

Message from the President

Continuing Communications About the Safety of Nuclear Energy Is Imperative

The recent media swarm around Bruce Power's [BP] plan to ship steam generators through the Great Lakes to Sweden for recycling is a reminder that all of us must redouble our efforts to proactively communicate the facts about our industry to the public.



The 16 steam generators were removed as part of BP's \$4 billion investment in the refurbishment of two units at the Bruce Nuclear complex. Bruce Power contracted with a sixty-two year old Swedish company, Studsvik, that recycles about 3,000 tonnes of low-level radioactive waste a year.

Opposition from the Sierra Club, Greenpeace Canada and the Coalition for Nuclear Responsibility began appearing post April 1, 2010, following BP's transport license application to the Canadian Nuclear Safety Commission [CNSC]. Media headlines called for the "risky plan" to be abandoned and coverage referred to "radiation-laced steel". A July article described an online petition signed by a couple of thousand individuals and 50 organizations across Canada, the United States and Europe urging the CNSC to block the proposal. A number of federal, provincial and municipal politicians and some of their counterparts in the U.S. also joined the fray.

In a July 15th letter to the Owen Sound Times, Duncan Hawthorne, Bruce Power's President and CEO noted that, "although the components themselves are not radioactive some components may have been slightly contaminated during operations" and that "international best practices calls for these components to be recycled and reused where appropriate". Later in July, Bruce Power hosted open houses on the proposal in Owen Sound, Southampton and Tiverton.

On July 26th, Mr. Ramzi Jammal, Executive Vice President and Chief Regulatory Operations Officer for the CNSC, made a presentation to Owen Sound's Council.

Mr. Jammal noted that the CNSC would ensure Bruce Power's application complies with the Nuclear Safety

and Control Act; CNSC regulations and international transport requirements under the International Atomic Energy Agency. He also noted that any contamination was on the inside of each generator and that each generator had been welded shut and sealed. The 5 cm thick steel generator shell provides inherent radiation shielding. As a result there would be no risk to the public. Hazardous materials are routinely shipped via the St. Lawrence Seaway and the Swedish regulatory authority licenses Studsvik, the recycler.

The CNSC stated in a related web communication "generally applications for activities that are considered low risk, such as transportation of nuclear material with low levels of radiation, are reviewed by staff and may be approved without a public hearing."

Mr. Jammal indicated during his presentation that the CNSC considered the application to be incomplete, as Bruce Power needed to demonstrate compliance with national and international transport requirements to the CNSC. On July 29th, the CNSC announced that it would hold a one-day hearing on the application on September 29th.

This chain of events underscores how important it is that all of us engage our neighbours, opinion leaders and elected representatives to tell them the facts about our industry. It clearly demonstrates that without this kind of continuing effort, even routine activities can become sidetracked.

Our industry has a great story to tell. Our CANDU reactors have "safety in depth" design, our workforce is highly trained and our industry is highly regulated—all of which contributes to our exemplarily safety track record. The CNSC and Canadian Nuclear Association leadership provide good examples of what proactive communications are all about.

Making much needed new nuclear projects happen in the future depends on having solid public support. Our collective goal must be to ensure that the public clearly understands that Canada's nuclear industry is in complete agreement with the CNSC's mantra -- "**we will never compromise safety.**"



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Benefits of Refurbishment Abound

The Canadian Manufacturers and Exporters (CME) have released a July 2010 report entitled “The Economic Benefits of Refurbishing and



**Canadian
Manufacturers &
Exporters**

Operating Ontario’s Nuclear Reactors”. The report examines the impact of continued operation of the 4 nuclear units at Darlington and the 8 units at the Bruce site. The paper sites the importance of nuclear power to the province, as a “critical source of safe, emissions-free and cost competitive base load electricity supply.”

The report examines and quantifies the benefits of the refurbishment of Ontario’s nuclear reactors and their continued operation through to 2050. The calculations are based on conservative estimates with 80% of the refurbishment direct spending being done in Ontario with major suppliers such as AECL, GE Canada, Babcock and Wilcox, Siemens Canada and Foster Wheeler providing local materials and equipment. The remaining 20% is estimated as spending on components made overseas, typically of European origin.

The long-term nature of such a program requires a well-trained and educated workforce. The report estimates 90% of direct labour costs remaining in the province, with engineers, managers and skilled trades living locally. This figure is based on information from Bruce Power.

The paper concludes that the benefits “are substantial: almost 25,000 jobs and an annual economic activity of over \$5 billion. These benefits occur over the refurbishment period 2014 through 2024. Once the reactors are refurbished, the benefits will continue until approximately 2050 because of the continued operation of the reactors. These long-term operational benefits comprise 15,600 jobs and an annual economic benefit of \$2.5 billion.”

The CME is Canada’s leading trade and industry association with an estimated 82% of total manufacturing production and 90% of Canada’s exports represented by the membership.

OPG Reports 2010 Second Quarter Results

Ontario Power Generation (OPG) released its financial and operating results for the three and six months ending June 30, 2010. Although net income was down compared to 2009, operational performance was strong, with increased production from nuclear and thermal stations.

