



2025: A year of transformation and growth

2025 was a year of progress for Conexus Nuclear Inc. across every part of our mandate. As Canada and the world prepare for the kind of growth our sector has not seen in over 20 years, Conexus focused on what we do best: bringing people together, solving shared challenges, and delivering on our commitment to excellence through collaboration, innovation and member value.

From international engagement and new AI capabilities to environmental leadership, research advances, and workforce development, 2025 demonstrated the strength of our collaborative model and the exponential value we create by working together.

A New Identity for a Modern Mission



In 2025 we transitioned from CANDU Owners Group to Conexus Nuclear Inc. (Conexus).

This change reflects the realities of how our members collaborate today: while supporting operational excellence for the CANDU fleet remains at the heart of our mission, our work today also encompasses digital modernization, advanced manufacturing, lifecycle analytics, environmental science, and future nuclear technologies.

Our new brand reflects our expanded scope, the alignment of our organization with evolving member priorities, and our current mandate: to be the leading nuclear industry collaboration hub supporting achievement of Canadian and international clean energy and energy security goals.

Tangible, High-Value Results

Conexus undertakes more than 500 projects each year, delivering exponential value by enabling members to pool resources, know-how, and innovative ideas to tackle industry challenges more effectively than going it alone. This collaborative approach saves money, speeds up research and development, avoids duplicating efforts, and enables world-class safety and performance excellence. These are just a few examples:

15-30% price discounts for C-6 fleet through bulk procurement: Through a Joint Project, we facilitated bulk procurement of In-Core Flux Detectors (ICFDs) for three members, achieving 15-30% price discounts using economies of scale while enabling delivery timing to meet planned outage schedules.

Collaborative Approach Resolves Retube Waste Radiation Issue - Responding to elevated radiation readings from retube waste containers at Darlington, Conexus facilitated a collaborative industry effort – funded by OPG, Bruce Power, NB Power, and CNL – to identify and address the issue.

Smarter Steam Generator Inspections Conexus is advancing the use of AI to deliver more efficient and reliable Steam Generator inspections. By qualifying AI-powered analysis tools, using methods accepted by regulators and aligned with industry (CSA) standards, we're reducing operator burden and enhancing confidence in inspection results.

This collaborative effort establishes a clear pathway for deploying AI in the field, ensuring transparency, defensibility, and ultimately, safer and more effective plant operations.

Enhanced Steam Generator Health & Reliability: A four-year collaborative project has delivered significant advancements in steam generator inspection technology. By developing and validating innovative magnetic array probes, Conexus Nuclear and its member utilities have achieved substantially improved flaw detection – exceeding the capabilities of conventional methods. This breakthrough enhances outage planning, supports CIQB qualification, and most importantly, increases confidence in steam generator health across the nuclear fleet, helping utilities proactively address potential issues and maintain the highest safety standards while minimizing costly rework.



Safer Maintenance with Robotics: An 80% Dose Reduction - Conexus has achieved an

Proactive Fire Safety for Lithium-Ion Batteries - Conexus Nuclear has developed

impressive 80% reduction in worker radiation dose during critical scrape retrieval tasks. This breakthrough demonstrates the successful adaptation of readily available robotic systems for use in nuclear environments – significantly improving worker safety and lowering implementation costs.

This achievement paves the way for wider adoption of robotics in plant maintenance, inspections, and radiation scanning, modernizing operations and creating a safer, more efficient workforce.

comprehensive guidelines to support the safe implementation of lithium-ion battery technology in Canadian nuclear power plants.

Drawing on operating experience from around the world, as well as insights from battery manufacturers, insurers, and Canadian regulations, this guidance document provides best practices for the entire battery lifecycle – from procurement and storage to handling, charging, on-site disposal, and fire response. These guidelines proactively address fire safety concerns and ensure the responsible use of lithium-ion batteries within the Canadian nuclear industry.

By bringing together technical experts from across the industry, Conexus ensured alignment and thorough review of assessments and root cause analysis. This collaborative approach effectively resolved the concern and reinforces a commitment to safe and responsible waste management practices.

