

## ***OPEN LETTER TO ALBERTANS – from a Saskatchewan Neighbour***

I have just been to speak at community events discussing nuclear power in Peace River, Grand Prairie, Whitecourt, Edmonton and Red Deer, and will soon return to Lethbridge and Calgary. I have learned much about Alberta and its vibrant grass roots and, being there the week before the provincial election, I learned much about your reputation for having a one-party political system. And I learned more about the ecological and human impacts of the tar sands than I reckoned for. It was disappointing to see such a low voter turnout when AB is facing energy and the environmental challenges with such Canada-wide and global implications.

It was a bit like coming home, for I lived in Calgary as a child when my father worked for the Calgary Stampede. I would like to let Albertans know what I learned as I connected the dots on the nuclear controversy in your province.

### ***1. DO THE REASONS GIVEN FOR ALBERTA GOING NUCLEAR MAKE SENSE?***

#### ***ENERGY ALBERTA***

When Energy Alberta Corporation (EAC) floated its trial balloon about building two AECL nuclear power plants near Peace River, it initially said the electricity was for the tar sands. It even said it already had a buyer for 70% of the electricity, a claim it later had to retract. After this PR kaffuffle EAC did a 180-degree turnabout and said all its electricity would be sold into the AB grid. Tar sands companies confirmed they didn't need the electricity, as the potential for co-generating electricity from waste heat in the tar sands (and elsewhere in AB) is largely untapped.

#### ***BRUCE POWER ONTARIO***

Ontario's nuclear company Bruce Power has now bought Energy Alberta's option, meaning money passed hands without any energy being created. Bruce Power is a consortium of the uranium giant Cameco, Trans-Canada Corporation - which is into pipelines, and a few other interests. Bruce Power continues with the claim that nuclear power is needed to make up for a projected shortfall in AB's electrical supply over the coming decade, although it also says it will explore using excess electricity to produce hydrogen to help process bitumen in the tar sands..

When the more reasonable ways to deal with electrical demand and supply are disclosed (see below), some expect Bruce Power will again shift ground and argue the excess nuclear-generated electricity can be exported into the U.S. market, adding to AB's lucrative non-renewable energy export economy. The sceptics note that a transmission line to Montana is already in the works.

There are several problems with this export scenario. First, sending electricity along expensive grids for distant end uses is not at all efficient, though it may be profitable for some, perhaps Trans-Canada. The way to conserve electricity and reduce dangerous emissions is to produce it as close to the end use as possible. Second, AB is apparently not ideally located for accessing the larger U.S. grid, which is why we sometimes hear (from those who wish to become the mega-exporters) that Saskatchewan would be a better location to access the "hungry" eastern U.S. market. This would be equally irrational in terms of energy efficiency and environmental preservation. Third, if co-

generation from the tar sands and elsewhere were systematically developed it would produce excess electricity for the AB grid. Some are already concerned about the impact of this excess electricity on the provincial market, without even considering adding nuclear.

### ***AREVA FRANCE***

The French nuclear state monopoly Areva is also lobbying for nuclear power in AB, especially at Whitecourt. It recently argued that AB needs nuclear power to maintain economic growth from the tar sands when natural gas runs out by 2030. (Sometimes the nuclear industry also tries to make homeowners think they'll "freeze in the dark" because the tar sands will use up all the natural gas.) The natural gas industry has responded that this is nonsense: that they are working on efficiencies (combined cycle) and, anyway, new gas reserves will come on stream when the price rises. While the National Energy Board (NEB) has created scenarios of Canada having to import natural gas by 2030, this assumes we will continue to be an energy export branch-plant to the U.S. Also, the NEB scenario was created before a recent gas find in B.C.'s Big Horn basin, which is as large as in the whole McKenzie Delta. And remember, natural gas has the lowest greenhouse gas (GHG) emissions of all the fossil fuels and is therefore considered one of the transition fuels to a sustainable society.

## ***2. WILL ALBERTA NEED NUCLEAR POWER BECAUSE OF A COMING SHORTAGE OF ELECTRICITY?***

What about the nuclear industry argument that their toxic hardware is needed to address a future shortfall of electrical supply. AB's electrical grid presently has nearly a 12,000 Megawatt (MW) capacity. (This means it could produce this much electricity if working at 100%). Bruce Power and Areva parrot projections by the Alberta Electric System Operator (AESO) that if the present increases in electrical demand continue there will be a shortfall of 5,000 MW by 2017, and then argue this will necessitate nuclear power.

