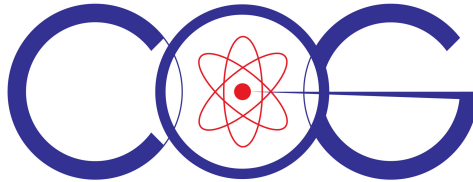


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CANDU Owners Group Inc.



"Excellence Through Collaboration"

November Collaboration Update

Dear COG members, participants and partners:

While 2023 may be drawing to a close, nuclear industry momentum shows no sign of slowing down. It has been a year unlike any other for the industry, with unprecedented opportunity and progress, and acknowledgement that there is simply no path to net zero without nuclear.

There is so much to look forward to, and so much to do! As we heard at the OECD Nuclear Energy Agency Roadmaps to New Nuclear event in September, "More action is needed to achieve our shared vision of nuclear energy's role in meeting climate and energy security imperatives. The nuclear industry will continue to seek opportunities to work individually and collectively to reinforce international nuclear cooperation across the nuclear industry. The time to act is now."

To that end, nine associations representing the nuclear industry in OECD countries, including COG, [released a joint communiqué](#) highlighting the essential role of nuclear and calling on deepening the cooperation with governments, international organizations and across the industry.



Rachna Clavero with other Joint Communiqué signatories

The CANDU Owners are seen as leaders in driving this essential action and collaboration. We heard resoundingly from other nations and technology owners that the concept of 'utility helping utility' and 'supplier helping supplier' is unique to the CANDU community. And our long history of collaboration is the roadmap to our continued success.

As we look to the future, the work done by the industry through COG's unique and highly regarded collaboration infrastructure is recognized around the world as a key enabler for both CANDU and advanced nuclear technologies.

No one can articulate the value of collaboration better than the COG community. I am proud to share the latest in our [COG video series](#), where our members, participants and partners share their perspective on the essential role of collaboration in driving performance, success, and accelerating progress towards our collective clean energy future.



Next week, I am looking forward to representing our members and partners on the international stage with COG's first-ever participation in the United Nations' Conference of the Parties (COP 28). This year's event takes place in Dubai from November 30-December 12. [A strong showing from the nuclear industry](#), in particular, Team Canada and the international CANDU owners, underscores our members' commitment to driving *excellence through collaboration* in support of our shared net zero goals.

We are pleased to share a number of updates on recent COG organizational and member/partner activities. Looking ahead to 2024, stay tuned for exciting announcements from COG as we celebrate our 40th anniversary and transform to meet members' expanding needs and support advancements in new nuclear.

Rachna Clavero
President and CEO

**Thank you for helping COG deliver
Excellence Through Collaboration.
Please help us continue to improve.**

**Complete a 30-second survey
HERE**

Industry Commitment to Diversity, Inclusion and Empowerment in STEM

COG was a partner in a tribute to Harriet Brooks in commemoration of the 2023 International Day of the Girl. Together with Rumina Velshi, Lori Clark, Lisa McBride, and Laurie Swami, the leaders from CNSC, NB Power, WiN Canada, and NWMO, respectively, the initiative paid tribute to the first Canadian female nuclear physicist through the commission and display of a special portrait from Canadian artist Jo Napier in nuclear industry organizations across Canada. The Canadian nuclear sector's participation in this endeavor underscores our collective commitment to equity, diversity, inclusion, and empowerment in STEM.



Nuclear industry organizations displaying their Harriet Brooks portrait

COG was proud to be an industry partner and active participant at the 20th Women in Nuclear Canada conference in October. John Sowagi, COG's Director of Information Exchange, presented a proposal for joint COG/WiN Canada custom leadership training to help close the gender gap in nuclear. In addition, COG's Director of Joint Projects and Services, Sonia Qureshi, was recognized for her many years of service on WiN Canada's Board of Directors, including her tenure as Chair of the Golden Horseshoe West Chapter. And COG's Director of Communication, Sarah Charuk, was elected to the Board as Director of Marketing and Communication.



The COG team at the 2023 WiN Canada Conference in Niagara Falls, Ontario.



*NAYGN Canadian Regional
Conference in Hamilton, Ontario*

Rachna Clavero was the keynote speaker at the annual North American Young Generation in Nuclear Conference in October. Speaking to students and young professionals, she provided an overview of the dynamic future of Canada's expanding nuclear fleet. COG, a proud sponsor of the event, is playing an active role in inspiring the next generation of nuclear leaders and fostering nuclear excellence and innovation.

International Engagement

Earlier in November the COG team had the pleasure of meeting with the Societatea Nationala Nuclearelectrica SA (SNN) head office team in Romania. A COG member since 1991, SNN currently operates two CANDU 6 units, demonstrating the highest levels of operational excellence and supplying approximately one fifth of Romania's electricity. To support energy security and climate change goals, SNN plans to refurbish Unit 1, complete construction of two new CANDU units, and deploy SMRs.

