part of the overall energy supply mix in many parts of the world.*" Not so! Nuclear was once 18% of global electrical supply. The recent "**2008 World Nuclear Industry Status Report**" shows that it has slipped from 16% to 14% of global electrical supply since 2005,² while renewables have already surpassed nuclear capacity and are on track to double to 35% by 2030.³ Furthermore, even if all the proposed new nuclear plants come on-stream, the decommissioning of existing plants will result in a steady and very costly nuclear phase-out.⁴

* The UDP says "*nuclear power generates very low carbon emissions, on par with the cleanest form of renewable energy.*" Not so! The nuclear fuel system as a whole is a huge user of fossil fuels, from hard-rock mining to plant construction⁵ to decommissioning and wastes. Taking ten years to build a plant and another six to nine years of operation to make up for its energy deficit, nuclear power is now widely dismissed as a practical or cost-effective means to address imminent global warming.⁶ The International Energy Agency projects, in today's policy climate,

where nuclear power isn't a cost-effective or realistic means to address climate change, that it may drop to 10% of global electrical supply by 2030.⁷

* The UDP says "*nuclear energy has proven to be cost-competitive*". Not so! Independent research concludes that when capital and other cost estimates (interest, fuel, operations, decommissioning, fuel storage) are included nuclear power is as much as two to three times the cost of its competitors.⁸ The huge capital costs of nuclear power compared to the renewables (which the UDP admits later in its report) end up creating huge public debt, which must also be factored in.⁹ So, too, must all the hidden and direct subsidies, including for insurance liability. In the emerging "ecological economics" required to move to a sustainable society, full-costing will also include the degradation of eco-systems and environmental health from the whole nuclear fuel system.

* The UDP says "*the supply of uranium...is abundant and secure*". Not so! The UN's International Atomic Energy Agency (IAEA) says there are about 80 years of economically-recoverable uranium, and the UDP report admits Saskatchewan uranium supplies will run out in 45 years.

* The report says "*the industry has made significant strides in improving the reliability and safety of nuclear power*". Not really! In Ontario, the most nuclear-dependent region in North America, aging and more accident-prone reactors requiring premature and costly refurbishing are regularly out of service, requiring expensive back-up from other sources.¹⁰ Furthermore, no generation III nuclear plants of the type proposed for here operate or have been tested anywhere. A precursor of the AECL's ARC-1000 (ARC-700) has already been withdrawn from U.S. licensing after the Nuclear Regulatory Commission (NRC) predicted design/safety issues. (That during a loss-of-coolant-accident, or LOCA, power would surge rather than decrease.) A similar problem led to the scrapping of AECL's Maple reactors at Chalk River, on which the federal government squandered another \$300 million.¹¹ Do we want to be a nuclear safety as well as economic guinea pig?

* Finally, though admitting the emerging renewable technologies "*such as wind, solar, geothermal and biomass...present new opportunities*", the UDP simply dismisses these by saying they "*present technical and economic challenges.*" Not really! These challenges are dwarfed by those of nuclear power, which, after more than half a century, still has no way to address its long-lived radioactive wastes, and continues on with its legacy of massive cost-overruns.¹²

But this report was never intended as a balanced report on energy options. Its members, including representatives from Areva, Bruce Power, and its owners, Cameco and Trans-Canada, foretell its conclusions. The UDP's four-staged approach is totally business-oriented: step 1 involved identifying "*commercial opportunities of each step of the (nuclear) chain*"; step 2

“evaluating the business case for each opportunity”, step 3 assessing the “potential benefits to Saskatchewan from each opportunity”; and step 4 creating “a strategy for pursuing these opportunities.” The UDP business model doesn’t allow full-cost comparisons with renewable energy; including the implications of nuclear energy for watersheds during global warming, for environmental and human health, peace and security or for future generations.¹³

The rationale for this narrow nuclear promotion is that, though Saskatchewan is the “world’s largest producer of uranium” it plays “virtually no role” in the rest of the nuclear fuel system. We are told that we should add economic value to uranium because it is here. **This seems convincing until you realize that the renewable are also all here.** The sun shines, the wind blows, the rivers flow and the forests grow – and yet the Sask Party and its nuclear backers ignore the potential of wind, small hydro, biomass and soon, the solar revolution. We are in Canada’s highest inland wind potential area and yet Saskatchewan has less than 200 MW capacity (one-fifth of what is underway in Alberta) on its 3,500 MW grid. And the Sask Party government’s spending decisions continue to ignore the potential of renewables. Is Sask Power’s 2009 budget, which totally ignores the potential of renewables, pursuing a self-fulfilling prophecy? Is it trying to ensure future room for private, profitable nuclear power on the public grid at public expense? This remains unacceptable..

