

## National Director's Message

### Talking Up Nuclear in Canada's Energy Playbook



Last issue's message began with the question "Does the World Need Nuclear Power for a Better Future?" I concluded my comments by suggesting our decision-makers should embrace the well documented environmental and economic benefits that nuclear power delivers when developing Canada's response to the Paris Accord.

On November 19, 2016, Canada's Minister of Environment and Climate Change, Catherine McKenna submitted our country's strategy for a clean growth economy to COP22 in Marrakech. This "*Mid-Century Long-Term Low-Greenhouse Gas Development Strategy*" explores various pathways that support Canada's international commitment while enabling growth during the transition to a low-carbon economy. The document is intended to start a conversation with Canadians on how Canada can reduce emissions for a cleaner, more sustainable future by 2050.

Increased electrification is one of the elements of the strategy, e.g. using clean electricity to power vehicles and appliances. The report indicated that Canada already has one of the cleanest electricity systems in the world. Today, "Canada is the second largest producer of hydropower after China, fourth globally for generation from a combination of hydro, wind, solar and biomass, and sixth for generation from nuclear energy."

The report researched and modelled how this "clean energy" base could be leveraged to achieve GHG emission reductions from 2005 levels. Nuclear's role varied—maintaining current capacity to building more—depending on the modelling assumptions. However, the report noted "benefits to nuclear power include emission free generation, reliable baseload capabilities, and a lower levelized cost of electricity." Additionally, new and emerging nuclear technologies were seen as offering "an increasingly attractive option".

It was stated that expanding this clean energy base provides Canada with the opportunity to increase clean electricity exports as well as its expertise in current and emerging technologies that could help other countries reduce their emissions.

All of this underscores the fact that nuclear is a "clean energy" source for today and the future. Clearly, nuclear is a word that should be part of the clean energy vocabulary in public discussions about Canada's future energy choices.

*David Shui*

## Gentilly-2 Offsite Emergency Plan Modified

In September 2016, the Canadian Nuclear Safety Commission (CNSC) posted information on its website about the modifications made to the Gentilly-2 offsite emergency response plan. Elements of the original plan included protection measures for the surrounding population and the pre-distribution of potassium iodide (KI) pills.

In response to the preparation for decommissioning and eventual dismantlement of the plant, the Organisation regionale de la securite civile (ORSC) de la Mauricie et du Centre-du-Quebec had an evaluation of the radiological risks undertaken. The ORSC confirmed that the current site has been safely shut down and that the Plan des mesures d'urgences nucleaire externe a la centrale nucleaire de Gentilly-2 (PMUNE-G2) could be suspended. The CNSC reviewed and confirmed the ORSC decision. The CNSC indicated that onsite emergency plans will continue to be maintained by Hydro-Quebec in accordance with the Commission's regulatory requirements and that it will continue to conduct regulatory oversight activities.



## Cameco Making Touchdowns

Cameco announced the recipients of the 2016 “Touchdown for Dreams” program on November 2, 2016.

In partnership with the Saskatchewan Roughriders and the Saskatchewan Cancer Agency, and with support from Rider Nation, the program granted seven dreams this year to women with life-threatening cancer.

On the same day, the company announced its third quarter results for 2016. In spite of uranium prices being at the lowest levels in the past decade, the company’s long-term portfolio kept the average realized price well above the market price. Cameco also restated its continuing commitment to cost reduction and remaining competitive in a depressed global marketplace.



Dale Clark, VP Fuel Services,  
Courtesy of Cameco

On November 8, 2016, Dale Clark, Cameco’s Vice President of Fuel Services presented to a CNSC public hearing in support of the company’s request for a 10-year license renewal for its Port Hope Conversion Facility. The CNSC’s two-day public hearing was held in Port Hope’s Town Park Recreation Centre. With

the current licence expiring on February 28, 2017, the renewal would allow Cameco to continue processing and storing uranium compounds for the production of uranium hexafluoride and uranium dioxide. Many written and oral presentations from a range of stakeholders were received regarding Cameco’s application. Submissions in support of the licence renewal request were made by the CNWC and the USW.