### ***EFFICIENCY, CO-GENERATION, GEO-THERMAL AND RENEWABLES***

The Nuclear Energy Agency projected that 1,000 Gigawatts (GW) of nuclear electricity capacity would be needed in the world by 1990. The actual amount was one-quarter of this, or 260 GW. The nuclear industry regularly inflates future electrical demand as an economic growth strategy, and in the case of Ottawa-owned AECL, as a way to maintain government bailouts. And they are typically wrong, for a shortfall of electrical supply can easily be handled by a four-prong strategy that is much better for the environment and pocket-book. First, energy efficiency and conservation can greatly reduce demand for electricity (demand side management or DSM). Such energy savings can also be designed to reduce the electrical capacity required to meet peak loads. Second, waste heat in AB which can be used to co-generate electricity (especially in the tar sands) is likely the most underused in all of Canada. Third, geo-thermal electricity from all the geological heat along the mountain ranges hasn't been seriously considered, and it has been suggested that interested parties can't locate drilling crews because they are all tied up in the tar sands boom. And finally, even if somewhat unintended, ***AB is already helping lead the way towards a renewable energy path.***

Renewable energy capacity in AB is already above 1,600 MW. (This includes 900 MW hydro and nearly 200 MW from biomass). Wind power is already at 545 MW capacity and will soon grow to 1,000 MW, which is equivalent to a large nuclear power plant. Renewables will then be 15% of the AB grid capacity, and only starting. Conservative estimates are that 3,000 MW of wind power is quite realistic. Some estimates go as high as 8,000 MW. By itself wind power

could make up any shortfall in AB's electrical supply, but that will be totally unnecessary if efficiency and co-generation are systematically implemented.

Then there is the potential of decentralized solar electricity. Since Germany decided on a phase-out of nuclear power in 2000 it is phasing in 1,000 MW of solar electricity a year. AB homes, buildings and farms can now be designed to be net producers of electricity that can go back into the public grid. When such an integrated sustainable energy strategy is in place across Canada the dirtiest coal-fired plants can be phased out, and we can accelerate the decommissioning of dangerous nuclear power plants.

### ***3. WHAT DOES THIS ALL MEAN FOR CLIMATE CHANGE?***

Coal presently accounts for nearly half of AB's electricity capacity (5,840 MW). While coal-fired plants emit the largest amount (45%) of GHGs in AB, planned tar sands' expansion are likely going to make it AB's major source of these. In any case, nuclear power is not being promoted in AB to replace coal plants. And nuclear power to expand tar sands production would just perpetuate the major role of heavy oil in creating global warming. Producing heavy oil creates 3 times the GHGs as does conventional oil, and the tar sands are expanding at such a rate that they could produce 3 times today's GHGs within a decade. These emissions would make AB (and, if developed by then, SK) tar sands the world's greatest single source of GHGs, outpacing even Harper's much scaled-down emission reduction targets after he scuttled the Kyoto Accord. It would certainly be ironic if Harper – with his roots in the Reform-Alliance Party backlash to Trudeau's National Energy Plan – ended up clashing with AB over its growing GHGs.

This all shows the absurdity of the claim that nuclear power is a way to reduce AB's GHGs. Replacing natural gas with nuclear-generated electricity would somewhat reduce GHGs in the tar sands' production process. However, if you calculate the GHGs produced all along the nuclear fuel cycle, from uranium mining to enriching to nuclear plant construction-decommissioning and nuclear waste management (especially as the grade of uranium-bearing ore starts to lower), the GHGs begin to approach those of the fossil fuels. Co-generation would create similar GHG reductions without creating the additional GHGs along the nuclear fuel system.

Though expanding nuclear is not an answer to global warming, it would increase the radioactive contamination of the planet. This would hardly be fair for the generations to come. And let's not forget the expansion of nuclear power is linked to nuclear proliferation and the threat of more nuclear weapons being built, tested and used. Depleted uranium (DU) weapons linked to ecological contamination and rising cancer rates have been used in the Middle East since 1991.

Nuclear is far more expensive than the practical and safer alternatives. When pro-nuclear biases are removed from the Ontario Power Authority's (OPA) 2005 cost-comparisons, nuclear is closer to 21 cents a kWhr, compared to natural gas and wind costs of around 7-8 cents. Photoelectric (solar) will soon be cost comparative with gas and wind. Co-generation, coming around 4 cents, continues to be the least-cost alternative for reducing GHGs. Energy efficiency that reduces demand for electricity has seven times the "bang for the buck" in reducing GHGs as producing more electricity capacity. So it's pretty clear which is the responsible way for AB to go.

