



National Director's Message



Following a relatively uneventful summer, fall is here. It's the time when organizations fine tune their programs for the remainder of 2019 and look forward to the challenges in the coming year. OPG is on track with the refurbishment of Darlington Unit 2, and Bruce Power continues its preparations for the commencement of their Major Component Replacement Program, expected to start in January of 2020. In Chalk River, Canadian Nuclear Laboratories is managing and facilitating a number of SMR related projects. On the international scene, according to industry pundits, uranium markets could be turning the corner. One area of concern remains the undecided future of OPG's Deep Geological Repository. Overall, not a bad end to 2019.

In 2020, Canada's nuclear industry will need to continue its support for the OPG and Bruce Power projects to ensure they stay on time and on budget. We will also need to be vigilante on the SMR file, ensuring the costs and performance parameters are achieved and that benefits flow to our existing supply chain. And for labour, sustaining and creating new jobs will remain a challenge as decision-makers and investors continue to embrace "small is better", automated and IT-based distributed energy technologies (DER).

As an industry, we will also have to keep advancing the safe disposal of long-term radioactive wastes. Ironically, the DER sector does not appear to be held to the same standard on the waste management side. What is the world going to do with untold numbers of spent batteries, solar panels and wind turbines containing long-lived toxic materials? What will happen if the SMR technologies don't meet cost and performance targets and receive public acceptance?

The CNWC will remain focused on these issues to ensure workers have continuing, good paying jobs, new opportunities and safe workplaces.

Based on the science and collective opinions of the world's scientists, big or small, the time for new build is now.

Labour Unions Update

USW 13173 has reached a new three-year collective agreement with Cameco at the Port Hope conversion facility. The new agreement expires on June 30, 2022.

USW 8914 has reached a tentative new collective agreement with Cameco for the McArthur River Mine in Saskatchewan. The agreement will expire on December 31, 2022.

UNIFOR 48S is currently in negotiations with ORANO for the McClean Lake Mill in Saskatchewan.

The Society of United Professionals successfully completed negotiations with Bruce Power on August 11. The contract has been ratified by the membership.

The Building & Construction Trades Council of Ontario: The Port Hope Area Initiative (PHAI) is a massive, ten-year, radioactive waste cleanup effort that is being implemented in the communities of Port Hope and Port Granby, Ontario. The Provincial Building and Construction Trades Council of Ontario believes that it is in the interest of all concerned – the workers, the public, and the government – that there be oversight of the Port Granby/Port Hope contamination clean-up by an independent, scientifically-qualified, not-for-profit organization. This is the largest decontamination undertaking in Canadian history, and the spread of radioactive waste was largely the fault of a federal government Crown corporation. Hence the need, operationally and optically, for independent confirmation of the adequacy of the operation, with particular emphasis on worker health and safety. The Building Trades Council's submissions are being made directly to the Minister of Natural Resources, as well as to CNSC, AECL, and CNL.

OPG Refurbishment Moves Forward

In a June 18, 2019 Darlington Project update, OPG indicated that as the reassembly phase of the Unit 2 reactor is nearing completion, the company has begun preparing for fuel load. New fuel bundles are under production at BWXT Technologies and workers are practicing the refuelling of the unit in the Mock-Up and Training Facility at the Darlington Energy Complex. Workers will manually load 6,240 new fuel bundles into the actual reactor, according to a serialized numbering sequence.

OPG noted in the release of its 2019 second quarter financial results on August 15 that the fuel channel assemblies, upper and middle feeder, and reactivity safety system mechanisms on Unit 2 had been completed. As a result of slower than expected fabrication and installation of lower feeders, Unit 2 is not expected to return to service until June 2020 instead of the previously anticipated February 2020. The impact of these Unit 2 fabrication delays has been fully resolved and will not affect future units.

Thirty-three of 58 major plant systems are back in service and the turbine overhaul work on steam generators and electrical systems and safety improvement projects is complete. Unit 2's return to service extension will lengthen the overlap of both units but was not expected to impact subsequent units. Design and engineering are more than 90% complete and are on track for full completion by the end of 2019. Over 2,800 lessons learned have been captured from Unit 2 refurbishment to date, and are being applied to Unit 3 to reduce risk and improve cost and schedule performance. All long lead material procurement is on track. The Unit 2 project remains on budget and the overall budget and schedule for the 10-year refurbishment program is also on target.

