Canadian Nuclear Workers' Council

Conseil Canadien de Travailleurs du Nucléaire

cnwc-cctn.ca

June 2019

National Director's Message

My February message suggested ten reasons our industry should be starting to build an Enhanced CANDU 6 reactor now. A colleague agreed these were all good reasons, but challenged me to come up with ten more.

Never one to shy away from a challenge...

1. Nuclear, the backbone of Ontario's energy system, affordably supplies more than 60% of the power used by Ontarians, each and every day – free of greenhouse gas emissions.
2. According to Intergovernmental Panel on Climate Change data, on a life-cycle CO2 emissions by energy source comparison, nuclear is comparable to wind, biomass and solar and substantially less than natural gas.
3. Strategically, linking Canadian nuclear technology to the extraction and processing of our country's oil and natural gas resources can help Canada meets its greenhouse gas targets.
4. At the same time, it would help create thousands of new jobs and economic wealth in Canada's uranium mining and processing sectors and in northern communities.
5. A proven Canadian reactor technology, the Enhanced CANDU 6 (EC6), a 700-megawatt (MWe) Generation III reactor, is available today.
6. EC6 reactors can deliver reliable, low-carbon, baseload energy to small and medium sized grids.
7. Building a new EC6 reactor could help sustain the successful transition of Canada's nuclear industry towards possible commercial futures with SMR, AFCRs and fusion technologies.
8. Meeting Ontario's expected electricity supply gap with more carbon-emitting natural gas generation jeopardizes the emissions reductions achieved by closing Ontario's coal-fired stations.
9. As the Canadian Nuclear Association notes, "thanks to nuclear science and technology, our industry meets nine of the seventeen Sustainable Development Goals (SDGs), addressing issues of affordable and clean energy, good health, clean water and action on climate change."
10. "...Without action to provide more support for nuclear power, global efforts to transition to a cleaner energy system will become drastically harder and more costly. Wind and solar energy need to play a much greater role in order for countries to meet sustainability goals, but it is extremely difficult to envisage them doing so without help from nuclear power..." Dr. Fatih Birol, Executive Director International Energy Agency, May 28, 2019

David Sluss

Labour Unions Update

Kinectrics Inc. and the Power Workers' Union (PWU) ratified a 2-year agreement on March 25, 2019. The agreement includes annual salary schedule increases and suspends an Escalator Clause for the term of the agreement.

Ontario Power Generation and the Power Workers' Union received an Arbitrator's decision regarding the terms of a new collective agreement on April 3, 2019. The three-year agreement is for the period April 2018 to March 31, 2021. The agreement includes annual wage improvements and an increase in the shift differential.

Unifor 224 and BWXT recently ratified a 3-year agreement for Unifor members at BWXT's Peterborough operations. The new agreement includes annual wage increases and improvements to employee health benefits.

USW Local 8914 – Cameco bargaining continues. On May 8, the USW Local presented a proposal package to the company. Negotiations are to start on June 10, 2019.

Bruce Power Breaking Records

Unit 5 started setting a new record for producing power starting on March 5, when it had set a previous record of 520 consecutive days. Unit 6 hit 556 days on February 15, 2013; Unit 7 set its record on September 9, 2016; and Unit 8 set a unit and site record of 623 days on February 13, 2018. On the Ides of March, Bruce Power announced that Unit 1 had set a post-refurbishment record run of 193 consecutive days on February 24.

On March 25, the company harvested medical-grade Cobalt-60 from Unit 7 following nearly two years in the reactor. On April 25, Bruce Power officially opened its Major Component Replacement (MCR) Training Facility in Kincardine. The 129,000 square foot facility will allow skilled tradespeople the opportunity to execute highly technical MCR programs. This facility is intended to help keep the program on time and on budget.

In late April, Bruce Power hosted 19 fire departments from across Bruce County and Goderich at the 29th Annual Bruce County Fire School. This event provides the opportunity for training in a variety of mock emergency situations. On the 29th, the company and its partners in labour and safety honoured workers, killed, injured or who have become ill on the job, on the annual Day of Mourning. Attendees included representatives from the Saugeen Ojibway Nation, the Power Workers' Union, the Society of United Professionals, Grey-Bruce Labour Council, the Building and Construction Trades Council of Ontario and Ontario Power Generation.

