

Message from the President

Politicians Are Fiddling While AECL Burns



Our nuclear industry leaders have been calling on the federal government for sometime to clear up the uncertainty that's dragging Canada's successful reactor technology to the brink of oblivion. The problem is our elected federal representatives don't seem to be listening!

Governments in France, Japan, the United States, Korea, India and China see the economic and environmental benefits of making and selling their nuclear reactors. Their government leaders are visibly helping to market their respective technologies and appear willing to "package" deals (e.g. India's purchase of Areva reactors and Mirage jets).

Ontario's recent long-term energy plan suggests the provincial government gets it—clean, reliable, affordable baseload electricity; improved energy security; tens of thousands of high-value jobs; research and development; billions in GDP growth; and substantial innovation opportunities.

It's surprising that Ontario's federal representatives don't appear to get it. Especially, since Ontario is the major beneficiary of Canada's \$6 billion plus a year nuclear industry.

Securing these benefits for future generations means our federal government must make a long-term commitment to Canada's CANDU reactor technology. Our industry also needs to work with them to create a long-term strategy that markets, innovates and sustains our technology. It is about Team CANDU Canada not Team CANDU.

Prime Minister Diefenbaker is still remembered today for the Arrow decision. Killing Canada's successful reactor technology is not a legacy any prime minister should aspire to.

With a possible federal election on the horizon you would think Ontario's representatives and possible candidates would be more engaged. This is the time for our industry to make sure they are listening.

David Fluci

OPG's New Nuclear Project Receives a Boost

Ontario's Long-Term Energy Plan, which was released on November 23, 2010, provided a clear signal that the province was serious about securing "clean and reliable" base-load nuclear power for half of its power supply. Specifically, the Plan indicated that units at the Darlington and Bruce sites would be modernized and acknowledged the need for two new nuclear units at Darlington. Investing in the life extension to 2020 of the Pickering B station was also described as providing good value for Ontarians.

Reference was made to the pending federal government's sale of AECL and Ontario's expectation that the end of 2010 would identify the preferred vendor. Ontario is expecting that AECL's restructuring by the federal government will allow the province to "complete a deal with the new owner at a price that is in the best interests of ratepayers". The Plan stressed the importance of the province remaining ready to construct new nuclear plants and noted that OPG will continue with the new build procurement process and the environmental assessment and site preparation license application at Darlington.

On January 25, 2011 the Joint Review Panel for the Darlington New Nuclear Power Plant project announced further details for public hearings scheduled to commence on March 21, 2011. The estimated three weeks of hearings will be held in the Municipality of Clarington. The deadline for written submissions from intervenors has been extended by one week to February 21, 2011. Anyone wishing to raise a procedural matter must provide a written submission to the Panel by March 14th. The Panel intends to hold two hearing sessions per day.



*Darlington Nuclear Plant,
Courtesy of Ontario Power Generation*

Evolution of the OECD's Reversibility and Retrievability (R&R) Project

In 2001, the Nuclear Energy Agency (NEA) of the Organization of Economic Co-operation and Development (OECD) issued a report that provided a distinction between the concepts of R&R in the geological disposal of radioactive wastes. Reversibility is the capacity to manage the repository with flexibility over time while retrievability is the possibility to reverse waste emplacement.

This was followed by the NEA's 2004 report titled "Stepwise Approach to Decision-Making for Long-term Radioactive Waste Management". This document emphasized the need for more dialogue in decision-making and laid out some principles and issues. In 2008, the NEA issued a collective statement on "Moving Forward with Geological Disposal of Radioactive Waste" which pointed out the importance of clarifying the meaning and role of reversibility and retrievability for each country providing long-term safety was not jeopardized.

This led the NEA to launch a study of the issues of R&R in 2008. The following activities undertaken to date include: a bibliographic survey; a survey of NEA member countries' positions; and discussions with an ever-expanding group of interested parties. Canada's Nuclear Waste Management Organization (NWMO) hosted an NEA workshop in Toronto in October 2008.