### ***4. SO WHY IS ALBERTA BEING TARGETED BY THE NUCLEAR INDUSTRY?***

The Atomic Energy of Canada Ltd. (AECL) remains extremely dependent on federal government handouts and bailouts, and the Harper minority government has substantially increased the level of subsidies over previous Liberal governments. Harper's 2008 budget provided yet another \$300 million in subsidies to the AECL, in part to help it get ready to come to AB. In September 2007 the federal Auditor General estimated it will take more than \$1 billion for the AECL to stay in the nuclear research and sales market. It would take \$850 million over ten years just to replace, refurbish and clean up the Chalk River infrastructure, and another \$400

million (on top of the \$300 million already spent) to complete the design work for the reactor (ACR-1000) proposed for AB. Also, two hundred and sixty (\$260) million dollars will be required to partly clean up Port Hope, Ontario where nuclear fuel is processed for export and fuel rods are fabricated for Ontario's Candus. And on and on it will go until this industry is finally phased-out.

### ***THE SASAKATCHEWAN AECL CAPER***

You can see the AECL's dilemma. They desperately need sales to justify these huge costs to the Canadian taxpayer. After decades of subsidies they totally failed to establish a viable export market for their traditional Candu design, the kind built in Ontario. So, in the late 1980s a private consortium called Western Project Development Association (WPDA), not unlike AB's EAC and also backed by the AECL, came knocking at our door in SK, trying, but failing, to convince us we needed their toxic technology. They told us we'd have a shortfall of electricity, and risk freezing in the dark by 2000, but that they could save us from such a fate with a new 450 MW nuclear reactor (the Candu-3 design). They told us we'd need another such reactor by 2004. And, of course, they told us SK businesses would benefit by creating a Candu-3 export industry that the industrializing-developing world apparently craved. Business and professional groups who thought they'd profit quickly got on side. Seventy-five million dollars later, with not one Candu-3 built anywhere, the AECL left and went back to Ontario to consider their next survival plan. (They also tried to sell us their Slowpoke reactor, which cost us all \$45 million to no end.) In 2008 your sceptical SK neighbours continue to get reliable electrical supply and we don't have any nuclear power plants.

Does this sound familiar?

Having failed in the export market and with this SK caper, the AECL is coming to Canada's "energy superpower" with a new ploy. Initially using the tar sands to get their foot in the door, they will use federal subsidies, federal-provincial Conservative party connections, and promotions about lucrative economic development within targeted regions and towns (e.g. Peace River, Whitecourt) to try to convince enough AB people that you have no alternative to nuclear power. This is their version of a "self-fulfilling prophecy".

The AECL might survive a little longer if this strategy were to work. The Bruce Power consortium would profit. Cameco would increase sales in the uranium bull market. Trans-Canada could benefit from the construction of massive electrical grids, as it already does from natural gas pipelines. Meanwhile SNC-Lavalin in partnership with G.E., and France's Areva, are waiting in the wings to get a bargain basement deal if (when) Harper privatizes the AECL. And the taxpayer would continue paying extra for any such nuclear expansion and these prospective buy-outs.

## ***5. WHAT HAPPENS WHEN WE BRING THE NUCLEAR WASTE ISSUE INTO THE LIGHT?***

As AB people come to understand full costing, and that they are already paying for nuclear through back door subsidies, they will become more sceptical of nuclear power. Realizing that their children will be paying for decommissioning and endless nuclear waste storage, with none of the benefits of electricity, could be the clincher.

Canadians have lots of common sense about nuclear power. Eighty-two (82 %) of us don't believe nuclear power should expand unless the nuclear waste problem is fully resolved. This involves addressing the threat to future generations from long-lived nuclear wastes (spent fuel): the most toxic of all substances Plutonium-239, with a half-life of 24,400 years; Iodine-129 with a half-life of 17 million years; and Carbon-14 with a half-life of 5,600 years, which if leaked would get into the global carbon cycle. (The half-life is how long it takes for half the material to decay into other, also dangerous, radioactive elements.)

The Canadian Nuclear Association (CNA), AECL, Cameco, Bruce Power and the industry-run Nuclear Waste Management Organization (NWMO) have engaged in a decade-long "public

acceptance” campaign to get Canadians to believe that industry and government will come up with some solution to the accumulating nuclear waste. Trust us again, they say. Their “plan” is about putting the burden of nuclear wastes on the next and then the next generation, *as past nuclear proponents have done to us*. It is called “adaptive phased management”, which means “no plan.”