The Nuclear Innovation Institute (NII) and the University of Strathclyde's Advanced Nuclear Research Centre (ANRC) signed an MOU, establishing NII's first international partner on May 7. Two days later, the company and its supplier partners raised $50,000 for the Saugeen Ojibway Nation's Youth Leaders in Training Program. On May 13, Bruce Power donated more than $120,000 to local mental health initiatives in the community.

Background image : Bruce Nuclear Generating Station, Bruce Power

Video Watch

- ***Behind the scene with the GE Power Darlington Refurbishment stator***
  https://www.youtube.com/watch?v=5oscCxFoVTo&feature=em-uploademail
- ***Skills Engagement Promotion Video***
  https://app.frame.io/presentations/b8135cab-4e3b-4c41-a4a9-9645e262dd1f
- ***Darlington Refurbishment: 2018 Fourth Quarter Performance Update***
  https://www.youtube.com/watch?v=yDVbnIENrdg&feature=em-uploademail
- ***Ontario families, business count on Bruce Power***
  https://www.youtube.com/watch?v=mfzYKwszVDU
- ***Member Statement from Michael Parsa, MPP Aurora – Oak Ridges – Richmond Hill***
  https://www.youtube.com/watch?v=rl8lol4Y594&feature=youtu.be
- ***Darlington Generator Stator Timelapse / GE Power***
  https://www.youtube.com/watch?v=btz6Gug4RrU&feature=youtu.be
- ***Women in Science 2019***
  https://www.youtube.com/watch?v=Yu2XmbUAuBo&feature=em-uploademail
- ***Of Great Service: The Story of National Research Universal***
  https://www.youtube.com/watch?v=aZLzJqVN_0M&feature=youtu.be

OPG Keeps Eye on the Ring

In late April, Ontario Power Generation (OPG), Durham College and the International Brotherhood of Boilermakers (IBB) announced the offering of a three-week pre-apprenticeship program to provide essential boilermaker industry training.
The inaugural session started on April 29.

On May 10, OPG announced that Pickering Unit 1 had been taken off-line due to an issue with the digital control computers. Units 4, 5, 6 and 8 were operating at or near full power and Unit 7 was in a planned maintenance outage. There was no impact on the safety of the public, employees or the environment.

On May 21, OPG released a Darlington Refurbishment Project update for the first quarter of 2019. The project continues to progress on time and on budget. More than 82 percent of the work on Unit 2 is complete. The fuel channel installation was successfully completed in April. Feeder installation, the next major milestone in the project's critical path, is now the team's primary focus.

The project team has now returned to service 28 of 58 systems supporting the Unit 2 restart. The remaining systems are expected to be returning to service in early 2020. Steady progress is also being achieved on the planning and preparations for the refurbishment of Unit 3.

One of these involved the successful arrival of a 350 tonne stator built in Poland by GE Power on May 13. The stator is a key component of the turbine generator and serves as the stationary portion of the electric generator that converts the rotating magnetic field into electric current. Over 12 metres in length, the stator was shipped across the Atlantic and then through the St. Lawrence Seaway to Oshawa Harbour. Here it was craned onto a barge and shipped the last eight kilometres to the Darlington site. A self-propelled modular transporter and specially engineered ramps were used to unload the stator.

Worth Repeating

"...This is the challenge with an electricity system based on variable intermittent renewable energy sources. We know that if we want to rely on wind and solar for all our electricity needs, that wind only produces about 30 to 40% of the time, and that solar panels only produce about 15% of the time. After all, we can't make the sun shine, or the wind blow more than they do. Therefore, we need to find a way to save the energy produced when it is available using some type of storage – like the extra batteries for your cell phone – that will allow it to be used later when it is needed...
An MIT study "*The Future of Nuclear Energy in a Carbon – Constrained World*" published last year looks at what is needed to fully decarbonize a system both with and without nuclear energy.
As can be seen below, replacing fossil fuels without nuclear means having to build a system that is an ORDER OF MAGNITUDE larger that what is currently in place. Yes, that is right. Without nuclear, you need to build a system of renewable energy and storage that is on the order of 10 times larger than what you have in place today to try and make sure you will always have enough energy available to meet demand...
This also bursts the fantasy that a fully renewable system is local and environmentally friendly as the electricity system (the grid) needs a huge amount of investment to support ten times as much capacity, not to mention the very large amounts of land needed to place these wind and solar collectors, and the huge amount of materials like steel and rare earths needed to build them and then all the waste when it comes time to dispose of them at their end of life...
Energy is most efficiently stored in fuel, like coal, gas or uranium, and then burned exactly when it is needed. And which fuel stores the most energy? Uranium. A single pellet of enriched nuclear fuel about the size of the end of your little finger, has the same amount of energy as one ton of coal. Or to put it another way, uranium produces about 3 million times more energy from a kg of U235 than coal does from a single kg of coal.
Now that is what I call energy storage...