The NEA's project culminated with an international conference in Reims on December 14-17, 2010. More than a 180 policy-makers, leaders and experts from 16 NEA member countries attended the event. Four key points emerged from the conference. Given the long timeline for developing any deep geological repository and the changes that can occur in science, technology and societal demands, the most prudent approach is to select technologies that are reversible. While countries differ in their study approaches to retrieval, geological disposal is an intrinsically reversible technology and ease of retrieval through the various stages of repository implementation can only be a matter of degree. There is universal agreement that R&R provisions should never interfere with long-term safety but that there is a strong societal interest in the reversibility of decisions and retrievability of waste. Finally, more dialogue is needed, in particular to harmonize vocabulary and define terms such as "disposal", "storage", "waste" and "closure".

Canada's NWMO's "Adaptive Phased Management Approach, adopted in 2007, included the concept of retrievability.

Good News for Cameco

On November 23rd, 2010 Cameco announced the signing of a long-term agreement with China Guangdong Nuclear Power Holding Co., Ltd to supply 29 million pounds of uranium concentrate. The agreement, which runs through to 2025 will help supply CGNPC's three operating reactors. The company also has approximately 17,000 MW of nuclear capacity under construction and expects to have 50,000 MW on-line by 2020. Cameco CEO, Jerry Grandy noted that the agreement was a good fit with their plan to double uranium production by 2018.

On December 22, 2010 Cameco reached a uranium production milestone at its Key Lake operation in Saskatchewan. On the 19th, the facility produced its 400 millionth pound of uranium

since commencing operation in 1983. The Key Lake facility is the largest high-grade milling operation in the world.

On a related note, the CNSC provided an overview presentation on its regulatory process for uranium mines and mills to approximately 34 delegates from Québec. The Saskatchewan provincial government requested the presentation. The delegation was making the three-day fact-finding mission (January 11-13, 2011) to learn about the regulation of uranium mine facilities in Northern Saskatchewan.

Bruce Power Moves Aggressively into 2011

On January 20th, Duncan Hawthorne, President and CEO of Bruce Power delivered a succinct, thought provoking speech about the critical challenges facing Canada's nuclear industry. Hawthorne referred to the tremendous changes that have occurred in the industry 25 years after the Chernobyl event. In particular, he highlighted the global industry's self-policing and international cooperation that have resulted in today's high standards of operational excellence.

The absence of a long-term view and the schizophrenic support that results were cited as the biggest challenges for Canada's continued role as an industry leader. Hawthorne stated that Canada's industry needs sponsorship and commitment—not subsidy. The long-term view that the government of France takes of its nuclear industry and the support President Sarkozy's provides for Areva's export sales were provided as examples of what's missing.

Hawthorne recommended that Canada start with a view of what it wants to be. He stated that if Canada sees itself as being an energy superpower, it has to be more than just digging for oil and that CANDU reactor technology has advantages, we as industry need to sell them that and that's where the federal government can help.

The same day, Bruce Power announced that it had successfully completed the installation of 480 new fuel channels in the Unit 2 reactor. This key milestone means the refurbishment project is about 85% complete. As well, the restoration of airlocks and transfer chambers for Unit 1 were completed.

"In the end, this leaves the domestic prospects for the Canadian nuclear energy industry in an uncertain space: cross-cutting federal and provincial priorities will inevitably constrain any sustained Canadian nuclear energy revival. The withdrawal of federal support from AECL's reactor business will leave those domestic jurisdictions considering nuclear power facing the prospect of massively higher costs. Interprovincial competition for economic development opportunities will restrain collaboration, while the distribution of constitutional authorities hinders broader efforts to coordinate. And as always, provincial efforts to mitigate risk will continue to be constrained by federal efforts to do the same; each party seeking advantage at the expense of the other's tax-base – the quintessential Canadian political two-step."

Concluding paragraph from "The Canadian Nuclear Industry: Status and Prospects by John Cadham, The Centre for International Governance Innovation"

Hydro Québec Makes Progress on Licensing Renewals

On December 10th, 2010 the CNSC announced six-month operating license extensions for Hydro Québec's Gentilly 2 Station and radioactive waste facility. Both facilities will continue to operate under the same conditions as those stipulated in the former licenses until June 30, 2011. The decisions followed a one-day hearing where the Commission considered CNSC staff recommendations and submissions from Hydro Québec.

The CNSC expressed its satisfaction the licensee meets the requirements of section 24 of the Nuclear Safety and Control Act. Hydro Québec was also considered to be qualified to carry out these activities and had taken adequate provisions to protect health and safety, the environment and national security and Canada's international obligations.