On the last day of November, the *Saskatoon StarPhoenix* reported that Cameco would be shutting the McArthur River Mine down for six weeks this summer. The company memo obtained by the newspaper indicated that the shutdown was intended to help address economic challenges facing the industry. It also will include a mandatory four-week vacation period for non-essential personnel.

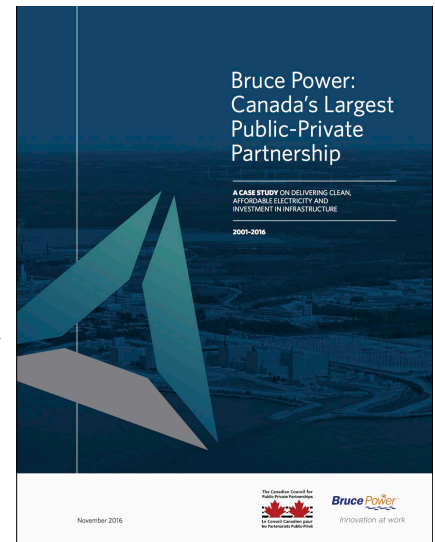
## Bruce Power Partnering for Success

Bruce Power announced on September 29, 2016 that it will be hosting a follow-up Operational Safety and Review Team (OSART) visit at Bruce B in 2017. The company hosted a group of international experts led by the International Atomic Energy Agency (IAEA) in December 2015. The OSART program, in place since 1982, provides member states with the opportunity to share best practises and support continuous improvements to their operations.

BP’s Cobalt-60 activities were in the spotlight during the month of November. The company announced on November 4 that it has safely harvested this medical isotope during the Bruce B Unit 7 outage. Operations staff successfully harvested 24 Cobalt-60 rods. This will be sent to Nordion, an Ottawa-based company that

provides products used for the prevention, diagnosis and treatment of disease. Earlier, BP signed an agreement with Nordion to begin supplying “High Specific Activity (HSA) Cobalt”, which is used to treat brain related cancers. On November 8, BP signed an agreement with Nordion to ensure the long-term supply Cobalt-60 up to 2064. The previous agreement would have expired at the end of 2028. The Bruce site has produced Cobalt-60 since the 1980s and today is the world’s largest supplier. The new arrangement was made possible by the 2015 long-term electricity supply agreement signed with Ontario.

On November 14, BP and Canadian Council for Public-Private Partnerships (CCPPP) released an updated report that concluded the company’s unique Public-Private partnership helps Ontario achieve several key goals. These include keeping electricity prices low and helping improve the quality of the air. The company has made these contributions while making significant investments in public assets without impacting the province’s balance sheet.



## What Others Are Saying

“Taking action to slow climate change was a contentious idea before the election, and if voting on November 8 created a consensus on any issue, it wasn’t this one. President-elect Trump has called for withdrawing from the COP-21 agreement made a year ago in Paris, but as COP-22 got underway in Marrakesh, Morocco, more than 300 American companies sent a letter to Mr. Trump affirming their “deep commitment” to adhering to the climate accord...

The companies that signed the letter (including DuPont, the Gap, eBay, and General Mills) argued that “the right action now will create jobs and boost U.S. competitiveness.”

Among the strongest actions that can be taken along those lines is to preserve the existing U.S. reactor fleet, and to build new plants, including designs that will fit in well with an emerging energy world of intermittent renewable energy sources. New reactors can also tackle new jobs beyond electricity, including providing, carbon-free, the heat needed to run refineries, chemical plants and other industries...

...Strong support for nuclear power addresses priorities that everyone shares. We should not shy away from preserving and expanding these benefits.”

Source: Web Blog-Energy-NEI Nuclear Notes, November 21, 2016, “Why Nuclear Energy is Common Ground in Clean Energy Policy,” by Matt Wald, Senior Director of Policy Analysis and Strategic Planning, Nuclear Energy Institute

## OPG's Low Carbon Investments Hit High Gear

At the beginning of October, OPG released a report prepared by Intrinsic Environmental Sciences that compared the environmental impact of operating the Darlington Nuclear Station to 2055 to other supply options like natural gas-fired generation. The study concluded that post refurbishment—2024 to 2055—the continued operation of Darlington would reduce greenhouse gas (GHG) emissions by 297 megatonnes. The average annual reduction of 9.6 megatonnes is the equivalent of two million cars.