1. URANIUM CONVERSION NOT PROFITABLE...STILL

The UDP makes commercial recommendations for the whole nuclear fuel system: about mining and milling, conversion (refining), enriching, nuclear power, nuclear waste and nuclear R and D. It out-rightly recommends Saskatchewan “*Not proactively pursue the development of a conversion facility given current market conditions*” (R # 10). This is ironic after the hype from both the previous Calvert NDP and present Wall Sask Party governments about the great economic potential for Saskatchewan from building a uranium refinery.¹⁴ It is doubly ironic in view of the use of polling showing strong support for a uranium refinery as the basis for expanding the nuclear industry in the province.¹⁵ But it seems Cameco’s monopoly on uranium conversion inherited from the federal government at its Port Hope plant is sufficient for the market. (The same thing is concluded about fuel fabrication, which Cameco also does at Port Hope. See R #11). And there’s, expectedly, no mention of the radioactive contamination of Port Hope or Lake Ontario, or how the environmental health costs are being externalized onto the public purse.¹⁶

2. SURPRISE...MORE DEREGULATION FOR THE URANIUM INDUSTRY

The premise of the UDP was that the uranium industry in Saskatchewan is a “healthy” (sic) industry to build upon. Yet, when uranium mining is discussed, the UDP says “*uranium mining is threatened by emerging players*”, particularly Kazakhstan and Australia. (It says this even though

UDP-member, Cameco, the largest uranium corporation on the planet, is active in both countries.) The UDP then recommends several government policy changes to help the uranium industry along.

The UDP says “*when the price of uranium is high the tiered royalty structure creates a higher burden for mining operations based in Saskatchewan...*”, and continues, “*This tiered royalty structure risks impeding the competitiveness of newer mines...*” (It highlights mining of lower quality deposits with higher operating costs.) Seemingly in total control of the UDP, the nuclear industry recommends everything that’s in its interest: to fast track environmental assessment,¹⁷ to have government further invest in mining infrastructure in the North and to work to lift “*restrictions on foreign ownership*”. To justify this deregulation and further subsidization the UDP emphasizes the \$4.2 billion that the uranium industry has contributed to the provincial GDP over 15 years. But there is no analysis of the breakdown of this wealth, most of which leaves the province. Nor is there any analysis showing that even though the value of uranium sales has increased sharply since the 1990s, the value of royalties has remained fairly flat.¹⁸ And there is no consideration of the costs of proposed additional subsidization, in comparison to strengthening the renewable energy sector which does not require capital-intensive or toxic mining.¹⁹

3. MOVING INTO URANIUM ENRICHMENT ...AGAIN

The UDP concludes there will be “*the need for additional (enrichment) capacity by 2020*” and Saskatchewan could “*enter the enrichment sector*”.²⁰ It recommends that the Sask Party government work with the federal government “*to clarify the framework under which an enrichment facility could be established in the Province...*” (R # 8). But this commercial prospect is highly hypothetical, with the UDP saying Saskatchewan might get into the “*enrichment sector by partnering with a developer of the emerging laser enrichment technology*”, with the qualifier, “*should the technology prove successful.*”

This recommendation “dusts off” one made by an AECL report commissioned in 1991, when Grant Devine’s Conservative government was trying hard to launch a nuclear power (the Candu-3) industry in the province. The industry’s hope back then was that environmental protest in the U.S. would make it possible for Saskatchewan to become “*the site of a second North America centrifuge plant*”.²¹ By 1996, it speculated, a \$50 to \$80 million enrichment plant could generate \$25 million in revenue and employ “approximately 80 people”. (At \$600,000 capital per job this would be a very costly and dangerous way to create jobs, especially compared to renewable energy.) And, if the centrifuge commercial strategy failed, the industry promoted the use of laser enrichment technology, which it, however, admitted “is not a proven process.” Eighteen years later the industry is playing the same card, with laser isotope separation (LIS)

enrichment technology still not proven “successful.” R # 8 highlights that, negotiations with the federal government need to include “*international non-proliferation agreements and obligations*”, and it’s noteworthy that one of the major impediments to this technology is that it makes it even easier to produce weapons grade material.²²

Cameco has already invested in this technology. In 2008 its U.S. subsidiary Cameco Enrichment Holdings became a 24% owner of Global Laser Enrichment (GLE), owned by GE (51%) and Hitachi (25%). Cameco’s press release says “...*the investment further expands and integrates Cameco’s interests in the nuclear fuel cycle...*”²³ It says there are plans to start production by 2012, but with shrinking prospects of a “nuclear renaissance” in the U.S., the nuclear companies controlling the UDP may be hoping they can entice Cameco’s partners to Saskatchewan.

Regardless, it appears that proliferation isn’t of any fundamental importance to the business-fixated UDP.²⁴ Such recycling of failed past attempts to expand the nuclear industry shows persistence. It also shows the industry’s ability to nurture a new generation of impressionable politicians to assist promoting its static agenda.

4. IT’S BACK TO THE FUTURE...PLAGIARIZING THE AECL

The UDP’s overall recommendations in 2009 are identical to the AECL’s 1991 report, which said “*From a strong uranium mining base, there is excellent potential for developing other areas of the nuclear fuel cycle in Saskatchewan, particularly enrichment, electrical generation and used fuel disposal.*”²⁵ This initially secret 1991 report had Saskatchewan moving into uranium enrichment by 1997. It, too, saw “*little potential*” for going into uranium conversion (refining). And it advocated the same general “*public acceptance*” strategy that is being reused today by the nuclear industry and its Sask Party backers, e.g. the 1991 reports says, “*Uranium mining has put Saskatchewan in the nuclear industry and has established a basis of public acceptance to expand into enrichment and nuclear power generation.*” Sounds very familiar, doesn’t it? The UDP is the nuclear industry’s version of “back to the future”, which raises the question of why the Sask Party government needed to give the UDP \$3,000,000 of taxpayer’s money to rehash old nuclear expansion ideas. And why the Sask Party government wouldn’t put resources into exploring other energy options, with the global trend, including across the border, moving towards the renewable energy economy.²⁶ Recently the North American Electric Reliability Corporation projected there would be 146,000 MW of new wind compared to only 9,000 MW of new nuclear. With the UDP, Saskatchewan will indeed be left “out in the cold”.