OPG's September Darlington update indicated that the installation of the lower feeder pipes for Unit 2 was underway and expected to be complete in October. As well, OPG noted that it had started the execution phase for Unit 3, with refurbishment expected to commence in early 2020.

*Background image : Darlington Generating Station,
Ontario Power Generation*

Video Watch

- **MPPs comment on nuclear at the International Plowing Match 2019**
<https://www.youtube.com/watch?v=-cTzVacWRvo&feature=youtu.be>
- **Everything that Andrew Yang and Cory Booker said about nuclear power at the CNN Climate Town Hall**
<https://www.youtube.com/watch?v=VJsmHFq1ik&feature=share>
- **Cobalt-60 – What does it have to do with heart valves?**
<https://www.youtube.com/watch?v=39mNeEOGra0&feature=em-uploademail>
- **Darlington Refurbishment Unit 3 Q&A**
https://www.youtube.com/watch?v=wa8EF8Vn_H8&feature=em-uploademail
- **Bruce Power helped Ontario recover from the 2003 blackout**
https://www.youtube.com/watch?v=n_wqSjYM0sQ
- **Saugeen Ojibway Nation forms partnership with Bruce Power to collaborate on medical isotopes**
<https://www.youtube.com/watch?v=3huVKp6DrhY&feature=youtu.be>
- **Why does GERMANY hate NUCLEAR POWER so much? – VisualPolitik EN**
<https://www.youtube.com/watch?v=RYagGAgHfQ0&feature=youtu.be>

Point Lepreau Achieves “Outstanding Performance”



Source: NB Power, Point Lepreau Generating Station

NB Power undertook a successful one-day security exercise at the Point Lepreau Nuclear Generating Station (PLNGS) on June 26, 2019. The Point Lepreau Nuclear Response team and the Canadian Nuclear Safety Commission (CNSC) exercise tested the security contingency procedures as required by legislation. Residents were informed that emergency response vehicles would be in the community.

PLNGS provided about 36% of the total net generation from all NB Power generating stations during the first quarter of the 2019/20 fiscal year. This represented a net capacity factor of 56%. A successful 6 week planned maintenance outage was conducted during this period. The unit was taken offline for a several days on July 8 to repair a small section of tubing in the primary heat transport system and returned to service on the 15th.

On July 24, NB Power released its year-end financial statements for 2018/19. Operational highlights included outstanding generator performance, the station’s best ever performance. The release also noted that PLNG represents 34% of NB Power’s low carbon electricity. The following day, the company indicated that it was “pleased” with the progress made to date by Advanced Reactor Concepts (ARC) and Moltex Energy on the research and development of small modular reactors in New Brunswick. The companies are working with the University of New Brunswick and are progressing through Phase 1 of the CNSC’s Vendor Design Review Process (VDRP). Commercial success is dependent upon both reactor designs’ successfully completing Phase 2 of the VDRP and their financial and project planning predictions. If successful, NB Power plans commercial demonstrations of both reactors by about 2030.

Decisions for Cameco

On July 13, 2019 Cameco issued a release expressing its pleasure with President Trump’s decision not to implement any new trade restrictions on uranium imports into the United States. The President also announced a U.S. Nuclear Fuel Working Group to further assess their country’s nuclear fuel production. The Group will report back within 90 days with its findings and recommendations. Cameco will be a participant in the efforts of the working group. The U.S. is Cameco’s largest customer by country, accounting for about 25% of the company’s total sales. In the last two decades, Cameco has been the largest uranium producer in the U.S.

On the same day, Cameco announced that a tribunal of international arbitrators had issued a decision in favour of the company’s contract dispute with Tokyo Electric Power Company Holdings, Inc. Cameco was awarded damages of \$40 Million (US) based on the Tribunal’s interpretation of losses under the supply agreement. Cameco’s claim for damages was about \$700 million (US).

