

# COG'S TEAM APPROACH

## Forums, Peer Groups & Committees

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CANDU Owners Group Inc.



"Excellence Through Collaboration"

## COG TEAMS

Forums	Peer Groups & Technical Committees	Working Groups & Task Teams
C6 Fleet Forum		C6 Safety Analysis Application TT, C6 Outage Optimization TT
Chief Nuclear Officers Forum	Fuel Handling PG, Radiation Protection PG, Maintenance Managers PG, Training PG, Cyber Security PG, Human Performance PG, Decommissioning PG, Waste PG, Safety Culture & Human and Organizational Factors PG	Supplier Participant WG, Operations Manager WG, Outage Managers WG, Work Management WG <b>Human Performance:</b> Human Performance Metrics TT <b>Maintenance Managers:</b> Fix-It-Now TT <b>Safety Culture &amp; Human and Organizational Factors:</b> Management System TT
Chief Nuclear Engineers Forum	Engineering PG, Asset Management PG, Non Destructive Examination PG, Chemistry Managers PG, Equipment Reliability PG, Nuclear Safety PG	Pressure Boundary WG <b>Equipment Reliability:</b> Single Point of Vulnerability TT, Condition Based Maintenance TT, Equipment Reliability TT <b>Nuclear Safety:</b> Safe Operating Envelope TT, Risk and Reliability TT, Beyond Design Basis Accident Management TT, CANDU Safety Issues TT, Fuel Integrity TT, Safety Analysis Improvement TT
R&D Technology Forum	Chemistry, Materials & Components TC, Fuel Channels TC, Health, Safety & Environment TC, Industry Standard Toolset TC, Safety & Licensing TC, Strategic R&D TC	<b>CM&amp;C:</b> SG Non-Destructive Examination WG; SG Material Integrity WG; Concrete WG; Steels WG; Chemistry WG; Valve WG <b>FC:</b> PT Crack Initiation WG, Deformation WG, Corrosion & Deuterium Ingress WG <b>IST:</b> Physics Codes WG, Containment and Severe Accident Codes WG, Thermalhydraulics Codes WG, Fuel and Fuel Channels WG <b>S&amp;L:</b> Physics WG, Containment and Severe Accident WG, Thermalhydraulics WG, Fuel Normal Operating Conditions WG, Fuel and Fuel Channels WG, Probabilistic Risk Assessment WG <b>Strategic R&amp;D:</b> Reduced Outages WG, Materials Properties WG, Low Dose Impact WG, Climate Change WG, Environmental Monitoring WG, Decommissioning & LT Waste Management WG
Radioactive Waste Leadership Forum		
Refurbishment Forum		
Regulatory Affairs VPs Forum	Regulatory Affairs PG, Emergency Preparedness & Response PG, Nuclear Environmental Affairs PG	<b>Regulatory Affairs:</b> CILLP <b>Nuclear Environmental Affairs:</b> Environmental Management Systems TT, Environmental Impacts TT
Small Modular Reactor Technology Forum		SMR Security TT, SMR Nuclear Liability TT, SMR Fuel Supply TT
Supply Chain, Obsolescence & Procurement Forum	Supply Chain, Obsolescence and Procurement PG	

# Chief Nuclear Officers Forum

## Chief Nuclear Officers Forum

Identifies strategic challenges and opportunities that may influence the nuclear power industry and the regulatory bodies. Enables the industry to develop and share consistent industry licensing positions and pool resources for resolution of issues that are of high strategic or operational impact to the utilities.

### Fuel Handling PG

Identifies and solves generic issues, develops common improvement strategies, and promotes awareness of regulatory issues. Aims to identify areas where common process may be optimized, establish industry sub-committees to address and prioritize generic issues, initiate joint projects for the common benefit of the participants, and work collaboratively to improve safety, efficiency and overall performance.

### Radiation Protection PG

Identifies and addresses generic issues related to radiation protection within CANDU nuclear power plants and related facilities.

### Maintenance Managers PG

Evaluates maintenance- and production-related issues affecting member plants. Enhances the sharing of knowledge, experience and lessons learned among member plants. Raises awareness and develops unified positions and guidance related to maintenance issues. Exchanges information on effective maintenance-related processes that will help improve safety, efficiency and reduce cost.

### Training PG

Evaluates training-related issues affecting member utilities for training authorized nuclear operators and shift managers, and non-authorization training for the major work groups of operators, maintenance and engineering. Promotes awareness of regulatory issues affecting training programs and to develops joint response strategies; helps improve the quality and cost of utility training.

### Cyber Security PG

Ensures consistent implementation of the N290.7 CSA Standard Cyber Security for Nuclear Power Plants and Small Reactor Facilities, across the Canadian utilities.