On October 14, the company announced the start of Darlington's refurbishment. In addition to 30 plus years of GHG and smog-causing emission-free electricity, a Conference Board of Canada study shows this project will create \$89.9 billion in economic benefits. This includes creating up to 11,800 jobs annually and a \$15 B boost to Ontario's economy. Operational expenditures through to 2055 are forecast to generate about 555,000 person-years of employment in Ontario.

OPG and Bruce Power announced the signing of a Memorandum of Understanding regarding the supply of Cobalt-60 on November 7, 2016. The companies will collaborate to ensure the continued long-term supply of Cobalt-60. Currently, this life-saving, beta-emitting isotope is harvested from four Bruce B and three Pickering reactors. To prevent a Cobalt-60 shortage when Pickering is retired in 2024, OPG and BP will collaborate to find innovative ways to expand production from the Darlington and Bruce A facilities. Four days later, the two companies released an interim report titled, "*Working Together to Deliver the Future of Nuclear in Ontario*". The report outlines how the companies will cooperate to identify efficiencies, share lessons learned and leverage economies of scale to ensure Ontario's nuclear life extension and refurbishment programs remain on time and on budget.

## NB Power Seeks Point Lepreau Licence Renewal

During September, the Point Lepreau Nuclear Generating Station (PLNG) had a net capacity factor of 100 percent. On October 6, 2016, following 116 consecutive days of operation at high power, NB Power announced that the station was being temporarily being taken off-line. The decision resulted from a configuration issue on the system that provides water to the steam generators. The issue was corrected and PLNGS was reconnected to the grid on October 9.

On November 4, 2016, NB Power indicated that the station's net capacity factor for October was 86.3 %, which enabled the station to supply about 51 percent of the province's total net generation. The company also announced that it had recently completed a Probabilistic Safety Assessment for PLNGS in accordance with regulatory requirements. The assessment demonstrated that the plant is safe and robust and can withstand a variety of hazards. It also indicated that the station was meeting all internationally-defined targets and that no additional improvements are required at this time.

On November 28, NB Power announced that the process for the renewal of the station's Power Reactor Operating Licence (PROL) was underway. The current licence expires in June 2017. The company made its application to the CNSC for a five-year renewal of the PROL in June, 2016. A two-part CNSC hearing process starts in early 2017. The first public hearing will be held on January 26, 2017 in Ottawa and the second in Saint John on May 10-11,

2017. NB Power will be holding Public Information Sessions on November 29, 2016 in Dipper Harbour to provide the community and interested stakeholders with an opportunity to learn more about and comment on the process.

### Worth Repeating....

"...Last summer, LinkedIn convinced Microsoft it was worth \$26 billion, more than half that of a company as large as General Motors...However, these companies don't actually produce anything...they are all about the message.... This new lesson of messaging must be learned by companies that actually produce something of substance – like energy.... Companies like Snapchat, Facebook and Twitter sell digital ads but contribute little in terms of employment, job multipliers or tax receipts. Their revenues are small, ten times less than their value. On the other hand, Exelon, produces enormous amounts of cheap, clean energy, in this case from nuclear power. Exelon brings in more revenue than it is valued, and supports tens of thousands of jobs...

Those who trade in apps and ads are in the minor leagues of job creation compared to those who've harnessed the atom. Playing Pokémon GO doesn't compare to operating a power plant....

So, the nuclear industry, along with most others, must get with the program and learn to define itself first, control the message, and disrupt nonsense espoused by its detractors (HuffPost). It must tell its story in terms of job creation and lucrative careers, in terms of lighting and heating the electricity and what that means to modern societies, or to eradicating poverty. It must speak in terms of innovation, inventions and technology creation. Above all it must wrest control of the green message by taking on its very leadership since nuclear energy produces twice as much clean energy as all other clean energy sources...."

Source: From *Forbes*, November 22, 2016, "*From Media to Nuclear Power, Messaging Trumps Reality*", by James Conca, Contributor.

## In short...

### Nuclear Energy, A Strategic Asset for Canada



Dr. John Barrett

In his November 17, 2016 remarks to the House of Commons Standing Committee on Natural Resources, Dr. John Barrett, President and CEO, of the Canadian Nuclear Association focused on the five ways nuclear energy benefits Canada today and can in the future.