On July 25, Cameco reported its consolidated financial and operating results for the second quarter ended June 30, 2019. The company indicated that, “Long-term fundamentals reflect growing demand and a market where the uranium price needs to transition.”



Source: Canadian Nuclear Safety Commission
Cameco Port Hope Conversion Facility

Worth Repeating

“As the leading energy organisation covering all fuels and all technologies, the International Energy Agency (IEA) cannot ignore the role of nuclear power. That is why we are releasing our first report on the subject in nearly two decades in the hope of bringing it back into the global energy debate.

We are highlighting the issue at a critical time. The failure to expand low-carbon electricity generation is the single most important reason the world is falling short on key sustainable energy goals, including international climate targets, as we have highlighted repeatedly this year. The question is what nuclear power’s role should be in this transition. Put another way: Can we achieve a clean energy transition without nuclear power?

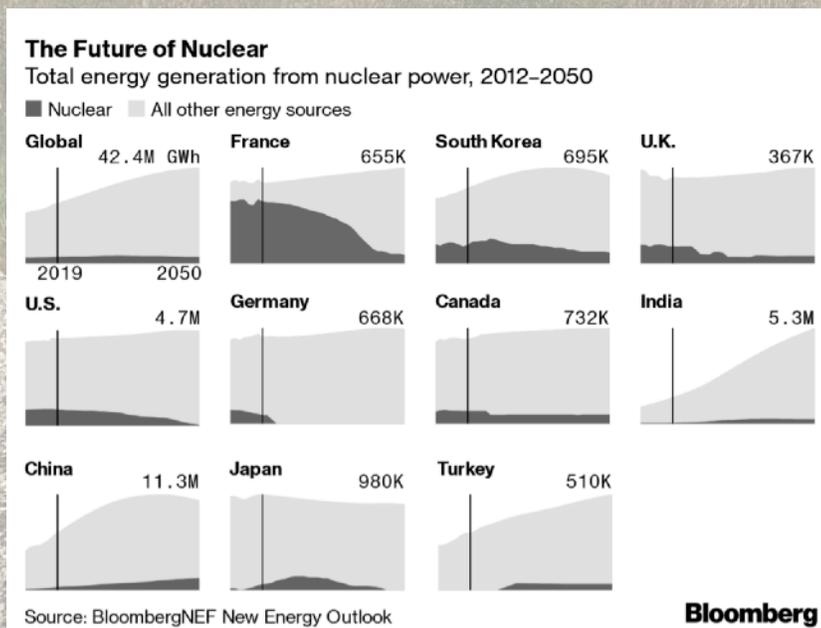
For advanced economies, nuclear has been the biggest low-carbon source of electricity for more than 30 years, and it has played an important role in the security of energy supplies in several countries. But it now faces an uncertain future as ageing plants begin to shut down in advanced economies, partly because of policies to phase them out but also under pressure from market conditions and regulatory barriers....

Government policies have so far failed to value the low-carbon and energy security attributes of nuclear power, making even the continued operation of existing plants challenging. New projects have been plagued by cost overruns and delays.

These trends mean nuclear power could soon be on the decline worldwide. If governments don’t change their current policies, advanced economies will be on track to lose two-thirds of their current nuclear fleet, risking a huge increase in CO2 emissions.

Source: *Nuclear Power in a Clean Energy System*, from the Forward, by Dr. Fatih Birol, Executive Director, International Energy Agency, May 2019.