Driving Performance Through International Collaboration

In 2025, Conexus empowered the global CANDU community through enhanced collaboration, knowledge sharing, and capability development, delivering significant value to our international members.

Key initiatives included:

Enabling Shared Solutions Through International Member Engagement:

Engagement: Conexus supported international members through targeted technical engagements and delegation visits focused on shared operational priorities.

- We travelled to Argentina to meet with our colleagues at NA-SA, CNEA, and CONUAR (Argentina) to address outage benchmarking, fuel channel integrity, long-term asset health, and innovation pathways to support Embalse.
- CNNO (China) visited Conexus headquarters to advance collaboration on fuel channel life extension and refurbishment-related priorities.
- We hosted KHNP (Korea) delegations in Toronto, enabling technical dialogue on inspection methods, diagnostics, and life-extension strategies.



Embedding Global Expertise to Accelerate Knowledge Transfer:

Transfer: International secondees strengthened day-to-day collaboration by embedding global operating experience directly within Conexus technical programs. Secondees from China, Korea, and Romania contributed across R&D, safety and licensing, reactor physics, and radiation protection activities, supporting consistent approaches and stronger alignment across shared programs.



Developing Global Leadership Capability: Conexus supported international leadership development through targeted training delivery and collaboration with WANO. In August Conexus delivered a Safety Culture and Leadership Program for senior leaders from KHN (Korea), combining leadership development, human performance, and risk-informed decision-making, with applied learning at OPG's Darlington Nuclear Generating Station. In parallel, Conexus worked with WANO (Paris Centre) to develop a joint international nuclear leadership program for high-potential middle managers across the global nuclear sector, scheduled to launch in 2026.

Advancing Fleet-Wide Outcomes Through C-6 Collaboration:

Through continued C-6 collaboration, Conexus enables international alignment on shared priorities, including aging management, lifecycle planning, digital modernization, and emerging technologies. Coordinated forums and benchmarking ensure members benefit from fleet-wide solutions.

By fostering collaboration and sharing best practices across the CANDU fleet, Conexus is helping to advance the nuclear industry as a whole. This commitment to knowledge sharing drives improved performance, enhanced safety, and greater reliability for nuclear operators worldwide.



KHN Senior Leadership and Safety Culture Training 2025



Back Row (L - R): Park Beom Shin, Hwang Kyo, KiSang Jang, Kim Hyung Joon, Hwang Doo Ho, John Frosts (Mentor), Kim Sang Woo, Han Seung Hyuk, Tony Bucci, Alenah By

Front Row (L - R): Mark Shuce (Director, L&O), Kim Seong Jip, Im Kyu Ho, Kim Jin Sik, Jeong Don Young, Jilliane De La Cruz



Conexus Collaboration Week 2025 – Forging the Future Together



Conexus Collaboration Week 2025

500+ Participants
From members, utilities, suppliers, domestic, and international partners

CCW 2025
Forging the Future Together

Workshops & Deep Dives

Global Perspective

Networking and Collaboration

Technical Peer Groups

Innovation in Action
Spotlighting emerging technologies, digital tools, and creative problem-solving

150+ Presentations & Sessions
Featuring technical deep dives, workshops, and member-led discussions

20 Exhibitors & Sponsors
Showcasing innovation, technology, and expertise across the nuclear industry

This year's Conexus Collaboration Week (CCW 2025) brought more than 500 delegates from across Canada and around the world to Toronto for a week of discussion, learning, and partnership.

Throughout the week, utilities, vendors, regulators and international partners took part in a range of sessions that reflected key areas of focus for the Canadian nuclear industry. From the Opening Plenary on the future of nuclear to technical workshops on cyber security, manufacturing and SMRs, the program made space for open discussion and practical alignment. Participants shared updates on joint projects, explored operational challenges, and reinforced the value of collective action.

A joint Conexus/OCNI/CAMiNA/UNENE workshop on advanced manufacturing highlighted the rapid progress of technologies such as additive manufacturing, advanced welding, powdered metallurgy, robotics, materials science, vision systems, modeling/simulation, and digital twins. Industry experts shared insights into how these innovations are creating new capabilities, reducing costs, and creating fresh opportunities for the nuclear sector, while working together to tackle the challenges of adoption. A cyber security session emphasized readiness and resilience, with knowledge sharing across technical teams and a focus on AI and supply chain risks.