Source: *(2019, February 21) We already have the perfect energy storage – nuclear fuel [excerpts from Blog post]. Retrieved from https://mzconsultinginc.com/?p=1034&cpage=1*

What Others Are Saying

BP Energy Outlook 2019 Indicates Soaring Global Energy Demand by 2040

The Energy Outlook considers different aspects of the energy transition and the key issues and uncertainties these raise.

In all the scenarios considered, world GDP more than doubles by 2040 driven by increasing prosperity in fast-growing developing economies.

In the Evolving transition (ET) scenario this improvement in living standards causes energy demand to increase by around a third over the Outlook, driven by India, China and Other Asia which together account for two-thirds of the increase....

Energy consumed within industry and buildings accounts for around three-quarters of the increase in energy demand.

Growth in transport demand slows sharply relative to the past, as gains in vehicle efficiency accelerate. The share of passenger vehicle kilometres powered by electricity increases to around 25% by 2040, supported by the growing importance of fully-autonomous cars and shared-mobility services.

The world continues to electrify, with around three-quarters of the increase in primary energy absorbed by the power sector.

Renewable energy is the fastest growing source of energy, contributing half of the growth in global energy supplies and becoming the largest source of power by 2040...

Natural gas grows robustly, supported by broad-based demand and the increasing availability of gas, aided by the continuing expansion of liquefied natural gas (LNG).

Global coal consumption is broadly flat, with falls in Chinese and OECD consumption offset by increases in India and Other Asia.

In the Evolving transition scenario, carbon emissions continue to rise, signalling the need for a comprehensive set of policy measures to achieve 'less carbon'....

Source: *BP Energy Outlook 2019 edition*

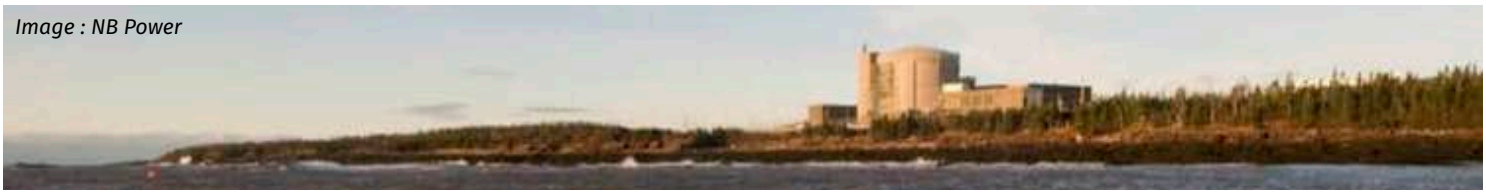

Image : NB Power

Strong Operations Year for Point Lepreau

In the last week of February, NB Power and Florida-based Joi Scientific announced the set up of the world's first hydrogen-powered distributed electricity grid with up to 30 baseload production stations. The two partners' vision see Joi Scientific's proprietary Hydrogen 2.0™ production system installations alongside wind turbines, hydro and nuclear facilities.

On March 1, the company released its third quarter financial and operating results for the nine-month period ending December 31, 2018. NB Power noted that during the third quarter the Point Lepreau Nuclear Generating Station (PLNGS) had produced nearly 1.5 million net megawatt hours of non-emitting electricity or 47% of the company's total generation. During this period, PLNGS operated at a 99% capacity factor, experienced no forced outages and achieved a forced loss rate of 0.41 percent, which is top quartile worldwide for CANDU plants.