The capability factor at Darlington nuclear station improved as all four units had been shutdown for a planned outage in the second quarter of 2009. The Pickering generating stations had a reduced capability for this report as all six units were shutdown for a planned outage for the time of the report.

OPG’s plans for refurbishment of the Darlington generating station are underway with reports being prepared in support of the regulatory work required. The refurbishment will extend the operating life of the station by about 30 years. In addition, discussions between Atomic Energy of Canada Ltd., Infrastructure Ontario, OPG and the Ontario government continue regarding the building of two new nuclear units at Darlington.

New Brunswick Looks Ahead

Rising costs relating to delays at the Point Lepreau project continue to be the subject of concern for the province of New Brunswick. Refurbishment at the nuclear power plant is now more than two years behind schedule. Cost overruns are being covered by AECL as per the initial agreement between the province and federal government; however, it is costing nearly \$1 million per day to provide replacement power while the plant is offline. The original total estimated cost for replacement power was \$400 million, but that number is now expected to more than double.

The province argues that lessons learned by AECL during the Lepreau refurbishment will be of future benefit to the company, and that, along with responsibility for the delay by the crown-owned company, should factor in the decision to provide compensation.

Meanwhile, a letter of intent has been signed between the province of New Brunswick, NB Power and the French nuclear company Areva Inc.. The agreement creates an exclusive arrangement between Areva, NB Power and the province with the aim of achieving commercial operation of a new nuclear energy facility by 2020. The agreement is valid until June 1, 2011, but according to Jean-François Béland, a vice-president with Areva Canada Inc., “We will reach an agreement in the coming months”.

The letter outlines a cooperative framework for the development of an energy strategy that would potentially include nuclear, solar, wind & biomass, the sourcing of potential investors and partners; infrastructure development and related education, training and manufacturing.



*Point Lepreau nuclear station,
Courtesy of NB Power*

Clean technology has captured the imagination of several governments, which are spending hundreds of billions in the hope of creating many jobs as well as meeting carbon-emissions targets. Many will find they wasted money, says Michael Liebreich, chief executive of Bloomberg New Energy Finance, which advises investors on renewables and energy technology. Most countries are trying to do the same things and not all will succeed. “Where the industry ends up will inevitably be different from where the money went in,” says Mr. Liebreich. Green manufacturing jobs may find their home mostly in China, not America, and China may struggle to make its mark in the research-and-development end of the industry, he says. Both are investing a lot.

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Nuclear back in the news in Saskatchewan

Saskatchewan will not be building any new nuclear reactors in the near future. A recent report written by Heath Packman, for the Canadian Centre for Policy Alternatives concluded that the current high construction and operating costs of nuclear power makes it the most expensive option for the province. Packman's report states that in addition to seeing a tripling of consumer's electricity bills, no benefit from reduced greenhouse gas emissions would result.

Both SaskPower Minister Rob Norris and Denise Carpenter, President & CEO of the Canadian Nuclear Association, have dismissed the report as being skewed and based on research done by those opposing nuclear power. A letter to the StarPhoenix by Ms. Carpenter cites studies done by the Canadian Energy Research Institute and the Massachusetts Institute of Technology (MIT) among others supporting nuclear energy's role in addressing climate change and cost-effectiveness. She writes that "Today, Canada saves about 90 million tonnes of greenhouse gas emissions per year through generation of clean nuclear electricity....[and] Study after study shows new nuclear power plants can deliver kilowatts at a cost similar to that of a large, new hydro plant or any future coal plant fitted with carbon capture technology."

The Saskatchewan government made a decision in 2009 not to pursue a large scale nuclear plant proposed by Bruce Power. However, the role of small-scale nuclear as part of the long term plan for non-greenhouse gas emitting power has been put forward.

CNSC Responds to Gentilly-2 article

Hydro Quebec officials have suspended rehabilitation contracts for the Gentilly 2 nuclear reactor at Becancour, Quebec. Delays in the refurbishment of similar units at the Point Lepreau reactor in New Brunswick and the Wolsong reactor in North Korea have escalated the costs of those projects. Feedback will be applied to the rescheduling of the Gentilly 2 reactor. The CANDU reactor will continue to produce power while it awaits a new refurbishment schedule.

An article published in Le Nouvelliste, a Quebec regional newspaper, published an article entitled "Gentilly-2: Hydro suspend des contrats" by Brigitte Trahan regarding the Gentilly-2 suspension on August 6, 2010. The piece presents the rescheduling as being of no surprise to environmentalists such as Michel Duguay, a professor at Université Laval and a member of the Mouvement Vert Mauricie. The Mouvement Vert obtained a copy of a 2009 CNSC document through the Freedom of Information process that Mr. Duguay cites as reporting sixteen serious problems with the reactor design.