5. NUCLEAR POWER FOR EXPORT...AT PUBLIC EXPENSE

The UDP says “*Saskatchewan will require 1,200 to 1,750 MW of new power generation capacity*” by 2020. In its own *Feasibility Study* Bruce Power went even higher, to 2,200 MW by 2020.²⁷ Such discrepant guestimates are based on an energy growth analysis, which ignores aggressive demand side management (DSM) and energy efficiency, which are already proving to be more cost-effective elsewhere.²⁸ (Reducing demand is far cheaper and environmentally benign than creating supply.) The motivation is fully transparent, for the UDP says “*significant potential exists for exports*.” So, without any hesitation, the UDP goes from its low estimate of a shortfall of 1,200 MW by 2020 to recommending “*3,000 MW of nuclear capacity...to meet Saskatchewan’s power needs and capture export markets*.” This, by the way, is even more nuclear capacity than Bruce Power has aggressively promoted.

Similar shoddy methods were used preparing the report for the AECL in 1991. Rather than seriously looking at DSM, which allows the decoupling of energy growth from economic growth, this report assumed a direct relation between GDP and electrical demand. I suspect that the Sask Party government “forecasters” are doing the same thing. The 1991 report predicted Saskatchewan would need to grow from the existing 2,900 MW capacity, to 3,400 MW capacity, and would experience a 400 MW shortfall by 2000. This was to create the impression we’d need to build a 450 MW Candu-3 plant that the AECL was promoting as a corporate survival strategy at the time.²⁹ The exaggerated nature of those “forecasts” is shown by the fact that approaching 2010 our grid capacity is what the nuclear salesmen projected for ten years earlier.³⁰

There is a small dose of realism, for the UDP comments that “*future work needs to be done to understand the social, environmental and grid feasibility of adding nuclear power in the Province*.” Again the cart is before the horse, for these matters should be independently and comparatively assessed with other energy options prior to making policy choices. When economics is finally discussed, the UDP admits “*capital costs overruns and schedule delays are key risks in any nuclear new build project*.” It continues, “*...cumulative risks of nuclear new build have been too large for the private sector to bear alone...*” If anything this belated mention of “economics” is an understatement. Take the case of Finland, where Areva is building one of only two new nuclear plants in Western Europe, and the government has recently launched a \$3.8 billion damages suit against this French corporation for being years over schedule and budget.³¹ Areva is the only one of three corporations (including AECL and Westinghouse), that Bruce Power is considering for building nuclear plants along the North Saskatchewan River, that is actually producing the new generation of nuclear power plants. You can be sure that UDP-member, Areva, wouldn’t want any of this cost-overrun or legal information to be in the UDP report. Is Saskatchewan willing to ensure such cost overruns? In spite of all the high-pitched

nuclear promotions since we were targeted for nuclear expansion in the late 1980's³², I think most Saskatchewan people will say a resounding "No!"

6. AND NOW...THE ECONOMIC PUNCH LINE

The UDP admits that to have its member corporations able to build nuclear plants will require great public financial backing. It always does! And this public financing extends beyond nuclear plant capital costs, for the UDP says "*Transmission infrastructure, reserves, and intertie investments would be required to support larger power generation units on the Saskatchewan grid...*" We can see what's in it for the nuclear corporations on the UDP. But what's in it for the Saskatchewan taxpayers? According the UDP there'd be "*a significant impact on Saskatchewan's economy*". They guesstimate there'd be \$12 billion added to the provincial GDP over the life of a nuclear plant, \$1.2 billion from its construction and \$10.6 billion during operation. Additionally, they say there'd be 3,000 construction jobs and 400-700 operation jobs for each plant built.

Do we really want to be bribed with our own money? Jobs may appeal to some trades workers, e.g. such as in the IBEW 2067 union which includes some Sask Power workers, and whose business manager, Neil Collins, just happened to be the token labour "representative" on the UDP.³³ And it may appeal to some cement and construction companies who don't wish to assess real costs to the public or environment. But the vast majority of voters and taxpayers, who won't directly benefit from a nuclear megaproject, will have concerns about the slanted "economics". Prior to bringing out its economic bribes the UDP already admitted that "*capital cost overruns*" are common in this industry. And based on experiences elsewhere we'd all pay dearly, in both economic and ecological terms, for the privilege of a few trickle-down benefits. And all this while cheaper, safer energy options are readily available.