Concurrently, the CNSC and Hydro Québec signed a Protocol that provides a framework for the preparation of the necessary information by Hydro Quebec and CNSC staff in support of the renewal of these two operating licenses and their integration into a single license.

The Commission also agreed to postpone Hydro-Québec's submission of a revised safety report for Gentilly-2 until June 30, 2011. The second day of hearing for Hydro Québec's licensing renewal for both facilities and combination into a single operating license will take place at Bécancour on April 13, and 14, 2011. The hearing will also consider extending the submission deadline for the revised safety report until December 2011.



Gentilly 2,
Courtesy of AECL

CNSC Receives Point Lepreau Refurbishment Update

Last November, the CNSC announced that it would hold a one-day hearing on January 19, 2011 on New Brunswick Power Nuclear's [NB Power Nuclear] application to extend the operating license for the Point Lepreau Nuclear Generating Station. The current operating license expires on June 30, 2011. During this hearing, the CNSC considered a project update from NB Power Nuclear on the refurbishment activities and a CNSC annual safety assessment for the Point Lepreau Station.

Just prior to the hearing, Atomic Energy of Canada Limited released a refurbishment project update. AECL stated that it is on track to complete Phase 2 of the overall project by May 2012. Following the completion of the retube activities, NB Power Nuclear will proceed with commissioning activities expected to take about four months. The reactor is expected to return to service in the fall of 2012.

To date, 380 calandria tubes have been safely and successfully completed. Work is now underway on polishing the 760 calandria tube sheet bores, which are located at the end of each tube. A full-scale mock-up of the reactor is being used to test installation tubes, develop procedures and train staff. As well fire protection upgrades are continuing as part of a multi-year program to meet new nuclear industry codes and standards.



Point Lepreau,
Courtesy of AECL

Worth Repeating....

"I can go to France and I can talk to the Energy Minister, and he can show me his nuclear program from now till 2060. He can tell me what they're going to do. He can tell me what pedigree of plants are running today. He can tell me that in 2030 they intend to bring on line the first generation four nuclear plant. They're already building generation three. They can speak about the ITER project and they can speak about the funding. They have a long-term view of the industry.

The challenge for Canada – and it's really very obvious in the media right now – is what kind of industry do we want? What kind of industry do we see? The one thing

I know from my experience in this industry is you cannot be schizophrenic about the nuclear power industry. It requires sponsorship – not subsidy; it requires sponsorship and commitment.

And my message to anyone who has interest in fixing some of the issues with our nuclear program start with deciding what you want to be. I would argue that, if

Canada sees itself as being an energy superpower, then it has to be more than just digging for oil. It has to be broader than that. It has to be a leadership role."

*Excerpt from January 20th,
2011 speech to the Empire Club
by Duncan Hawthorne,
President and CEO, Bruce
Power*

In short...

Uranium Prices Rise in January

A January 17, 2001, Globe and Mail business report provided good news for Canada's uranium sector. Uranium spot prices rose from \$40 (US) a pound (March 2010) to over \$62. Spot prices are projected to range from \$80 to \$100 a pound over the next five years.

Tightening supply and rising demand, in particular from China, is driving prices higher. China is expected to double the number of nuclear reactors to 80 over the next few years.

In November 2010, China signed three long-term contracts for 140 million pounds of uranium from Cameco, Areva Group and Kazakhstan's state owned producer. According to experts, close to 80 per cent of current world uranium production is already under long-term contracts.

Nuclear Energy and the U.S. Clean Air Act

As 2010 came to a close, the Nuclear Energy Institute [NEI] issued a press release acknowledging the important role nuclear energy has played in support of the Clean Air Act. The Clean Air Act came into effect on Dec. 31, 1970 during the Nixon administration.

In 2009, U.S. nuclear plants prevented the emission of 647 million tons of carbon dioxide and thousands of tons of particulate matter. The NEI noted that in the 40 years since the Act was passed about 117 million tons of sulphur dioxide and 57 million tons of nitrogen oxide had been avoided. The latter is the equivalent of removing the world's 600,000 million passenger cars off the road for five years. The nation's 104 nuclear plants were described as the "number one source of

environmentally-friendly electricity, producing 70 per cent of the electricity generated by carbon-free sources".