### Human Performance PG

Identifies and addresses generic issues related to human performance at power plants. Promotes awareness of regulatory issues and develops common response strategies. Ensures valuable experience and lessons learned in the human performance areas are shared.

### Decommissioning PG

The Decommissioning Peer Group was formed with the objective to ensure sharing of knowledge applicable to decommissioning and to exchange technical information.

### Waste Management PG

The Waste Management Peer Group (WMPG) has the objective to evaluate existing capabilities, understand current gaps and explore approaches that can address those gaps. It has a tactical focus on alignment in waste management practices across the sites and continuous improvements to minimize waste volumes.

### Safety Culture and Human & Organizational Factors PG

Collaborates on industry HOF initiatives and educates members about HOF considerations. Shares best practices, and monitoring and assessment practices. Coordinates mutual assistance between member companies and develops common approaches, methodologies, training, etc. for culture assessments. Collaborates on common approaches, methodologies, and training for management system implementation.

### Working Groups and Task Teams

Supplier Participant WG, Operations Manager WG, Outage Managers WG, Work Management WG , Human Performance Metrics TT, Fix-It-Now TT, Management System TT

# Chief Nuclear Engineers Forum

<p><b>Chief Nuclear Engineers Forum</b></p>	<p>Provides a forum for senior management to identify and oversee resolution of issues of high safety and economic importance to the Canadian nuclear industry, in order to align direction, determine common solutions, consolidate positions and pool resources.</p>
<p><i>Engineering PG</i></p>	<p>Provides industry senior management with a forum to identify and address generic issues related to engineering activities at CANDU nuclear power plants. Provides an environment for promoting awareness of regulatory issues and for developing common response strategies.</p>
<p><i>Asset Management PG</i></p>	<p>Provides a forum for development of a common CANDU industry approach to addressing asset management issues. Enables the sharing of OPEX, methodologies and consistent approaches to asset management issues.</p>
<p><i>Nondestructive Examination PG</i></p>	<p>Provides a forum to share experiences, identify improvement initiatives and learn from the best practices of others with respect to NDE training, capability development, and qualification. Manages NDE activities for the purpose of producing effective common procedures and training preparation for qualification.</p>
<p><i>Chemistry Managers PG</i></p>	<p>Provides a forum to improve communication and share OPEX and best practices for chemistry control. Also provides a forum to share new developments and technologies to improve chemistry performance and highlight key results from the COG R&amp;D program. Identifies key issues and takeaways for the CANDU chemistry community and identifies areas for further action.</p>
<p><i>Equipment Reliability PG</i></p>	<p>Provides CANDU station owners with a forum to identify and address generic issues related to plant equipment reliability process implementation. Promotes the exchange of information and development of common strategies to deal with plant equipment reliability issues.</p>
<p><i>Nuclear Safety PG</i></p>	<p>Allows Canadian members to share information on regulatory interactions, strategies and approaches to resolve common issues, and identify safety and licensing issues for industry collaboration. Authorizes industry task teams to establish common approaches, undertake assessments, monitor progress on issue resolution and address barriers, and co-ordinate interaction between the industry and the CNSC.</p>

**Working Groups and Task Teams**

Pressure Boundary WG

**Equipment Reliability:** Single Point of Vulnerability TT, Condition Based Maintenance TT, Equipment Reliability TT

**Nuclear Safety:** Safe Operating Envelope TT, Risk and Reliability TT, Beyond Design Basis Accident Management TT, CANDU Safety Issues TT, Fuel Integrity TT, Safety Analysis Improvement TT

# R&D Technology Forum

## R&D Technology Forum

Acts as the voting members' primary point of contact for all R&D activities. Ensures the members' R&D issues and needs are addressed. Maintains member organizations' contacts for operations and maintenance, safety and licensing, engineering, and supply chain.

### *Chemistry, Materials & Components TC*

Oversees the CM&C program, which addresses a diverse range of CANDU reactor operating and maintenance issues, with its main focus on the major CANDU systems and their auxiliaries, such as the primary heat transport system, steam generators, emergency core cooling and containment.

### *Fuel Channels TC*

Oversees the FC program, which addresses the current operation need to improve confidence in the fitness-for-service of CANDU pressure tubes and develop industry standards for pressure tube integrity. The program also focuses on susceptibility of pressure tubes to delayed hydride crack initiation at flaws and improved understanding of deuterium ingress, pressure tube deformation and mitigation of hydride blister formation.

### *Health, Safety & Environment TC*

Oversees the HS&E program, which addresses issues related to radiation monitoring and dosimetry, including the establishment of the risks of radiation exposure. Ensures compliance with the dosimetry requirements defined in CNSC Consultative Document C-115. Addresses regulatory aspects of ecological impact, emission reduction and techniques for monitoring emissions and the environment.