Dr. Barrett began by stressing the important role nuclear energy plays delivering low-carbon energy for Canada, and especially Ontario, and what this means in the battle against global warming. It delivers baseload electricity and is not intermittent and backed up by fossil fuels.

Second, nuclear technology meets 9 of the United Nations 17 Sustainable Goals. Third, Dr. Barrett described nuclear energy's significant economic impact and the high knowledge requirements associated with constructing, operating and refurbishing nuclear reactors. His fourth point noted the strategic value of nuclear energy—"no other source of clean energy has the same international impact as nuclear." And lastly, Dr. Barrett outlined the future opportunities nuclear energy can provide in remote communities and for mining and the oil sands. "In all of the areas described above—the single feature that unites them is INNOVATION."

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### "Imports won't replace Ontario's nuclear power"

On November 1, 2016, Ontario's Minister of Energy, Glenn Thibeault, responded in an editorial letter in the *North Bay Nugget* to Mike Schreiner, Ontario Green Party Leader. Mr. Schreiner had previously called for the province to shut down the Pickering Nuclear Station and cancel the refurbishment of Darlington.



Hon. Glenn Thibeault, M.P.

The Minister's letter noted that "Refurbishment of the plants at Darlington and Bruce Power will ensure we continue to benefit from an abundant supply of clean nuclear energy for decades to come—and at a price that can't be beat. He wrote that, "Ontarians can also be proud of that our nuclear industry is one of the best in the world, supporting thousands of jobs and helping grow our economy. Minister Thibeault concluded his letter as follows: "Nuclear power has been providing cheap electricity to Ontario for more than 40 years. It runs around the clock, 365 days a year, serving as the backbone of our electricity system. And best of all, it has zero emissions that cause climate change. As we look to the future, nuclear energy will continue to play a key role in our safe, clean and reliable electricity supply."

### Prioritizing Labour Plans and Decommissioning Costs

In an early October 2016, *Nuclear Energy Insider* article, PwC's Managing Director of Nuclear Capital Projects & Infrastructure called for nuclear operators planning to close reactors to set out detailed plans for labour

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, radio isotope production for medical and industrial purposes, and nuclear research.

reductions and other regulation driven decision. This is seen as the way to ensure decommissioning funds cover rising cost estimates.

According to a 2011 Electric Power Research Institute study, labour costs represent on average 44 percent of total nuclear decommissioning costs. There are currently 18 U.S. nuclear power plants being decommissioned. Utah-based EnergySolutions currently operates 50 percent of the active U.S. commercial decommissioning sites.

### Nuclear Key Part of National Clean Energy Strategy

On November 22, 2016, Leadership Candidate for the Conservative Party of Canada, Steven Blaney announced his plan for a new National Clean Energy Strategy for Canada. Nuclear energy underpins



Hon. Steven Blaney, M.P.

Blaney's five-part plan. He calls for investment in small modular reactors for Canada's North to reduce dependency on costly carbon-intensive sources and the creation of a Canadian Nuclear Energy Institute. The latter would focus on advanced nuclear fuel cycles to restore Canada's leadership role and to support engineering and trades expertise.

Blaney also calls for the construction of a fast-neutron reactor in Pickering to burn Canada's nuclear waste, partnering with Ontario, to build two new nuclear reactors to replace the Pickering Station in 2024, and another partnership with Alberta and Saskatchewan and major oil-sands players to leverage SMR technology.

The member groups are:  
District Labour Councils (Grey/Bruce, Durham, Northumberland) • International Association of Firefighters (160) • International Association of Machinists & Aerospace Workers (608) • International Brotherhood of Electrical Workers (37) • Power Workers' Union • Professional Institute of The Public Service • Society of Energy Professionals Union • Society of Professional Engineers and Associates Union • UNIFOR (The Union for Canada) (S-48, O-599, & O-252) • United Steel Workers (14193, 13173, 8562, 8914, & 7806) • International Federation of Professional & Technical Engineers Union • Provincial Building and Construction Trades Council of Ontario • International Union of Operating Engineers