7. MORE NUCLEAR DISECONOMICS...AND MORE

Furthermore, these economic impacts don't even jibe with those of one of its members, Bruce Power. In its public "*Feasibility Study*" Bruce Power says its proposed 2,000 MW nuclear plant complex would bring \$4 billion to the provincial economy just through site preparation and construction. It says the nuclear project, which is 1,000 MW **smaller** than the UDP proposal, would create "*20,000 direct, indirect and induced jobs during construction*", and "*1,000 full-time jobs in addition to 900 indirect jobs for 60 years*".³⁴ The big difference between the UDP's 3,000 construction jobs for each nuclear plant and Bruce Power's 20,000 jobs for two plants should make us all leery. Bruce Power is clearly making a big stretch, for example, the average life-span of operating nuclear plants around the world is only 22 year, and the average age of those decommissioned thus far was only 20 years.³⁵ Would you trust a corporation with such "statisticians" with the public purse? Who are we to believe: Bruce Power as a member of the UDP, or Bruce Power going it alone? I would answer "probably neither!"

The actual recommendation is that Saskatchewan “*Include nuclear as part of the Province’s long-range energy mix given its cost-competitiveness as a baseload power alternative...*” (R # 12) This is based on two related misconceptions. Nuclear power can’t really do anything but provide baseload power. Its inflexibility makes it totally inappropriate for providing for peak loads. But it’s a very costly way to produce base power compared to its competitor coal, gas and now, also wind. The industry and those politicians who take its spokespeople at face value continue to say that, because wind (or solar) is intermittent it can’t provide base power. This has been proven to be untrue,³⁶ and is a ploy to get the public to think that you have to have coal and/or nuclear. And, while the nuclear industry promotes itself as the baseload alternative to coal, and all its greenhouse gases, if you check you’ll find that Bruce Power believes “...*the nuclear option is entirely complimentary (sic) with clean coal...*”.³⁷ It has to, for the gigantism and related unreliability of nuclear power means that there must be equal back-up power ready for when it will be shut down for safety or other reasons.

Having huge nuclear plants on a relatively small grid like ours would create energy insecurity, for when this power source went down, as it inevitably would, everyone (including industry) is in deep trouble. It would be even more irrational to have two huge centralized electrical generating sources, both coal and nuclear, on our small grid, which would pretty much close the door on renewables. **And if we’re going to have “clean” coal in the short term, why would we want to pay for much more expensive, less reliable and far more dangerous nuclear baseload power?** Why not build the distributed, renewable sources, flexible for base or peak loads, right from the start? Gas with co-generation, and wind, small hydro, biomass and soon solar, along with the advanced methods of DSM, could be phased in here quite easily compared to some places. These could more than make up for any supply shortage by 2020, which will most certainly be below “nuclear guestimates”.³⁸ Our politicians just need to start thinking seriously about sustainability, and, of course, get their economics right.

8. ENTER...THE “ENERGY SUPERPOWER” CORRIDOR

The nuclear corporations on the UDP know full well they won’t get their profitable nuclear projects without deregulation and huge subsidies and loan guarantees, and, most vital, a guaranteed market on the public grid. This is why the UDP couldn’t seriously look at full-cost comparisons with a renewable energy strategy, for the lucrative market on the public grid would disappear.

As part of R # 13 the UDP admits that nuclear power involves the “...*Saskatchewan ratepayers’ exposure to cost overruns.*” Its report is an attempt to convince Sask Party (or NDP) politicians who still see the world in narrow ways that it’s in the “public interest” to back nuclear expansion. Greenwashing - the erroneous claim that nuclear power does not produce greenhouse gases -

helps because it provides a pretense of righteousness, however superficial and hypocritical.³⁹ The basic strategy, however, is to appeal to potential economic growth in the non-renewable energy sector, especially the untapped tarsands on both sides of the AB-SK border. In this corporate plan nuclear power would provide energy for tarsands extraction as well as for a lucrative electrical export market. Appealing to the need for electricity in the domestic market is primarily a ploy to get political support for public financing for these profitable mega-projects. I speculated about this being the strategy in 2007, when completing *Canada's Deadly Secret*, and have become more convinced.⁴⁰

The UDP suggests that if going into nuclear power, Alberta and Saskatchewan consider “*the development...of a common power generation for the two Provinces*” (R # 13), which includes “*building stronger interties between the two provincial grids.*” It’s noteworthy that the much cheaper and available option of Saskatchewan drawing more from Manitoba’s surplus hydro power for our peak loads is not addressed.⁴¹ And where might such an idea about Alberta-Saskatchewan grid integration have come from? Might Bruce Power, which was aggressively promoting nuclear plants near Peace River, Alberta, and along the North Saskatchewan River, while it sat on the UDP, be involved? And might Cameco, which would supply uranium fuel and Trans-Canada which constructs transmission lines and pipelines,⁴² and happen to co-own Bruce Power, be involved? And might fellow UDP-member, Areva, facing its own indebtedness and hoping that AECL and its ACR-1000 design, flop, and Areva gets a nuclear plant contract from Bruce Power, also be onside? Does nuclear power create nuclear waste?

9. A NUCLEAR WASTE DUMP IN SASKATCHEWAN...OOPS SAYS SASK PARTY

Since the early 1990s both Cameco and the AECL have advocated Saskatchewan taking nuclear wastes from elsewhere. As the largest uranium corporation in the world, as well as a co-owner of Bruce Power, whose enterprise produces nuclear wastes in Ontario, Cameco would “love” to profit from the whole nuclear fuel system, from the radioactive cradle to the radioactive grave. With Cameco directly represented on the UDP, as well as indirectly represented through Bruce Power and its other co-owner, Trans-Canada, it’s not surprising that the UDP recommended that Saskatchewan get into the business of “used fuel management.”