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Michael Binder, President of the Canadian Nuclear Safety Commission, wrote a strong response to the article, accusing the Le Nouvelle piece of providing "a platform for the dissemination of misinformation concerning the safety of Canadian nuclear reactors." The article quotes Duguay offering a comparison between the disasters at Chernobyl and Three Mile Island and a potential accident at the Gentilly-2 nuclear plants, which Binder calls "outrageous and needlessly alarming [as] differences in the design and operation ... make such comparisons irresponsible." He also states that the "16 technical aspects referred to by Mr. Duguay was prepared as part of a study designed to confirm or refine the margins of



*Michael Binder,
Courtesy of CNSC*

safety of CANDU reactors...[and] ...is part of an ongoing improvement process and demonstrates the prudence of nuclear energy experts and their determination to continue working to confirm and pursue knowledge in the nuclear field."

Binder's letter, addressed to the Editor-in-chief, urges that in future the Canadian Nuclear Safety Commission be contacted directly for accurate information.

Bruce Power update

The Bruce A Restart Project has reached a milestone with the successful installation of 480 new calandria tubes in the Unit 2 reactor. The calandria tubes are the repository for the fuel channel assemblies that hold the uranium during operation. Upon completion of the installation, along with the sealing and testing of calandria tube joins, a CANDU history first was achieved. The refurbishment project has utilized

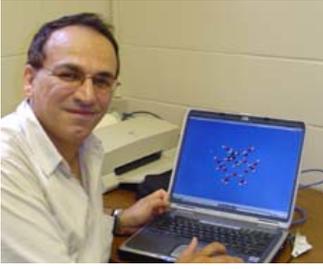
many first-generation, remote-controlled tools as a measure of controlling worker exposure to radiation inside the reactor's containment vault. Installation of the fuel channel assemblies is underway in Unit 2, and in Unit 1 on an alternating basis with the calandria tube installation. Unit 2 work is running about 4 months ahead of Unit 1. Both units should be back on the grid in the second half of next year.

*Sealing tubes at
Unit 2,
Courtesy of Bruce
Power*



In short...

New tracking method for ions



Khashayar Ghandi, a physical chemistry professor at Mount Allison University, has been awarded a

fellowship to study at the Japan Proton Accelerator Research Complex (J-PARC) in Tokai, Japan. The J-PARC facility carries out research into sub-atomic reactions combining physics, chemistry and biology.

Professor Ghandi studies an elementary particle called a muon, a form of cosmic radiation from outer space. Using a particle accelerator, Ghandi collects and slows the muons, and uses them to replace the centre of a hydrogen atom creating something called "muonium".

The muonium is readily monitored on special equipment which provides scientists with a method of isolating and studying the steps of complex chemical reactions. Ghandi is currently working with AECL on advanced models to better understand nuclear reactor cooling facilities, but the fundamentals of his research can be applied to a wide spectrum of applications.

Strong support for AECL

Cheryl Gallant, MP Renfrew-Nipissing-Pembroke, has been vocal on the subject of the future of Atomic Energy of Canada Ltd. (AECL). She credits members of the Chalk River Employees Ad Hoc Taskforce (CREATE) with providing a thorough and

comprehensive report on the nuclear industry and the Chalk River laboratories from the perspective of those who have been directly involved. "As the government moves forward regarding the future of AECL, I am constantly able to refer to the CREATE report when I meet with my government colleagues on this issue." Gallant spoke out on the benefits of investing in Ontario's nuclear expertise and supporting the over 30,000 jobs associated with the nuclear industry in Canada. "It's time to put Canada first!"

Possible Saskatchewan Storage Site

The northern Saskatchewan village of Pinehouse has put forward an application to be considered as a future site for



Fuel Bundle,
Courtesy of NWMO

nuclear waste storage. The Nuclear Waste Management Organization (NWMO) is responsible for the selection of a willing host community and has been open to letters of intent since May of this year. Currently, Pinehouse and Ear Falls, Ontario have made formal declarations of interest. The next step for the community will be a site screening process conducted by NWMO which could take up to ninety days. The project could be worth as much as \$24 million dollars and once operational, would remain active for 50 or 60 years.

Research Unit back in action

Canada has reclaimed its role in supplying radioactive Molybdenum-99

isotopes to the global medical community with the return to service on August 17, 2010 of the National Research Universal (NRU) reactor. The reactor had been out of service since May 2009 after the detection of a small leak of heavy water at the base of the reactor vessel. Repairs to the NRU involved more than 3,000 different restart activities and extensive performance testing.

The NRU is located at Atomic Energy of Canada Limited's (AECL) laboratories at Chalk River, Ontario. There, it serves as the main research reactor providing materials and radio-chemistry testing for the Canadian nuclear industry. In addition to the well-publicized role in medical isotope production, the NRU provides neutrons for the National Research Council for neutron-scattering experiments.

AECL staff now report that the unit has returned to a regular operating schedule which runs on a 28 day cycle and includes a 5 day shutdown period to allow for routine maintenance followed by a return to high power for 23 days. This maintenance and inspection cycle allows the NRU to remain fully operational and to fulfill its regulatory obligations to the Canadian Nuclear Safety Commission (CNSC).



NRU Restart Activities,
Courtesy of AECL

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The member groups are:

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