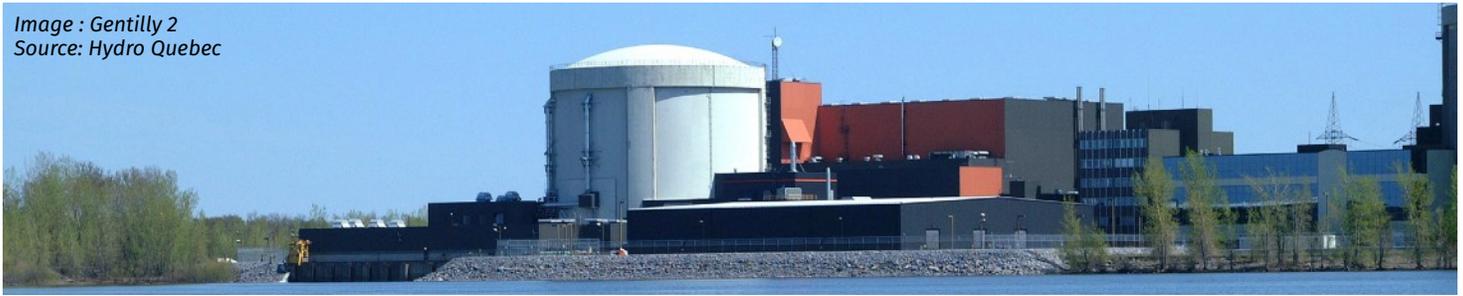
What Others Are Saying



“The natural gas boom is killing America’s nuclear industry. Wind and solar may finish the job...”

Source: Excerpts from September 21, 2019, *Bloomberg* article, by Will Wade, “Cheap Gas is Killing Nuclear, Green Power May Finish the Job”.

Image : Gentilly 2
Source: Hydro Quebec



Gentilly-2 Results from 2018 Independent Environmental Monitoring

The CNSC released the results of this Monitoring Program on June 28, 2019. Such a program is required under the *Nuclear Safety and Control Act* for all licensees of nuclear facilities to demonstrate that the public and the environment are protected from any emissions from these facilities. The monitoring results are submitted to the CNSC to ensure compliance.

The Independent Environmental Monitoring Program (IEMP) compliments the CNSC's ongoing compliance verification program. CNSC staff collect samples from public spaces around the facilities which are then sent to the CNSC's independent laboratory for testing and analyzing the amount of radioactive and hazardous substances in them. Samples have been taken outside of the G-2 facility perimeter in 2015, 2016 and 2018. The measured levels of radioactivity in the samples were below guidelines and CNSC screen levels. The CNSC release noted that, "the IEMP results for 2015, 2016 and 2018 confirm that the public and the environment in the vicinity of the Gentilly-2 Facilities are protected and that there are no expected health impacts."

Bruce Power's Isotopes for Health

On June 21, 2019 Bruce Power announced the shipping of its first Shield Plug Assembly for Unit 6. The Major Component Replacement (MCR) Project will begin on January 21, 2020. Brotech Precision CNC will manufacture 1,028 assemblies per unit with 6,168 being required over the life of the six-unit MCR.

On July 3, Bruce Power opened the doors of its new 116,000-square-foot Chesley Warehouse to be used as a storage space for the huge volume of materials to be received during the MCR Project. The following week, the company announced a partnership with Kinectrics and Framatome to advance the production of a key medical isotope. Lutetium-177 is used to treat prostate and neuroendocrine cancer. Production is anticipated to begin in 2022 following regulatory and other approvals.

Bruce Power and the Saugeen Ojibway Nation (SON) announced a collaborative isotope marketing agreement on July 18. This agreement will leverage the previously noted Lutetium 177 partnership and focus on creating new economic opportunities with the SON by developing new isotope infrastructure. Bruce Power and SON have launched a website to provide information on the partnership and project, www.fightingcancertogether.ca.

On August 15, Unit 1 achieved a full year of operation, four days after setting a new record run of 361 days of continuous operation. Unit 1 was restarted in 2012. Bruce Power announced on September 3 that over 6,200 people had taken the company's summer tourism initiative during the summer. The Program is now in its fifth year of operation. The following day, Bruce Power entered into another cancer treatment related partnership with Nordion and Xcision to support the use of Cobalt-60 and the GammaPod. The latter is a new stereotactic radiotherapy system for the early stage, treatment of breast cancer and has the potential to shorten the course of treatment. On September 5, Bruce Power announced that it had completed its most recent harvest of Cobalt-60 which will be processed by Nordion.

Background image : Bruce Power

In Short...

EU “Green” Investment Guide For Climate Change

On June 18, 2019 the European Commission (EU) issued guidelines on what qualifies as environmentally friendly investment. An extra annual investment of 180-290 billion Euros is estimated to be required by several sectors in Europe’s economy to achieve zero emissions by 2050. The report is intended to encourage more private investment or redirect existing funding to help reach this target.