The UDP, however, concluded that reprocessing spent nuclear fuel “...*is commercially unattractive for private investment*”, though it doesn’t reject reprocessing spent fuel “*in the longer term*”, especially with “*a change in federal policy.*” Reprocessing has been banned in the U.S. since President Carter and it is unlikely that President Obama will lift the ban. But President George Bush was moving in that direction. His Global Nuclear Energy Program (GNEP) would have had uranium exporters obliged to take back spent fuel, but then being able to get into spent fuel reprocessing. Harper’s Energy Minister, Gary Lund, was already giving signals that this

would be acceptable, until Harper shut him down.⁴³ And soon after, Australia's Prime Minister Howard, also with close relations with Bush, was defeated. And thankfully Bush is now gone. So the geo-political context has changed and we aren't going to hear much about spent fuel reprocessing in the short term. In the longer term, if nuclear power survives and runs out of uranium fuel in a few decades, and the UDP gets its way regarding nuclear R & D at the University of Saskatchewan, it will be back on the front burner. Hopefully we can avert this for both economic and ecological reasons.

But we can't avoid nuclear wastes, which continue to accumulate at every nuclear power plant in Ontario and elsewhere. The UDP claims that "*long-term used fuel management will be funded by the industry*", but that is highly questionable from experience elsewhere.⁴⁴ Nuclear waste, like nuclear power, has turned into a taxpayer sinkhole in Europe and the U.S. Billions have just been spent at the proposed Yucca, Nevada site in the U.S., only to be abandoned soon after Obama's victory due to environmental assessment failures and cost overruns.

The UDP notes that even without nuclear power plants Saskatchewan is already "*one of four province's the NWMO has identified*" as a prospective nuclear waste site. And just why might that be? Without waiting for nuclear power the UDP wants Saskatchewan to get right into the nuclear waste business. It endorses the industry-based NWMO's "*consultation and siting process*" (R # 15) and "*any willing host community that comes forward through this process*" (R # 16). And as part of this, the UDP unconditionally supports "*the development of the deep geological repository in the context of a broader nuclear development strategy*". (With Manitoba and Quebec already banning nuclear wastes and Northern Ontario not enamoured by the nuclear waste salesmen from Toronto, there's not much Pre-Cambrian Shield left unless you come West.) This reads like encouragement for some First Nations community to come forward and take up the economic opportunity from this "*nuclear development strategy*" while helping the nuclear industry with its severe public relations problem around nuclear wastes. However, in spite of the UDP having a member of First Nations background, who has already shown support for nuclear wastes on Indigenous lands⁴⁵, we find no mention of there being the requirement, as spelled out under international law, for this to be "prior, informed consent."⁴⁶ This attempted nuclear industry expansion is not, in any way, a democratic process that fundamentally respects Aboriginal Rights.. After many decades of study of this I have concluded that "nuclear democracy" is an oxymoron.

Note that long-lived radioactive, toxic wastes are seen as part of "*a nuclear development strategy*". Yes, one man's poison is another's profit. But the political fallout of this promotion of nuclear wastes as a business opportunity seems to have been too much for the Sask Party, which has seen the polls showing strong opposition to a nuclear waste facility here.⁴⁷ So, as the UDP report was being released, Brad Wall's Minister's were dissociating the government from this

recommendation. This puts the Sask Party, like the NDP government before it, in a deep dilemma. Before the UDP reported, Premier Wall, like NDP leadership hopeful Dwain Lingenfelter in 2005⁴⁸, facetiously asked how the Calvert NDP could support uranium mining and not support taking back nuclear spent fuel. Now the same question can be asked of him. The Premier will have to constantly be reminded that you can't have nuclear power without nuclear wastes, and if Saskatchewan had nuclear power it would qualify even more as a national, perhaps international nuclear dump.

10. MAKING PRONUCLEAR ACADEMICS HAPPY...FOR SERVICES RENDERED

The nuclear industry has always counted on government funding for its R & D, and on sympathetic or oblivious scientists for doing it. Without the Manhattan Project which created and used the world's first nuclear weapons, there'd be no nuclear power industry. Without billions in subsidies there'd be no AECL or Candu industry.⁴⁹ And why wreck a good thing, so the UDP recommends the Saskatchewan government go on footing the R & D bill to make commercial nuclear expansion possible.

In this regard the UDP sounds very similar to a report issued by Alberta's Canada West Foundation.⁵⁰ It's sort of a chicken-and-egg strategy, for the UDP says "*If a nuclear power generation facility is built, Saskatchewan would also require that existing academic nuclear engineering and physics programs be expanded...*" So you might just as well have an "*academic centre of excellence*". And while you are at it, you might as well throw in a research reactor which could "*serve as a catalyst for these activities.*" Then, if you're going to have an expensive research reactor you might as well use this to "*produce medical isotopes to address the anticipated global deficit in isotope supply.*" Hence R # 20 is to "*Pursue medical isotope production as part of the reactor's mandate.*" There'll obviously be no complaining from the University of Saskatchewan administrators who have helped facilitate and legitimize the UDP. UDP Chairman, Richard Florizone just happens to be the University's Vice President of Finances and Resources, so networks are already in place. There is a long history of "good relations" between the nuclear industry and senior administrators at Saskatchewan's two universities⁵¹ that discredits the University as place of learning and inquiry arms length from both government and corporate influence. Is this coincidence, collusion or perhaps karma?