The week also created space for important conversations beyond the technical. On September 30, Conexus hosted a session to reflect on Canada's National Day for Truth and Reconciliation, exploring the role of Indigenous knowledge and engagement in shaping a more inclusive energy future. CCW reinforced Conexus' role as the hub where the global CANDU community aligns, builds trust and moves faster together than any organization could alone.



Unleashing the Power of Collective Knowledge: Innovation at Conexus

Conexus is actively driving innovation and maximizing the value of its collaborative efforts through dedicated workshops and the development of transformative technologies.

Recent workshops have focused on key areas like advanced monitoring, diagnostics, and digitalization – leveraging tools like machine learning and robust plant data architecture to significantly enhance predictive capabilities and improve operational efficiency.

Building on this momentum, Conexus has achieved a major milestone with the development of a secure, internal AI tool capable of “vectorizing” – and therefore making searchable – thousands of technical reports spanning over 40 years of collaborative research and operational experience. This powerful tool allows members to quickly access:

- **Synthesized Regulatory & Technical Information:** Streamlined access to critical information for informed decision-making.
- **Curated Summaries of Operational Experience (OPEX) & Data Trends:** Identification of key insights and best practices gleaned from years of collective learning.
- **Tailored Content in Presentation-Ready Formats:** Efficient creation of compelling reports and presentations to communicate findings effectively.



By transforming decades of collaborative knowledge into a living, searchable asset, Conexus Nuclear is empowering its members to make confident, data-driven decisions, optimize plant performance, and drive the future of nuclear energy.

This commitment to innovation ensures that collective experience is not just preserved, but actively leveraged for continuous improvement and lasting success.

Driving Long-Term Excellence: Conexus R&D in 2025

In 2025, Conexus continued to advance a robust research and development program, aligning scientific innovation with operational needs and regulatory expectations across the CANDU fleet. This commitment delivered tangible improvements in safety, performance, and environmental stewardship, reinforcing the fleet's readiness for long-term operation.



Enhanced Analytical Capabilities & Regulatory Confidence: Through collaborative workshops and focused research, Conexus strengthened analytical capabilities in areas like fuel performance, severe accident analysis, and chemistry control, fostering greater regulatory clarity and confidence. A biennial seminar with the CNSC facilitated technical exchange and ensured emerging research informs future regulatory work.

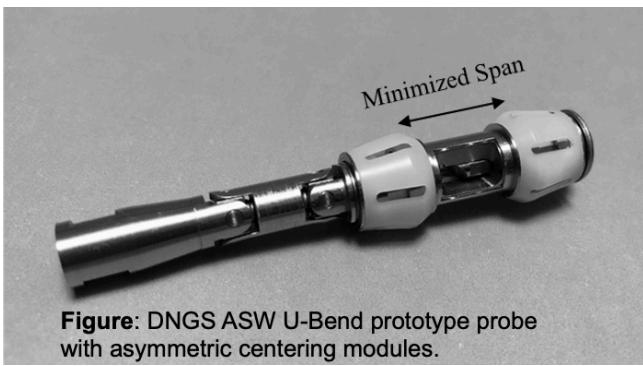
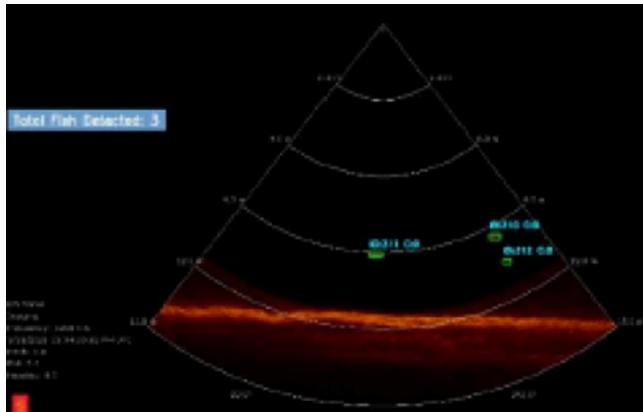


Figure: DNGS ASW U-Bend prototype probe with asymmetric centering modules.