The Commission’s guidelines are directed at its objectives of climate change mitigation, climate change adaptation, sustainable use and protection of water and marine resources, transition to a circular economy, waste prevention and recycling, pollution prevention and control and protection of healthy ecosystems. Coal and nuclear power are excluded from the guidelines.

Canada’s Emergency Preparedness and Response Framework

Reviewed By IAEA

The Canadian Government requested the International Atomic Energy Agency (IAEA) to conduct a review of Canada’s Emergency Preparedness and Response (EPR) framework. The IAEA’s team of experts finished their work in mid-June.

Canada’s well-developed and mature EPR system and streamlined approach for the timely processing of liability claims relating to nuclear or radiological emergencies were noted among several strengths. The team also suggest that the Government: include justification and optimization in the protection strategy; develop a detailed monitoring strategy to optimize its capabilities and resources; and, develop detailed arrangements for formally terminating a nuclear emergency. The Government plans to develop an action plan and make a public report in early 2020.

CNL Accelerates SMR Program

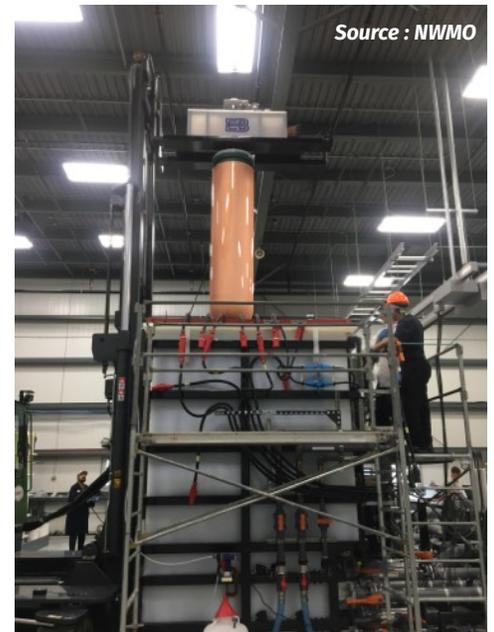
On July 18, 2019 Canadian Nuclear Laboratories (CNL) launched a new program to support R&D to accelerate the deployment of small modular reactors (SMRs) in Canada. The company will issue an annual call for proposals for designated focus areas such as market analyses, fuel development, reactor physics modelling, and, transportation.

Earlier in the week, on July 15, the Canadian Government announced the commencement of an environmental assessment for a small modular reactor project at CNL. Global First Power (GFP), Ultra Safe Nuclear Corporation (USNC) and Ontario Power Generation propose to construct and operate a 15 megawatt thermal (5 MW electrical) plant on property owned by Atomic Energy of Canada Limited. GFP will provide CNL with required

information as they continue their proponent selection process and their license application with the CNSC.

NWMO Develops Used Fuel Container Innovation

In August, the Nuclear Waste Management Organization (NWMO) announced the development of a new copper clad used fuel container (UFC). The NWMO designed, developed and fabricated this first-of-a-kind system. An electroplating process is used to coat the steel, used fuel containers, which will prevent corrosion of the steel UFCs when eventually contained and stored in Canada’s deep geological repository.



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Canadian Nuclear Workers Council

The collective voice of organized labour in the nuclear industries

The Canadian Nuclear Workers Council (CNWC) is an umbrella organization of Unions representing workers in all sectors of the Canadian nuclear industry. Founded in 1993, it represents sectors including electric power utilities, uranium mining and processing, radioisotope production for medical and industrial purposes, nuclear research, construction and trades in Ontario and labour councils in host communities.

The member groups are:
District Labour Councils (Grey/Bruce, Durham, Lindsay, Northumberland) • International Association of Firefighters (160) • International Brotherhood of Electrical Workers (37, 353, & 804) • Power Workers’ Union • The Professional Institute of The Public Service of Canada • Society of United Professionals Union • Society of Professional Engineers and Associates Union • UNIFOR (S-48, 524, O-599, & O-252) • United Steelworkers (14193, 13173, 4096, 8562, 8914, 7806 & 1568) • International Federation of Professional & Technical Engineers Union (160) • Provincial Building and Construction Trades Council of Ontario