But, it turns out, that "*...the economics of a stand-alone isotope reactor are not attractive.*" But that's alright, because public funding is for the bigger commercial nuclear strategy – enrichment, nuclear power and nuclear wastes. And the UDP makes no bones about this, with R # 17 saying the first objective of a "*centre of excellence for nuclear research and training*" is to support "*the existing nuclear industry in Saskatchewan.*" **It's all about nuclear commerce!** R # 19 even wants "*a group of experts to determine investment priorities in a few targeted areas of*

nuclear research” Areas for consideration include “*small reactors and advanced fuel cycle technologies*.” What this means is that the industry-controlled UDP wants the government (i.e. public) to carry the cost of researching small nuclear reactors for the tar-sands, and preparing for the time when the industry shifts to using spent fuel to sustain itself, after the non-renewable uranium reserves have run out. Just imagine what kind of a society and economy could be created if, instead, there was such commitment to renewable, sustainable energy?

Perhaps it’s time to remind the Sask Party government of the ongoing radioactive hydrogen (tritium) leaks in the Ottawa River from the Chalk River isotope-producing NRU reactor.⁵² Perhaps it’s time to remind ourselves of the millions of taxpayer’s dollars already expended to attempt to clean up the radioactive mess created at Chalk River and Port Hope. Or, that trying to restrict the toxic, radioactive uranium tailings piling up at mines in the North from continuing to spread into ecosystems, will cost future generations plenty. And, to get a dose of reality into this controversy, we should remember that \$300 million plus has already been wasted by the federal government on two cancelled Maple reactors, which were to produce isotopes, but never achieved the safety protocols.⁵³ And most important, our politicians need a reminder that medical isotopes can be produced by means other than nuclear-fission reactors.⁵⁴ It has been extremely insensitive for nuclear promoters to make cancer patients into a political football in this controversy over nuclear power.

IN CONCLUSION...BAD PROCESS CREATES BAD POLICY

The “*proposed strategy*” of the UDP pretty much says it all. The UDP is not about creating an energy path for Saskatchewan which takes into account both economic and ecological sustainability. It’s not about respecting inter-generation justice, and looking out for our great grandchildren, which is what sustainability challenges us to do. It’s not about the implications of energy systems for water, environmental health, peace and security or the public purse. In its own words, it’s “*an integrated strategy to capture the most promising opportunities*”. It recommends **actively pursuing** mining and nuclear power because “*the market dynamics are favourable*.” This clearly means favourable for getting more deregulation and public financing. It wants **selective investment** where “*the market is uncertain...because Saskatchewan’s ultimate ability to be competitive is unclear...*” This means the government is to spend public moneys to keep the door open for future lucrative opportunities for the nuclear industry, such as entering the enrichment economy. And finally, the UDP wants to **retain options and monitor** even though “*current market conditions are unfavourable*.” This means government continuing to put public money down the nuclear sink-hole, including R & D, in case these nuclear fantasies have a chance of coming true at some future point.

The industrially-controlled UDP isn't asking for much, is it? It's asking that the expansion of the nuclear industry be given priority over just about everything, and that we don't get side-tracked from this by looking comparatively at the cost-effective, sustainable energy alternatives. This is a document devised by nuclear corporations that continue to benefit from the public purse, even though the economics now clearly favour the renewable energy sector. It's a document that is using a government-mandated process **to advance an agenda of privatizing the electrical sector through the back door.** If the Sask Party government follows through with UDP recommendations it will show how close we are to living in a corporate-run state. We have already seen the faulty process used by the UDP. Now we're seeing the faulty nature of its recommendations. Bad process makes bad policy, and bad policy most certainly makes for bad consequences for us and for our future kin.

There has to be a better way.

April 16, 2009

Jim Harding is a retired professor of environmental and justice studies, and author of *Canada's Deadly Secret: Saskatchewan Uranium and the Global Nuclear System* (Fernwood, 2007). He writes a column "Saskatchewan Sustainability" for the weekly chain *R-Town News*, and is now working on a new book *Nuclear Hotspots: Pan-Canadian Travels Through the Nuclear Fuel System*. He lives on the Crows Nest Ecology Preserve in the Qu'Appelle Valley.

END NOTES

¹ "Capturing the full potential of the uranium value chain in Saskatchewan", UDP, March, 2009. All quotes are from the Executive Summary.

² Bulletin of the Atomic Scientists, Nov./Dec. 2008.

³ See United Nations, Inter-Governmental Panel on Climate Change, Fourth Assessment Report, 2007.

⁴ Bulletin of the Atomic Scientists, Nov./Dec. 2008.

⁵ As one example, Bruce Power estimates that it would take 400,000 cubic meters of concrete to build its proposed two-unit nuclear plant.

⁶ For cost-effective comparisons of the capacity of different energy technologies to reduce carbon emission see Amory Lovins, *Forget Nuclear*, Rocky Mountain Institute, 2008. In March 2009 the Carnegie Endowment for International Peace released a report that discredits that nuclear power can play any significant role in reducing greenhouse gases. See Katherine Ling, "Nuclear Power Cannot Solve Climate Change", *Scientific America*, March 27, 2009.