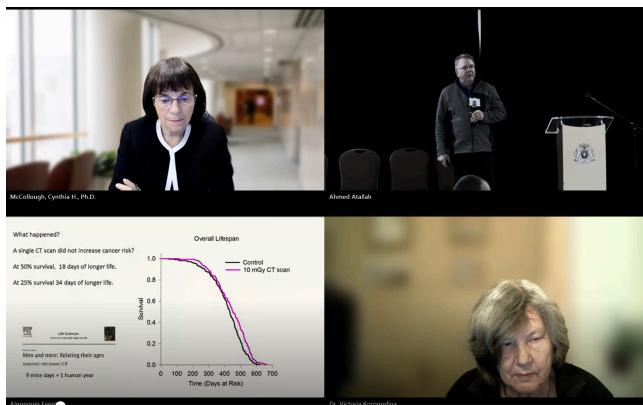
Proactive Safety & Performance

Improvements: New technologies and methodologies were deployed across the fleet, including advanced inspection probes for steam generator tubing, refined dissolved oxygen models for corrosion mitigation, and a CANDU-specific neutron dosimeter for enhanced worker protection.



Environmental Stewardship & Innovation:

Conexus championed environmental innovation with projects like artificial reef concepts and AI-enabled camera systems for monitoring aquatic life, improving the accuracy of environmental assessments and supporting ecological commitments.



Scientific Leadership & Collaboration:

An international workshop on low-dose radiation science brought together leading researchers, regulators, and students, solidifying Conexus' role in shaping future frameworks for radiation protection.

Across all programs, Conexus delivered improvements in safety margins, predictive maintenance, analytical capability for safety cases, and environmental assessment accuracy.

R&D remains central to Conexus' mandate, ensuring the CANDU fleet is equipped with the science, tools, and methodologies required for long-term, sustainable performance.

Maximizing Collective Value: Joint Projects & Services in 2025

In 2025, Conexus' Joint Projects & Services (JP&S) continued to deliver significant value across the CANDU fleet by reducing duplication, fostering alignment, and strengthening reliability. Through coordinated programs and strategic supplier engagement, JP&S remains a key mechanism for maximizing collective benefits.

Key highlights included:

Successfully Addressed Elevated [Heq]:

Following the Conexus-led industry root cause analysis of the 2021 elevated [Heq] event, Conexus continued to support the progress of the [Heq] roadmap and development of key deliverables, ultimately leading to a successful CNSC submission in September, 2025. The Conexus reports and overall submission were well-received, and have laid the groundwork

Meeting PROL Requirements:

Qualified Vessel & Nozzle Inspection: Conexus Nuclear developed and CIQB-qualified UT inspection procedures for vessel and nozzle welds, supporting NB Power, OPG, and Bruce Power in meeting their Power Reactor Operating Licence (PROL) requirements. This industry-leading achievement provides a standardized approach across all Canadian CANDU stations.

for a favorable transition from Clause 6.2 to 6.1 in early 2026, ensuring continued, safe operation of late-life Fuel Channel components at Bruce Power and OPG.

Accelerated Solutions Through Collaborative Programs: Joint projects focused on common challenges in aging management, equipment reliability, and obsolescence mitigation, delivering solutions that would be costly or time-consuming to pursue individually.

Streamlined Auditing & Enhanced Quality: The CANIAC and CANPAC programs continued to expand, providing a fleet-wide model for supplier audits that reduces duplication, strengthens oversight, and ensures consistent quality expectations – particularly crucial with increasing refurbishment and new build activity.

Standardized Inspection Procedures: Through the CIQB framework, Conexus advanced the qualification of inspection procedures for critical components like vessel and nozzle welds, providing utilities with reliable, regulator-ready methods while avoiding costly individual development efforts.

Proactive Supply Chain Management: JP&S facilitated structured engagement with suppliers to address emerging obsolescence risks and improve transparency around component availability, supporting long-term planning and reducing supply chain uncertainty.

