



Oral Presentation

Exposé oral

**Submission from the
CANDU Owners Group Inc.**

**Mémoire du
CANDU Owners Group Inc.**

In the Matter of

À l'égard de

**Bruce Power Inc. – Bruce A and B
Nuclear Generating Station**

**Bruce Power Inc. - Centrale nucléaire de
Bruce A et Bruce B**

Request for a ten-year renewal of its Nuclear
Power Reactor Operating Licence for the
Bruce A and B Nuclear Generating Station

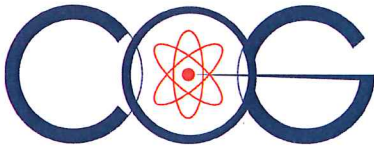
Demande de renouvellement, pour une période
de dix ans, de son permis d'exploitation d'un
réacteur nucléaire de puissance à la centrale
nucléaire de Bruce A et Bruce B

Commission Public Hearing – Part 2

**Audience publique de la Commission –
Partie 2**

May 28-31, 2018

28-31 mai 2018



April 12, 2018

Canadian Nuclear Safety Commission
Secretariat
c/o Louise Levert
Canadian Nuclear Safety Commission
280 Slater Street, P. O. Box 1046
Ottawa, ON K1 P 5S9

Email: cns.interventions.ccsn@canada.ca

Subject: Bruce Power Licence Renewal {Ref. 2018-H-02}

Dear Ms. Levert,

I am writing on behalf of the CANDU Owners Group in support of Bruce Power's application to renew its licence for a 10-year period. I also wish to indicate my interest in attending the hearing in May 2018 in Kincardine, Ontario to provide an oral presentation. My presentation will elaborate on the points below.

The benefit of continued operation

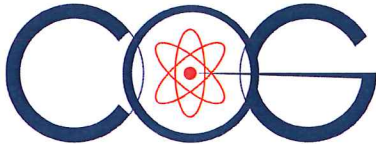
The continued safe operation and life extension of Bruce Power's eight-unit station will contribute significantly to Ontario's sustainability and prosperity for decades to come. The large volume, low-carbon electricity positively contributes to Canada's efforts on climate change and creates a significant positive economic impact through several thousand, direct high-skill, well-paying jobs at the Bruce site and through supply chain jobs in communities across Ontario. The contribution to socio-economic well-being through the existence of a reliable, safe source of electricity is well documented. The company has also demonstrated its respect for the interests of Indigenous communities, near-site communities and for the current and next generation of Ontarians, Canadians and citizens of the US states who have shared interest in the waterways. They have done this through their commitment to environmental study and stewardship.

Nuclear operator collaboration through the CANDU Owners Group

This submission speaks to some of Bruce Power's efforts to maximize the benefits achieved through its nuclear power plant operation. In particular, I will speak to those undertaken in collaboration with other CANDU operators through the CANDU Owners Group.

The CANDU Owners Group (COG) is a not-for-profit organization with membership from all CANDU operators both in Canada and internationally. Our mission is "to improve performance of CANDU stations worldwide through member collaboration." To fulfill this mission, COG is organized around four operational program areas:

- Nuclear and Environmental Safety
- Research and Development
- Information Exchange
- Joint Projects



In addition, COG has developed a leadership and knowledge management training centre to strengthen leadership and management skills amongst high-potential technical managers in the nuclear industry.

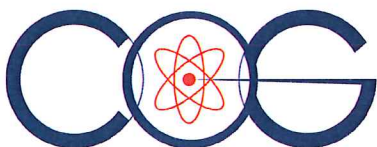
COG members spend approximately \$60 million a year in R&D and joint projects to strengthen the safety, reliability, environmental and cost performance of the CANDU nuclear plants. This investment by our members is in line with a Canadian Top 15 private-sector company's R&D investment.

The work facilitated by COG on behalf of its members, relies upon capable, knowledgeable suppliers, with deep expertise, human capacity and facilities to undertake ground-breaking nuclear science. This research, and the associated engineering activity, is undertaken mostly in Canada at organizations like Canadian Nuclear Laboratories, Kinectrics, SNC Lavalin and Stern Laboratories.

The discoveries developed in Canadian laboratories on behalf of Bruce Power and other CANDU operators have resulted in countless opportunities for continuous improvements in plant safety, reliability, cost and environmental performance. As a result of this on-going commitment by the operators, Canada's nuclear plants are achieving better results than at any other time in their history, even as they age.