⁷ Ibid.

⁸ Nuclear promoters continue to say they can build new nuclear plants for around \$2,500 per kW. With other cost estimates (interest, fuel, operations, decommissioning and fuel storage) they argue nuclear electricity can be produced for 7 to 8 cents per kWh, which, like the UDP, they say is “cost competitive”. These estimates, however, are skewed to make new plants attractive to governments who, it is hoped, will provide up to 100% loan guarantees. There was interest expressed in \$100 billion in loan guarantees after President G. Bush approved \$13 billion for the nuclear industry in 2005. President Obama’s 2009 stimulus package ended up deleting \$50 billion of loan guarantees for nuclear and coal, which was in the Senate version of the bill. Without these guarantees the projects are not viable, which shows that nuclear isn’t really cost-effective. Anyway, the actual experience with the new plant being built in Finland by Areva doesn’t support the industry’s hypothetical cost estimates. By Jan. 2008 the costs of the 1,600 MW EPR had risen from 3 to 4.5 billion Euros, or by 1.5 billion Euros, which made capital costs more like \$4,000 per kW. And the reactor was not completed. Due to the contract between Finland and Areva the French taxpayers will pick up most of the cost overruns. And these cost overruns have grown. By Jan. 2009 they were up to 2.2 billion Euros, which would bring capital costs even higher. This jibes with the more objective Wall Street investment firm Moody’s which claims that “all-in” capital costs are being underestimated and would likely be from \$5,000 to \$6,000 per kW. With the additional cost of interest, fuel, etc. this would push costs of nuclear “electricity from new plants to about 14 cents per kWh.” See Arjun Makhijani, “Nuclear Power Costs: High and Higher”, *Science for Democratic Action*, Vol. 15, No. 2, Jan. 2008, pp. 1–4.

⁹ *Scientific America’s* “A Second Look at Nuclear” (Vol. 18, No. 5, March 2008, pp. 26–33) admits nuclear is more expensive to build (3 times gas and 2 times coal and wind), but then argues it’s competitive with coal, gas and wind once operating. These capital costs must be considered in full-cost comparisons. It also doesn’t consider costs to decommission nuclear plants and manage wastes that must also be factored in.

¹⁰ Eight Candu plants in Ontario were out of service from 1998–2004.

¹¹ See “Nuclear Power in Alberta: An Alternative Perspective”, *CAUSE*, April 6, 2009, p. 7–8.

¹² The cost of Areva’s 1,600 MW EPR being built in Finland went from 3 to 4.5 billion Euros when the project was not even complete. It’s now 2.2 billion Euros over budget. See endnote # 8.

¹³ See Jim Harding “Why Nuclear Power is Not a Way to Create a Sustainable Society”, 6th Annual NRT Conference, SIAST Woodland Campus, March 12, 2009.

¹⁴ See discussion of Calvert’s push for a uranium refinery in Canada’s *Deadly Secret*, pp. 229–35

¹⁵ The 2008 poll done for the Regina Leader Post by Inshtrix found 30% to “strongly support” and another 36% to “somewhat support” a uranium refinery (called nuclear refinery) in Saskatchewan. This finding has been used by the Regina Leader Post, Saskatoon Star Phoenix, and Sask Party government officials as proof that Saskatchewan people support adding value to the nuclear fuel system here. This poll has been used to legitimize the UDP. See my “Beneath Saskatchewan’s Nuclear Poll”, *Prairie Messenger*, March 5, 2008.

¹⁶ Kate Harries, “Nuclear Reaction: Cancer ravages Canada’s atomic town”, *The Walrus*, March 2008, pp. 37–45.

¹⁷ On April 7, 2009 the Sask Party government announced a “New Environmental Regulatory Model for Saskatchewan”. According to the news release this “results-based” approach would “leave the ‘how’ to those who run the plants, factories and mines.” This proposed change went through highly managed public consultations similar to those planned by the UDP.

¹⁸ In 1996, for example, the value of uranium sales was \$650 million whereas the uranium royalties were only \$67 million.

¹⁹ Materials within the renewable energy sector (e.g. steel for wind) can all be recycled, whereas materials in nuclear plants are all permanently radiated and un-reusable.

²⁰ Enrichment involves raising the percentage of Uranium 235 from that contained in the natural uranium (U 238) so that it is fissionable in a reactor.

²¹ This uses far less energy than the diffusion enrichment process.

²² Laser Isotope Separation (LIS) enrichment could carry more risks of nuclear proliferation because it is smaller, uses less energy, is more concealable, and may become cheaper than the centrifuge or diffusion technologies. See Charles Ferguson et al, “Laser Enrichment: Separation Anxiety”, *Bulletin of the Atomic Scientists*, Mar./Apr. 2005.

²³ “Cameco Joins GE and Hitachi in GLE Venture”, Press Release, June 20, 2008.

²⁴ See discussion of Saskatchewan’s historical and ongoing nuclear weapons connection in “Overcoming Amnesia”, *Canada’s Deadly Secret*, Chapter, 18, pp. 242–262.