COG will continue to support our utility members as they strive to achieve operational excellence and life extension through sharing of OPEX, information exchange, research and development, auditing, inspection procedure certifications, projects and training. COG is actively working on an extensive training program with SNN as they bring on hundreds of new staff to support their many new and ongoing site activities. Our thanks to our hosts, CANDU 6 Fleet Steering Committee Chair and COG Board member Dumitru Benchea, and SNN's Chief Nuclear Officer, Valentin Nae. International collaboration is key to achieving our collective clean energy goals!



The SNN team welcomed COG to their head office in November

From October 24-27, Usha Menon, COG's Director of Research and Development, attended the DigiDECOM Community workshop in Helsinki, Finland. The event was facilitated by the Institute for Energy Technology in collaboration with VTT, one of Europe's leading research institutions and the FinNuclear Association, which brings together Finnish nuclear energy expertise.



Usha Menon at DigiDECOM

The conference welcomed experts from around the world to share information and learnings on AI, data and robotics powered transformation for sustainable nuclear sector decommissioning. COG attended as part of our Halden Human Technology Organization membership.

The event, which included a visit to the VTT Research Reactor, offered a wealth of information-sharing on the work being done within the European community and in partnership with the International Atomic Energy Agency (IAEA), OECD Nuclear Energy Agency and EPRI. We look forward to sharing the learnings with our members and partners.



DigiDECOM Workshop attendees

From October 31-November 3, Sonia Qureshi, COG's Director of Joint Projects and Services, chaired the Technical Meeting on Lessons Learned on Design Changes and Strategies for Managing Ageing Effects in PHWRs at the IAEA Headquarters in Vienna.

Organized in partnership with the International Atomic Energy Agency (IAEA), the meeting brought together representatives from Member States owning and operating PHWRs, including participants from Korea (Korea Hydro & Nuclear Power (KHNP), Korea Institute of Nuclear Safety), China (CNNC China Nuclear Power Engineering Co., LTD.), India (Nuclear Power Corporation of India Limited), Romania (Societatea Nationala Nuclearelectrica SA), Canada (Ontario Power Generation, Bruce Power, Canadian Nuclear Laboratories, Canadian Nuclear Safety Commission – Commission canadienne de sûreté nucléaire, COG) and Argentina (Nucleoeléctrica Argentina S.A.).

The group worked together to capture and share the experience, knowledge and lessons learned on the implementation of design, analytical and operational changes made in PHWRs to mitigate ageing effects. The information exchanged will serve as the basis for an IAEA publication on the topic.



Participants at the Technical Meeting on Lessons Learned on Design Changes and Strategies for Managing Ageing Effects in PHWRs.

As the nuclear industry advances planning and execution of life extension projects around the world, while ensuring our reactors are safely and efficiently operated under aging conditions, the continued sharing of operating experience becomes especially important and valuable. All participants were engaged, and the discussion sessions enabled participants to exchange information and capture lessons learned from their industry peers. The event highlighted the valuable role of collaboration in enabling ongoing performance excellence across a global fleet.

COG Program and Service Updates

Information Exchange:

COG hosts more than 150 forums, peer groups, technical committee meetings, conferences and workshops annually. Stay up to date on our calendar of events, access our information portal with more than 45,000 OPEX data entries, and collaborate with your industry peers in

our workspace for peer teams, forums and committees via our members-only site, COGonline.org.

Learning and Development:

As the nuclear industry manages generational turnover alongside significant activity requiring additional resourcing, demand for customized COG learning and development programs is strong.

- A recent program provided Safety Culture training to senior leaders from KHNP in Canada, including a supported site visit to Pickering.
- A Nuclear Professional Development Seminar was delivered to CNNO management in September, featuring site visits to Point Lepreau and Bruce Power, with additional programs being planned for 2024.
- From April through November, 2023, COG delivered a total of eight week-long leadership training programs to approximately 160 SNN staff at their Cernavoda site.



November, 2023 NPDS Cohort

All programs received positive feedback, and planning is already underway to offer additional programs in 2024.

Research and Development:

From November 16-17, COG's R&D team hosted the 2023 COG/CNSC Seminar, a biennial event that serves as an important platform for information sharing across the Canadian nuclear industry. Organized by COG and executed by a dedicated team from the industry and the Canadian Nuclear Safety Commission (CNSC), the seminar brought together more than 100 technical experts from the industry and the CNSC. The event featured 40+ technical presentations, covering diverse aspects of the Safety and Licensing (S&L) and Industry Standard Toolset (IST) programs, fostering knowledge exchange and feedback mechanisms between the industry and the CNSC.



2023 CNSC/COG Seminar attendees in Ottawa, Ontario.

In October, COG welcomed Ralph Stube in the role of Program Manager, Strategic Research and Development (SRD). Ralph has more than 30 years of experience in the nuclear industry and will play an integral role in COG's program delivery for members.

The SRD program was established in 2016 with an objective to support industry needs for the future in a 10-25 year time frame. The program includes key areas of interest, such as innovations to reduce outage time, modern platforms for industry analysis codes, climate change impacts, waste minimization and decommissioning optimization.