Some of the research achieved by our members and suppliers through COG that has directly contributed to improved performance in the Bruce Power station includes:

- **Fuel Channels:** The Fuel Channel (FC) research and life management program is primarily focussed on addressing the current operational need to improve confidence in the fitness-for-service of CANDU pressure tubes and developing industry standards for pressure tube integrity. Under normal operating conditions, the pressure tubes are exposed to high temperature, pressure, and neutron flux. The resultant changes in material properties as the pressure tubes age need to be assessed to confirm the pressure tubes remain fit-for-service. The fuel channel research undertaken through COG has given us increased understanding of the material properties, improved risk-informed decision making from a probabilistic approach and provided opportunities to manage the effects of service in addition to creating predictive models demonstrating fitness for service up to 300,000 equivalent full-power hours.
- **Safety and Licensing (S&L):** The S&L Program addresses issues relating to the safety design basis and safe operating envelope of existing nuclear plants, and has a strong focus on supporting the resolution of outstanding generic safety and licensing issues. There is an increasing focus on plant aging and asset management as well as operational issues. In part, this work assists in maintaining the core capabilities, scientific expertise, and the infrastructure necessary for an ongoing nuclear safety R&D program. The main drivers for the program are safe operation and regulatory compliance, and increasing certainty in the licensees' regulatory positions.



- Health, Safety and Environment (HS&E): The HS&E Program addresses issues related to worker health and safety – primarily providing solutions to mitigate risks of radiation exposure through radiation monitoring and dosimetry; and to mitigate environmental risk – identifying and monitoring emissions of concern (both radioactive and conventional), predicting risk to both human and non-human biota and implementing appropriate environmental monitoring.

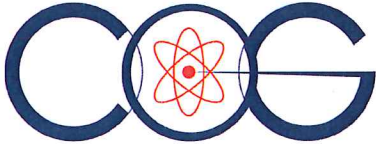
Research that directly addresses the interest of some Bruce Power communities, including the First Nations and Métis communities, includes studies on fish entrainment and impingement as well as efforts to benchmark and improve waste management practices in the operating stations.

- Chemistry, Materials & Components: The Chemistry, Materials & Components Program covers a diverse range of issues that can impact on the safe, reliable and efficient operation of the major CANDU systems and their auxiliaries, such as the Primary Heat Transport, Moderator, Steam Generators, Emergency Core Cooling and Containment. This includes optimizing the chemistry control regimes and understanding material aging effects in order to predict, manage and mitigate degradation of key components, such as feeders and steam generators, and thereby extend the life of these assets. There is also a strong focus on smaller components such as valves, cables, sealants, lubricants and other organically-based materials.
- Industry Standard Toolset: The Industry Standard Toolset (IST) Program is a consolidation of the qualification, development and maintenance activities on different computer codes used for the design, safety analysis and operational support of CANDU reactors.

While the R&D and joint project work undertaken by Bruce Power and the other CANDU operators through COG comprises a significant amount of our work program, I would be remiss if I did not highlight the value of COG's OPEX (Operating Experience) sharing. The operating experience includes learnings from events that have occurred at CANDU and non-CANDU plants, best practices and just-in-time briefings, as well as questions posed to, and answered by, COG members. There are currently almost 43,000 items of operating experience in the shared databank that employees of COG members can access at any time. This information provides an important knowledge repository, helps members to learn from one another, saves vital time and resource in addressing challenges and presents opportunities for innovative solutions and advancements. As well, more than 100 peer groups, workshops and committees allow our members to work in collaboration with others on everything from obsolescence management and improved maintenance techniques to emergency preparedness and cyber security.

The commitment to collaborative exchanges does not end with the operators. The Canadian nuclear supply chain community is deeply involved in COG as well with about 20 suppliers including SNC-Lavalin, BWXT and Hatch participating in the COG Supplier Participant program. Together, they are leading initiatives to improve knowledge right through the supply chain to the smallest suppliers on topics including workplace safety and security and authenticity of nuclear equipment and components.

CANDU Owners Group Inc.



"Excellence Through Collaboration"

In short, through the commitment of COG members and supplier participants, a vital network of information sharing, research and development is contributing to excellence in human and plant performance. Together, we are continuously improving safety, reliability, affordability and environmental outcomes in Canada's nuclear plants. Bruce Power is a leader in these efforts.

I look forward to elaborating on aspects of this letter during my presentation in May.

Sincerely,

A handwritten signature in blue ink, appearing to read 'F. Dermakar', with a small flourish at the end.

Fred Dermakar, P. Eng.
President and CEO

FD:bb