Enhanced Cross-Utility Alignment: JP&S continued to coordinate critical areas like environmental qualification practices and outage-related supplier interfaces, ensuring members approach shared challenges with consistent expectations and benefit from lessons learned across stations.

Strengthening Nuclear Regulation & Enabling Advanced Technologies

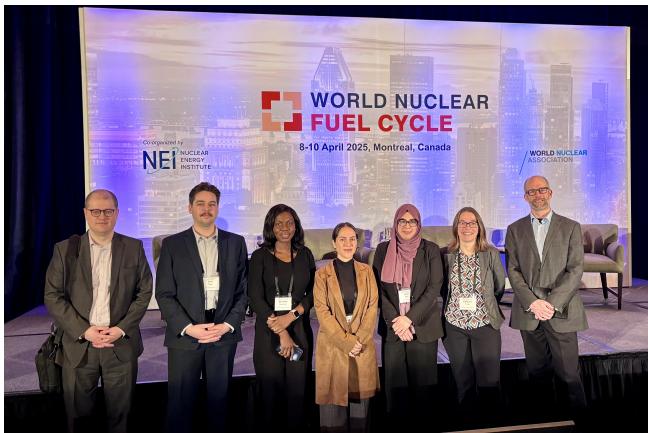
REGULATORY PRIORITIES BRIEFING BOOK



Conexus and its Members maintain the Regulatory Priorities Briefing Book (RPBB) – the industry's central resource for communicating key initiatives aimed at optimizing the Canadian nuclear regulatory framework. The RPBB details industry-led activities addressing critical regulatory topics, outlining specific actions, success criteria, and milestones across the CNSC, relevant federal/provincial bodies, and standards organizations.

Advancing New Nuclear Deployment via the SMR Technology Forum (SMRTF)

Conexus supports members in adopting innovative technologies through the SMRTF. Recognizing the evolving fuel cycle with the introduction of enriched fuels, the SMRTF recently released a report assessing the enriched fuel ecosystem – encompassing supply, regulation (safety, security, safeguards), transportation, and waste management.



Key findings confirm no barriers to utilizing enriched fuel in Canadian commercial reactors. The report further explores opportunities for establishing a domestic enriched fuel supply chain, enhancing national energy security and mitigating risks for future advanced reactor projects – considerations applicable to both large and small-scale plants.

Investing in the Future: Developing Nuclear Leaders

Conexus continued to prioritize the development of the next generation of nuclear professionals in 2025, strengthening the industry's talent pipeline and ensuring long-term success.

Key initiatives included:



Nurturing Future Leaders with NPDS: Two cohorts completed the Nuclear Professional Development Seminar (NPDS), receiving WANO-aligned training in safety culture and operational excellence, gaining valuable insights through site visits, and benefiting from mentorship with experienced industry leaders.

Expanding Learning & Development Reach: Conexus Learning & Development delivered specialized training programs for key partners, including safety culture training for KHN, regulatory affairs training for Canadian members, and collaborative workforce planning initiatives.

Fostering a Culture of Continuous Improvement: Collaboration with WANO London and the delivery of peer group workshops and technical capability programs reinforced a commitment to continuous improvement and supported the development of a highly skilled and engaged workforce.

By investing in the people who will lead the future of nuclear energy, Conexus is ensuring the industry remains safe, reliable, and sustainable for generations to come.

Looking Ahead: Powering a Sustainable Future Through Collaboration

As we close out a year of significant achievement, Conexus is energized by the momentum we've built – and focused on the future.

In 2026, our programs will continue to push the boundaries of innovation, concentrating on key areas like digital and AI-enabled decision support, lifecycle performance optimization, and preparing for new build opportunities.

Crucially, we remain dedicated to cultivating a skilled and dynamic global workforce, empowering the next generation of nuclear leaders.

Conexus is more than just a collaboration hub; we are a collective force, delivering shared strength and enabling our members to solve the complex challenges facing the nuclear industry.

We are committed to supporting our members' success, driving growth, and ensuring the long-term sustainability of a vital industry and energy source for generations to come.



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