²⁵ This 1991 AECL-commissioned report, entitled “Prospects for Saskatchewan’s Nuclear Industry and Its Potential Impact on the Provincial Economy”, is discussed in “Uranium-Nuclear Alliance”, *Canada’s Deadly Secret*, Chapter 12, pp. 147–51.

²⁶ Obama’s stimulus package has \$54 billion for renewable energy. There is none for renewable energy in Harper’s stimulus package, where “green energy” means investments in carbon storage and nuclear power.

²⁷ “Saskatchewan 2020 – Clean Energy – New Opportunities”, Bruce Power, Nov. 2008, p. 6.

²⁸ The Vice-President of Sask Power recently told me that the Crown only planned to reduce electrical capacity by 100 MW from projected demand-driven capacity by 2017.

²⁹ The federal government threatened to phase-out subsidies, but the Mulroney government “blinked” under strenuous lobbying.

³⁰ See discussion in *Canada’s Deadly Secret*, pp. 151–55.

³¹ See “NB Power CEO defends contract with AECL to refurbish Lepreau”, *Telegraph-Journal*, Feb. 23, 2009.

³² The Canadian Nuclear Association’s (CAN’s) secretive “comeback strategy” is discussed in *Canada’s Deadly Secret*, pp. 71–75.

³³ Bruce Power has made a deal with the IBEW 2067 Business Manager which trades jobs for a joint pronuclear communications protocol, and reassures that coal-plants won't be phased out if nuclear is brought in. Bruce Power brings a "union strategy" with it from Ontario, where some unions own shares in their nuclear power consortium. The uranium-nuclear industry is masterful in appealing to narrow self-interest, such as high-paying energy jobs or Joint Ventures with First Nations to mobilize the appearance of grass-roots pronuclear support.

³⁴ "Saskatchewan 2020 - Clean Energy - New Opportunity", Bruce Power, Nov. 2008, p. 14.

³⁵ See "2008 World Nuclear Status Report", Bulletin of the Atomic Scientists, Nov./Dec. 2008.

³⁶ See Louis Bergeron and Stephanie Kenitzer, "Study finds that linked wind farms can result in reliable power", Stanford Report, Dec. 5, 2007.

³⁷ "Saskatchewan2020 - Clean Energy - New Opportunity", Bruce Power, Nov. 2008, p. 17.

³⁸ See renewable potential in "Greening the Grid: Alberta's Future With Renewable Energy", Pembina Institute, 2008.

³⁹ Bruce Power, Sask Power and the UDP all say "clean" coal will remain central to our grid.

⁴⁰ See Canada's Deadly Secret, pp. 229-35.

⁴¹ Manitoba and Saskatchewan are in a common "electrical region", as are B.C. and Alberta, for a reason.

⁴² For one example, Trans-Canada has the multi-billion dollar contract to bring gas and oil from Alaska to the 49 states.

⁴³ See my "Nuclear Smoke and Mirrors From Australia to Alberta", 2008.

⁴⁴ Bruce Power "owns" spent fuel rods until they leave the wet storage facility, when they are turned over to Ontario Power Generation which pays into the NWMO trust fund.

⁴⁵ I am referring to Ray Ahenakew who, with AECL connections, previously supported the Meadow Lake Tribal Council building a nuclear waste facility.

⁴⁶ The Declaration on the Rights of Indigenous Peoples was adopted by the United Nations General Assembly during Sept. 2007.

⁴⁷ A 2008 poll done for the Regina Leader Post found 48% of people opposed a nuclear waste dump here. Most telling, there were 32% strongly opposed compared to only 16% strongly in favour. And youth between 18-34 were found to be "most opposed" to a nuclear waste dump.

⁴⁸ See my piece "Trapped by History: Lingenfelter on Nuclear Power", March 2009. A short version was published by Straight Goods.

⁴⁹ In 1987 the Economics Council of Canada estimated subsidies to have totaled \$19 billion. In 1996 the Campaign for Nuclear Phase-out updated the analysis. Toronto's Energy Probe has calculated that accounting for the cost of compound interest it may now be closer to \$76 billion. Harper's subsidies have already added another \$1 billion plus to the industry. When will it end?

⁵⁰ See Duane Bratt, "Prairie Atoms: The Opportunities and Challenges of Nuclear Power in Alberta and Saskatchewan", Canada West Foundation, Sept. 2008; and my critique "Nuclear revival proponent's claim absolutely flawed", Saskatoon Star Phoenix, Oct. 3, 2008.

⁵¹ See discussion of this in *Canada's Deadly Secret*, pp. 114–117.

⁵² The Tritium Awareness Project has been monitoring the leaking and deliberate dumping of tritium at Chalk River. It points out that "tritium cannot be filtered out or removed from the drinking water....tritium irradiates living cells and damages organic molecules, including DNA... there is no reliable evidence of any safe threshold of exposure to radioactivity."

⁵³ These reactors were to have been brought on stream by 2000–01, but after 15 years work and over \$300 million of government investment squandered, the AECL had to pull the plug due to safety failures. See Bert Hill, "Maple reactor decision rattles Ottawa economy", *Ottawa Citizen*, May 16, 2008.

⁵⁴ Neutron bombardment of Molybdenum–98 creates Molybdenum–99 for use in nuclear medicine.