### *Industry Standard Toolset TC*

Oversees the IST program, which validates, develops and maintains different computer codes used for design, safety analysis and operational support of CANDU reactors, as well as providing baseline support of IST codes.

### *Safety & Licensing TC*

Oversees the S&L program, which addresses issues relating to the safety design basis and safe operating envelope of CANDU power reactors, with focus on supporting the resolution of outstanding CNSC Generic Action Items, safety assessments of new plant designs, assistance in the maintenance of core capabilities, scientific expertise, and R&D infrastructure to support long-term safe operation of CANDU power reactors.

### *Strategic R&D TC*

Oversees the SRD program, which aligns with and supports federal initiatives, and invokes collaboration between industry, government and academia. The program also develops the technologies and other solutions needed for the current and refurbished fleet of CANDU reactors to keep units operating safely, reliably and competitively for an extended plant life.

## *Working Groups*

**CM&C:** SG Non-Destructive Examination WG; SG Material Integrity WG; Concrete WG; Steels WG; Chemistry WG; Valve WG

**FC:** PT Crack Initiation WG, Deformation WG, Corrosion & Deuterium Ingress WG

**IST:** Physics Codes WG, Containment and Severe Accident Codes WG, Thermalhydraulics Codes WG, Fuel and Fuel Channels WG

**S&L:** Physics WG, Containment and Severe Accident WG, Thermalhydraulics WG, Fuel Normal Operating Conditions WG, Fuel and Fuel Channels WG, Probabilistic Risk Assessment WG

**Strategic R&D:** Reduced Outages WG, Materials Properties WG, Low Dose Impact WG, Climate Change WG, Environmental Monitoring WG, Decommissioning & LT Waste Management WG

## Regulatory Affairs VPs Forum

### Regulatory Affairs VPs Forum

Discusses regulatory issues and provides strategic direction to the regulatory affairs, emergency preparedness and response and nuclear environmental affairs peer groups.

#### *Regulatory Affairs PG*

Provides a forum to share regulatory affairs issues, create working groups to resolve license issues, and co-ordinate regulatory assessments. Co-ordinates work between the industry and regulator to discuss, resolve and develop criteria for regulatory issues. Provides training workshops.

#### *Emergency Preparedness and Response PG*

Provides a forum to discuss common areas related to planning, exercises, alignment of regulatory responses, review of governance and processes.

#### *Nuclear Environmental Affairs PG*

Allows for the exchange of information about process issues and regulatory and government interactions and strategies. Authorizes task teams to address common issues and approves and monitors joint initiatives and issue resolution plans. Communications with NEAC sponsors, regulators and other industry organizations.

#### *Working Groups and Task Teams*

**Regulatory Affairs:** CILLP

**Nuclear Environmental Affairs:** Environmental Management Systems TT, Environmental Impacts TT

## Supply Chain, Obsolescence & Procurement Forum

### Supply Chain, Obsolescence & Procurement Forum

Provides oversight and control over ongoing work and develops a framework to facilitate better collaboration to mitigate and resolve common high-risk procurement and obsolescence issues. Supports members in moving towards more proactive and planned approaches in addressing identified procurement and obsolescence issues.

#### *Supply Chain, Obsolescence & Procurement PG*

Allows for the sharing of OPEX and issues in the area of obsolescence and supply chain. Reduces risks associated with obtaining parts that can impact station safety and lowers supply chain costs through collaboration and shared resources.

## Other COG Leadership Forums

### C6 Fleet Forum

Facilitates and supports relationships of the C6 fleet and allows for the exchange of information between fleet members. Allows fleet members to work together to anticipate and resolve common problems to yield significant commercial benefits, cost savings, improved reliability and synergy.

#### *Task Teams*

C6 Safety Analysis Application TT, C6 Outage Optimization TT

### Radioactive Waste Leadership Forum

Identifies strategies and solutions for management of the waste streams from nuclear power generating stations as well as medical and laboratory facilities with due considerations for worker and public safety, protection of the environment and cost effectiveness.

### Refurbishment Forum

Provides a forum for sharing knowledge, experience, procedures and lessons learned to improve the effectiveness and efficiency of all refurbishment activities. Identifies and prioritizes refurbishment issues, best practices, areas of strength for review and analysis. Works with the utilities and the industry to develop innovative solutions leading to schedule, dose and cost savings.

### Small Modular Reactor Technology Forum

Identifies key issues and establishes technical positions and requirements supporting the development of harmonized policies, including technical positions concerning the regulatory framework, fuel cycle, siting and supply chain of SMRs, for both on-grid and off-grid applications.

#### *Task Teams*

SMR Security TT, SMR Nuclear Liability TT, SMR Fuel Supply TT