Welcome to Ralph Stube, Program Manager, Strategic Research & Development

Joint Projects and Services

From April to September, 2023, a total of 18 new joint projects have become active, with a combined value of over \$35 million. In addition, two Project Initiation Forms have been submitted to members for review. The JP&S portfolio currently includes 39 active projects with a combined portfolio value of over \$100 million.

COG continues to work on projects covering many different areas such as: enhancements to gain margin/mitigate derating; fuel channel and spacer life management; surveillance; bulk procurement; standards modernization; regulatory framework modernization; equipment reliability (ER); system improvements and cyber security. Additional detail on two of these joint projects is below.

Nuclear Safety and Environmental Affairs

As many of the CANDU fleet have entered in or will soon enter their second life of operation post-refurbishment and life extension activities, COG members are focused on reflecting

lessons learned and the opportunity to optimize and modernize existing standards that may not fully capture the past 50 years of collective CANDU operational experience.

To this end, COG and its members have started two important joint projects focused on providing recommendations and strategies to modernize CSA standards specific to Periodic Inspections such as; N285.4, N285.5, N285.7, N287.7 in JP-4738, and also to develop a Regulatory Priority Briefing Book to identify key regulatory areas that may require modernization, as Phase 1 of JP-4739. There are also plans to develop a number of additional joint projects to review other CSA standards such as N299, N290.8 and N285.0.

In November, COG's Director of NSEA, Carlos Lorencez, attended the 56th meeting of the IAEA's Nuclear Safety Standards Committee. With experts from more than 65 member states and international organizations participating, the event was an opportunity to discuss and approve important safety standards being developed by the IAEA, for their next stage in the development process, that will include SMRs.

COG's SMR program continues to drive collaboration to accelerate the development and deployment of Small Modular Reactors. Through a complement of Forums and task teams, COG enables the industry to work together on strategic areas of interest. For example, the SMR Regulatory Task Team drives coordination on addressing key issues for SMR licensing efficiency in Canada, including minimum shift complement, appropriately sized emergency planning zones, the new application process, the applicability of the regulatory framework for fleet deployment, and CNSC expectation on Indigenous engagement.

Additionally, the COG SMR Fuel Cycle and Radioactive Waste Task Teams conduct quarterly workshops with the Federal Fuel Supply Working Group to discuss the front and back end of the fuel cycle. These workshops allow key industry stakeholders to share updates on the progress being made, and short and long-term goals for ensuring SMR fuel supply and security.

COG Member and Partner Updates



It's time to start planning for **CNA2024, *Foundations for Success!***



OCNI Holiday Luncheon and AGM: On December 12, OCNI hosts their holiday luncheon and Annual General Meeting.



Science Collaboration Centre at Chalk River Campus celebrates grand opening: The Science Collaboration Centre (SCC), a key facility in the revitalization of the Chalk River Laboratories campus in Ontario, will serve as the central planning and collaboration space for Canadian Nuclear Laboratories' Science and Technology programs.



New consortium to support Cernavoda life extension:

Korea Hydro & Nuclear Power (KHNP) has signed a consortium agreement with Romanian nuclear utility Societatea Nationala Nuclearelectrica (SNN), Canada's Candu Energy and Italy's Ansaldo Nucleare, to jointly support refurbishment of unit 1 at Romania's Cernavoda NPP. The refurbishment will extend the operational life of the reactor, which was commissioned in 1996.



UNENE is holding their Annual R&D Workshop from December 11-13, 2023 in Mississauga, Ontario. Topics will include:

- Research-Chair and Project-Leader presentations
- Keynote presentations
- Student oral and poster presentations.



Ontario, Saskatchewan collaborate on clean electricity: OPG and its subsidiary, Laurentis Energy Partners, will collaborate with SaskPower to advance Saskatchewan's SMR development project.



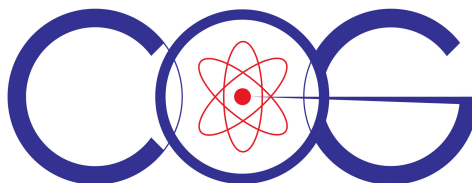
Bruce Power to launch RFI and Advisory Panel to evaluate options to grow Ontario's nuclear capacity and strengthen economic development: In early 2024, Bruce Power will launch a Request for Information process to evaluate potential new nuclear technologies as part of its preliminary engagement and long-term review of expanding nuclear generation on the Bruce Power site. The company also announced the establishment of an Advisory Panel including business, industry and labour leadership to review the critical areas of economic development and partnerships, supply chain and workforce in the long-term outlook for Ontario's nuclear sector.

Stay up-to-date on COG News and Information

- COG has a YouTube channel – [watch our videos](#).
- [Follow us](#) on LinkedIn for weekly news and updates.
- In case you missed it - [read COG's 2022-23 Annual Report](#).
- Visit [COGonline.org](#), our one-stop collaboration tool and information access portal with more than 45,000 OPEX data entries, a calendar of events, and a workspace for peer teams, forums and committees.



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