Another New Nuclear Plant in Finland

Toshiba announced the signing of a technical agreement with Finland's Fennovoima to construct a new nuclear plant. Before a construction license is issued, Fennovoima will evaluate engineering data on Toshiba's Advanced Boiling Water Reactor.

The Finnish government granted Fennovoima a "Decision-in-Principle", which was subsequently ratified by the Finnish parliament in July to construct the new plant.

Fennovoima has two owners: Voimaosakeyhtiö SF with 66 per cent and E.ON Kärnkraft Finland with 34 per cent. Altogether, Fennovoima has 70 shareholders. Voimaosakeyhtiö SF is owned by 69 Finnish regional and local energy companies as well as companies in trade and industry. E.ON Kärnkraft Finland is part of E.ON, the world's largest privately owned energy company and the second largest nuclear power company in Europe.

Westinghouse Electric Company, Toshiba's U.S. subsidiary, will provide technical support. A final selection decision is expected in 2012 with operation projected to start in 2020.

Canada Invests in Four Isotope Projects



The Government of Canada announced in Sherbrooke, Quebec on January 24, 2011 that

it would be investing \$35 million in four projects to develop new ways of producing the key medical isotope technetium-99m (Tc-99m).

The medical isotope shortage was caused by the unexpected shutdown of the Chalk River National Research Universal (NRU) reactor in May 2009. The NRU reactor supplied about a third of the world's demand for medical isotopes used for diagnostic medicine around the world. An Expert Review Panel on Medical Isotope Production report released in December of that year recommended diversifying the supply chain and noted the potential of cyclotron and linear accelerator technologies.

This two-year project will involve partnerships with multidisciplinary teams and utilize existing cyclotron and linear accelerators across Canada. Advanced Cyclotron Systems will receive \$11 million to investigate the "Commercializing Cyclotron Production of 99mTc in Canada" at the Centre Hospitalier Universitaire de Sherbrooke and the University of Alberta. TRIUMF, owned and operated by a consortium of Canadian universities, will receive \$6 million to produce Tc-99M at laboratories on the University of British Columbia and at two other facilities in Toronto. The third project, the Canadian Light Source, will install, license and test a new linear accelerator and equipment for isotope recovery at the Saskatchewan's Accelerator Laboratory. PIPE, the Prairie Isotope Production Enterprise, a Manitoba based non-profit corporation is the final recipient. If successful, these technologies will create a more distributed network isotope supply and reduce nuclear waste from medical isotope production.

CANADIAN NUCLEAR WORKER

is published four times a year by the Canadian Nuclear Workers' Council, 244 Eglinton Avenue East, Toronto, Ontario M4P 1K2.

TEL 416 725-5776

FAX 416 481-7115

e-mail dshier@pwu.ca

Contributions should be sent to the above address.

PUBLISHER: David Shier

EDITOR: Paul Newall

The Canadian Nuclear Workers' Council is an organization of workers represented by unions working in various areas of the Canadian nuclear industry which includes uranium mining, nuclear fuel processing, nuclear power stations, radial isotope production for medical and industrial purposes, and nuclear research.

The member groups are:

CANADIAN UNION OF PUBLIC EMPLOYEES • CHALK RIVER TECHNICIANS AND TECHNOLOGISTS UNION • COMMUNICATION, ENERGY & PAPER WORKERS UNION • CANADIAN AUTO WORKERS UNION • HYDRO QUEBEC PROFESSIONAL ENGINEERS UNION • INTERNATIONAL ASSOCIATION OF FIREFIGHTERS • INTERNATIONAL ASSOCIATION OF MACHINISTS & AEROSPACE WORKERS • INTERNATIONAL BROTHERHOOD OF ELECTRICAL WORKERS • POWER WORKERS' UNION • PROFESSIONAL INSTITUTE OF THE PUBLIC SERVICE OF CANADA • PUBLIC SERVICE ALLIANCE OF CANADA • SOCIETY OF PROFESSIONAL ENGINEERS & ASSOCIATES • UNITED STEELWORKERS • ALLIED TRADES COUNCIL • INTERNATIONAL BROTHERHOOD OF BOILERMAKERS