A planned maintenance outage for Point Lepreau was announced on April 5. PLNG had been online for 310 consecutive days — the longest continuous plant operation between planned outages since 1994. The projected, five–week outage involved both the nuclear and conventional parts of the plant — routine maintenance, repairs, system modifications, inspections and testing. Over 8000 activities were performed with the help of about 500 contractors and tradespeople. NB Power announced the stations successful return to service on May 16.

A Brighter Future for Cameco

In early February 2019, the company reported its Fourth Quarter and 2018 Financial Results, described by Cameco's CEO and President, as a strong finish to the year. On March 1 the company released its 2019 Outlook reaffirming its ability to meet its financial obligations and self-manage its financial risks, in spite of a credit downgrade by S&P Global Ratings.

On March 29, Cameco announced the filing of its annual report with the U.S. Securities and Exchange Commission. The filing included Cameco's: audited financial statements for the year ended December 31, 2018; its management discussion and analysis; and, Canadian annual information form (AIF). Cameco also filed a technical report for the McArthur River operation under Canadian Securities Administrators National Instrument 43-101. The company indicated that, although mineral reserve and mineral resource estimates were good, market conditions have not improved to warrant a restart decision at this time. The McArthur River operation based on the current assumed production schedule is estimated by Cameco to have a mine life of 23 years.

On April 30, the Tax Court of Canada released its decision on Cameco's cost application for reassessments with Canada Revenue Agency. The company was awarded $10.25 million for legal fees and will continue to seek compensation for all of the $17.9 million they expended in disbursements. On May 7, the company elected 9 board members at its Annual General Meeting.

Background image : McArthur Lake Mine, Cameco

In Short...

Planning for Canada's Future Energy Workers

In April, Electricity Human Resources Canada released a new report indicating that at least 20,500 new workers will be required before 2022 in power plants and transmission systems across the country. The organization, formed fifteen years ago to address workforce concerns in the sector, includes representation from several labour organizations.

Currently about 107,000 people work directly in the industry. The workforce is not as diverse as Canada as a whole: women account for one in four employees; visible minorities just over one in 10; and, workers under age 25 account for fewer than one in 20. Women in Nuclear research confirms a similar situation in the nuclear sector, especially the small numbers of women employed in skilled trades.

The report notes several challenges facing the industry, including: the additional time required to equip new workers with the required training driven by rapidly changing technologies; a need to appeal to a younger more diverse workforce and to address sexual harassment and discrimination.

https://electricityhr.ca/electricity-human-resources-canada-ehrc-releases-labour-market-intelligence-lmi-report/.

Nuclear Power Needed for World's Energy Security and Climate Goals

On May 29, 2019, the International Energy Agency released a new report, *Nuclear Power in a Clean Energy System* in Vancouver at the Clean Energy Ministerial Conference. The report noted that nuclear is the second largest low-carbon power source in the world today providing about 10% of global electricity generation, second only to hydropower at 16%.

The report noted concerns about the risk of a steep decline in the use of nuclear energy in advanced economies. This uncertain future is affected by factors such as economic and regulatory impacts on operation and refurbishment investment decisions, policy driven phaseouts; and, public perception.

The IEA's Executive Director stated that "Without an important contribution from nuclear power, the global transition will be that much harder."

https://www.iea.org/publications/nuclear/.

Scientists Support Nuclear In Clean Energy Growth

In Juan-les-Pins, France on May 13, more than 40 nuclear associations representing over 80,000 scientists, signed a declaration supporting more nuclear energy. The declaration calls on the Clean Energy Ministerial Conference (Vancouver May 28 & 29) to commit to doubling public investment in nuclear related R&D and innovation within the next five years.

https://www.world-nuclear-news.org/Articles/Viewpoint-Scientists-urge-commitment-to-nuclear-in.

CNL Attends Canada's Mining Industry 2019 Convention

On March 05, 2019, Canadian Nuclear Laboratories (CNL) showcased nuclear technology at the mining industry's Prospectors & Developers Association of Canada (PDAC) annual conference in Toronto CNL discussed the potential small modular reactors (SMR) present to provide a clean energy solution to replace diesel generation for the mining industry.

Up to 40 percent of a mine's energy consumptions relates to heating and ventilation. SMRs could provide reliable electricity in isolated locations to meet these needs and facilitate resource extraction.

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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