### ***THE GLOBAL NUCLEAR ENERGY PLAN (GNEP)***

When George Bush created the GNEP in 2006 he was looking for a way to get uranium-producing countries like Canada to take back nuclear wastes. (He also wants to keep a monopoly on nuclear technology, an admission that nuclear power leads to nuclear weapons and that the Non-Proliferation Treaty (NPT) is ineffectual.) The U.S. nuclear waste program at Yucca Mountain, Nevada is not going well from an economic, political or ecological standpoint. Australia’s neo-conservative Howard government came on side with Bush, but the electorate saw through the hidden agenda and Howard has been defeated and replaced. *Now only the Harper government is onside with Bush’s plan*, but Harper’s Ministers have been muzzled from talking about this because of its sensitivity with an upcoming federal election. Meanwhile, since the Chalk River medical isotope fiasco, Harper has replaced the Canadian Nuclear Safety Commission (CNSC) head with someone who will pre-license and fast-track nuclear power in AB. Apparently, if the regulator stands in the way of profitable energy growth, diminish its authority.

Since Canada (SK) is the major world producer of uranium, we are the main candidates for taking back nuclear wastes under the GNEP. And being the front-end uranium-supplier of both the U.S. and French integrated commercial-military nuclear systems, it is no coincidence that the AECL wants to redesign its reactor so that it can use slightly enriched uranium (SEU) and spent fuel from the U.S. and French light water reactors. It is no accident that both AECL-backed Bruce Power and France’s nuclear giant Areva are knocking on AB’s door in the hope that its energy-driven boom will provide the cover for building a nuclear plant.

While there would be profits to be made, the real bonanza would be creating a technological rationale and location for bringing nuclear wastes to Canada. If a reactor was built on the Peace River or further south there would immediately be a build-up of nuclear wastes on site, and AB would then “qualify” as a place to send nuclear wastes from Ontario, the U.S. and abroad. Bruce Power is building up nuclear wastes at its Ontario reactors for which it has no permanent dump. And Cameco (part of Bruce Power) along with the AECL has been lobbying hard for over a decade for nuclear wastes to be brought back to the northern areas where uranium mining occurs, promoting the deep burial of nuclear wastes in the Cambrian Shield.

The nuclear industry has always expanded incrementally through half-truths and outright lies (e.g. about cancer-causing radiation, wastes, weapons, costs, etc.). Once you address all their promotional falsities you have to look deeper for their motives. In AB’s case it’s mostly about the wastes.

### ***PROTECTING THE PEACE RIVER BASIN***

With such plentiful efficiency and renewable energy alternatives and the catastrophic ecological challenges of the tar sands already at hand it’s hard to see why populist AB, with all its suspicions about government bailouts, would want to be cajoled into the nuclear path. *Perhaps the real clincher, however, will be water*. With the Athabasca River and those downstream already under assault from the tar sands, why would anyone want to risk having the Peace River system and the rich agricultural land of the region contaminated with tritium (radioactive hydrogen) and other radioactive isotopes? It seems unlikely that Lac Cardinal, a shallow and ecologically-important wetlands system that I visited, could handle the cooling of two huge reactors, as proposed by Bruce Power. Heats waves and droughts in France and the U.S. that will get worse with climate change have already forced nuclear plants to shut down or scale down. So much for this being a secure energy system. The reason why Energy Alberta and Bruce Power have not openly targeted the Peace River system for cooling nuclear plants is because this would awaken all those who

depend on this amazing, sacred river system and water basin. I am certain that when the Indigenous and Settler people who depend upon the Peace River finally do awaken to the threat, the push towards sustainable energy will ratchet up in AB.

If AB makes the right choice and “votes” for sustainability and the protection of water, air and land, it will play a crucial role in helping Canada move in the right direction. The dangers and challenges of the tar sands clearly haunt the AB conscience. I can’t see why any reasonable and caring person would want to take on the added burdens of another ecologically destructive energy system, when there are such positive and practical alternatives.

So I ask you to please do what is right for future generations and us. Do it for our children and their children, and for the natural eco-systems we are finally learning to understand, respect and protect. Please keep AB nuclear free.

Yours Sincerely, Jim Harding, Ph.D.\*

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\*Author of *Canada’s Deadly Secret: Saskatchewan Uranium and the Global Nuclear System* (Fernwood, 2007). This is a non-profit publisher and all author royalties go to support local groups working for a sustainable society.